RICHARD T. BISSEN, JR.
Mayor

JACKY TAKAKURA
Acting Director

ANA LILLIS
Deputy Director



DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAI'I 96793

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LAND USE COMMISSION

Exhibit 7

BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAIʻI

In the matter of the applications of:

HAWAIIAN CEMENT (PUʻUNĒNĒ)

Requesting an amendment to State Land Use Commission Special Permit No. SP 92-380 and County of Maui Special Use Permit No. CUP20060002 in order to relocate the existing Puʻunēnē quarry from a portion of Parcel 001 to a different portion on the same parcel, located on lands in the State and County Agricultural Districts, east of the intersection of Maui Veterans Highway and Kamaʻāina Road, Puʻunēnē, Maui, Hawaiʻi, TMK (2) 3-8-004:001 (por.).

DOCKET NO. SP 92-380
DOCKET NO. CUP20060002
DOCKET NO. SUP1910013

MUNEKIYO HIRAGA on behalf of HAWAIIAN CEMENT

(B. Gonsalves)

DEPARTMENT OF PLANNING
REPORT AND RECOMMENDATION
NOVEMBER 25, 2025, MEETING

DEPARTMENT OF PLANNING
COUNTY OF MAUI
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAIʻI 96793

BEFORE THE MAUI PLANNING COMMISSION

COUNTY OF MAUI

STATE OF HAWAIʻI

In the matter of the applications of: **HAWAIIAN CEMENT (PUʻUNĒNĒ)** Requesting an amendment to State Land Use Commission Special Permit No. SP 92-380 and County of Maui Special Use Permit No. CUP20060002 in order to relocate the existing Puʻunēnē quarry from a portion of Parcel 001 to a different portion on the same parcel, located on lands in the State and County Agricultural Districts, east of the intersection of Maui Veterans Highway and Kamaʻāina Road, Puʻunēnē, Maui, Hawaiʻi, TMK (2) 3-8-004:001 (por.).	DOCKET NO. SP 92-380 DOCKET NO. CUP20060002 DOCKET NO. SUP1910013 **MUNEKIYO HIRAGA on behalf of HAWAIIAN CEMENT** (B. Gonsalves)

DESCRIPTION OF THE PROJECT AND PROPOSED ACTION

Munekiyo Hiraga on behalf of Hawaiian Cement (Applicant) requests an amendment to an existing County Special Use Permit (CUP20060002) and is submitting supplemental information related to a pending State Land Use Commission (SLUC) Special Permit amendment request (SP 92-380) (SUP1910013) to relocate the existing Puʻunēnē quarry from a portion of Tax Map Key (TMK) (2) 3-8-004:001 to a different portion on the same parcel. The location of the project site is illustrated by the regional and project location maps shown in **Exhibit 1.** Please note that SP 92-380 and SUP1910013 refer to the same SLUC Special Permit. SP 92-380 is the SLUC naming convention, while SUP1910013 is the County's reference permit number.

Hawaiian Cement is permitted to operate an approximately 224-acre quarry and rock-crushing operation at its Puʻunēnē facility, which encompasses three TMK parcels. The quarrying activity takes place within the parcel identified by TMK No. (2) 3-8-004:001 (por.) (Existing Quarry Area), and the processing and crushing facility is located on the parcel identified as TMK (2) 3-8-008:031 (por.) (Processing Facility) and accessed via the parcel identified as TMK (2) 3-8-008:001.

The proposed new 125-acre quarry area (Supplemental Quarry Area) is located directly

to the north of the Existing Quarry Area on a different portion of TMK (2) 3-8-004:001, owned by MP Central A, LLC (Mahi Pono). See photographs of the existing and proposed sites in **Exhibit 2**.

REASON FOR MAUI PLANNING COMMISSION REVIEW

In accordance with Maui County Code (MCC) Section 19.30A.060 and Hawai‘i Revised Statutes (HRS) Chapter 205, a County Special Use Permit is required for mining and resource extraction in the Agricultural District, and a State Special Use Permit from the SLUC is required if the land area in the Agricultural District is greater than 15 acres or is located on lands designated as Important Agricultural Lands (IAL).

The Maui Planning Commission (Commission) conducts a noticed public hearing in accordance with MCC Section 19.510.020, acts as the decision-making authority for County Special Use Permits, and provides a recommendation on State Special Permits to the SLUC.

PURPOSE OF PROPOSED ACTION

AB Maui Quarries LLC recently purchased the entirety of the Existing Quarry Area from Alexander and Baldwin (A&B). The new landowner will honor the Applicant’s lease through January 2027, after which Hawaiian Cement will lose access to the Existing Quarry Area. The Processing Facility (TMK (2) 3-8-008:031) is held by the Applicant under a lease from the State of Hawai‘i through 2038.

In light of the January 2027 lease termination for the current quarry area, Hawaiian Cement proposes to relocate the permitted quarry area under SP 92-380 and CUP20060002. If approved, all current quarrying lands on TMK (2) 3-8-004:001 will be removed from consideration, and a 125-acre Supplemental Quarry Area would be added (see **Exhibit 3**). The proposed Supplemental Quarry Area lies directly to the north of the Existing Quarry Area on a different portion of TMK (2) 3-8-004:001, owned by MP Central A, LLC (Mahi Pono). The proposed amendment changes only the location of the quarry area, and no changes to quarrying activities or operations are proposed. No change is proposed to the Processing Facility on TMK (2) 3-8-008:031.

The proposed Supplemental Quarry Area is subject to a purchase and sale agreement between Mahi Pono and Hawaiian Cement. Under the agreement, Hawaiian Cement has purchased 55 of the 125 acres as of submission of their application and will purchase the remaining 70 acres upon approval of the SP and CUP amendments. (see **Exhibit 4**, condominium property regime declaration and map). The new site was selected for its adjacency to the processing facility and its ample supply of rock resources. By amending the existing permitted area, Hawaiian Cement can continue production of cement without interruption, despite the lease termination.

The Supplemental Quarry Area will be mined incrementally, with a maximum area of 30

acres being active at any time. Upon completion of quarrying activities within each 30-acre area, the land will be made available for agricultural use. In the Existing Quarry Area, soil that was in place before mining occurred will be put back in place over the quarry floor with a depth of at least 24 inches in accordance with the lease agreement. (see **Exhibit 5**).

Relocating to the Supplemental Quarry Area will allow Hawaiian Cement to continue producing materials without interruption, despite termination of its lease to the current quarry area. Aggregate and concrete are essential building materials needed for post-August 2023 wildfire rebuilding infrastructure projects, and other construction-related efforts, including road repaving and affordable housing.

Mahi Pono intends to continue cultivating orchard crops at the 125-acre area of TMK (2) 3-8-004:001 upon completion of quarrying operations. (see **Exhibit 6**). The expected operational lifespan of the Supplemental Quarry Area is approximately 20 years.

DESCRIPTION OF THE PROPERTY

The project area is an approximately 125-acre portion of the larger 3,085-acre parcel identified as TMK (2) 3-8-004:001, in Puʻunēnē, Maui, Hawaiʻi. The parcel has been condominiumized, but the portion proposed for the Supplemental Quarry Area is owned by MP Central A, LLC (Mahi Pono). The proposed expansion is located approximately two miles east of Maui Veterans Highway, adjacent to the Pūlehunui Industrial Park and Maui Raceway Park. The Land Use Designation Form and zoning maps for the project site are provided in **Exhibit 7**.

Land Use Designations

State Land Use District:	Agriculture
Maui Island Plan:	Outside Growth Boundaries Outside Protected Areas
Kihei-Makena Community Plan:	Agriculture
County Zoning:	Agricultural District

Surrounding Uses

North:	Agricultural Land (former sugar cane land, portions in active use by Mahi Pono)
East:	Agricultural Land (former sugar cane land, portions in active use by Mahi Pono)

South: Existing Hawaiian Cement Puʻunēnē Quarry areas (178 acres)

West: Existing Hawaiian Cement Puʻunēnē Quarry Processing Facility (46 acres), Pūlehunui Industrial Park, Maui Raceway Park, Maui Veterans Highway

The proposed Supplemental Quarry Area is presently occupied by a lime orchard cultivated by Mahi Pono.

The property lies outside the Special Management Area and tsunami evacuation zones. Portions of the parcel are located in Flood Zones X and A, however, the project area is solely in Flood Zone X (areas of minimal flood hazard), as shown in **Exhibit 8**.

PERMIT HISTORY

State Special Use Permit (SP 92-380) (SUP1910013)

The Hawaiian Cement Puʻunēnē Quarry has operated since 1992 in conjunction with a concrete and aggregate operation. Earlier cement and base-course operations existed on the processing-facility site since the 1980s under previous operators. In July 1992, Hawaiian Cement received approval from the SLUC for SP 92-380 to establish a rock quarry and concrete-aggregate operation on approximately 45.957 acres in Puʻunēnē (see **Exhibit 9**). The original site, now occupied by the Processing Facility, is identified as TMK (2) 3-8-008:031 (por.).

In November 1996, the SLUC granted a first amendment to SP 92-380, adding approximately 60 acres to the original site, increasing the total permitted area to 106 acres (see **Exhibit 10**). This expansion area, located on TMK (2) 3-8-004:001 (por.), has since been quarried and remediated for return to agricultural production in accordance with the Applicant's lease agreement with A&B, the former landowner.

In December 2006, the SLUC approved a second amendment to SP 92-380 to permit an additional 66.444 acres of land for rock quarry and processing operations. The additional area comprised two distinct sections, a 24.476-acre portion and a 41.968-acre portion, within TMK (2) 3-8-004:001 (see **Exhibit 11**). The Applicant has completed quarrying within the 24-acre portion and remediated the land for return to agricultural production. Kolaloa Gulch separates the 44-acre portion, which is not currently being quarried.

In December 2014, the SLUC approved a third amendment to SP 92-380 to permit two additional areas of 9.697 and 41.968 acres, respectively, on portions of TMK (2) 3-8-004:001 for rock quarry operations (see **Exhibit 12**). The Applicant has completed quarrying in the 10-acre portion and is currently quarrying the 42-acre portion. As mentioned previously, areas where quarrying is complete have been remediated for return to agricultural production.

In 2021, the Applicant submitted a fourth amendment application to add further acreage within TMK (2) 3-8-004:001 to SP 92-380 for quarry purposes. Before SLUC review, the quarry area was purchased by AB Maui Quarries LLC. Considering the termination of its lease to the quarry area, the Applicant proposes to relocate the permitted quarry area within TMK (2) 3-8-004:001. The Applicant met with staff from the SLUC, State Department of Agriculture, State Office of Planning and Sustainable Development, the Mayor's Office, and Department of Planning (Department), to discuss concerns related to the ability to provide a continual reliable supply of construction aggregates on Maui. Following these discussions, it was determined that Hawaiian Cement could replace the February 2021 SP 92-380 amendment request with the present request to add the Supplemental Quarry Area and remove all prior approved quarry areas on TMK (2) 3-8-004:001, effective January 31, 2027 (see **Exhibit 13** letter of submission of supplemental materials).

County Special Use Permit (CUP20060002)

In 1998, the County amended the Agricultural District Zoning Ordinance to require a County Special Use Permit (CUP) for any special uses proposed in an area larger than 15 acres. Existing operations with a valid SP were allowed to continue until their permit expirations, after which applications were required to obtain both a CUP and SP for proposed areas over 15 acres.

In June 2006, as provided in the Agricultural District Zoning Ordinance enacted in 1998, the Commission approved CUP20060002, authorizing the use of the lands identified in the second SP amendment for rock quarry and concrete aggregate purposes (see **Exhibit 14**).

In June 2014, the Applicant sought to amend the CUP boundary consistent with the third SP amendment. The Commission approved the Hawaiian Cement amendments and extensions for the CUP in conjunction with the SP (see **Exhibit 15**).

In May 2022, while the fourth SP amendment and second CUP amendment were under review, the MPC approved an amendment to CUP20060002 allowing additional quarry areas within TMK (2) 3-8-004:001 (see **Exhibit 16**). Before final SLUC action on the fourth SP amendment could occur, the quarry lands were sold. As such, the present request to add the Supplemental Quarry Area is submitted as a new, third amendment to CUP20060002. By contrast, the current request to amend SP 92-380 is submitted as supplemental information to the pending fourth amendment, rather than as a new fifth amendment.

PROCEDURAL MATTERS

1. On **June 27, 2025,** the applications were filed with the Department along with attachments.

2. On **October 7, 2025,** a Notice of Application was mailed to all owners and recorded lessees within 500 feet of the subject property informing them of the filing of the CUP amendment. Copies of the notice, location map, list of owners and recorded lessees, and a notarized affidavit of mailing are included as **Exhibit 17.**

3. On **October 7, 2025**, the Department sent a notice to the Applicant notifying them of the scheduled public hearing.

4. On **October 17, 2025,** a Notice of Public Hearing and location maps were mailed to all owners and recorded lessees within 500 feet of the subject property describing the applications and notifying them of the scheduled public hearing date, time, and place. Copies of the letter, location map, list of owners and recorded lessees, and a notarized affidavit of the mailing are on file in the Department.

5. On **October 20, October 27, and November 3, 2025,** the Notice of Hearing on the Application was published in the Honolulu Star Advertiser by the Applicant as required by MCC, section 19.510.020.

6. On **October 23, 2025,** the Department published a public hearing notice in the Maui News, and on **October 24, 2025,** the Department published a public hearing notice in the Honolulu Star Advertiser, pursuant to MCC, section 19.510.020.

REVIEWING AGENCIES

County Agencies:	**Comment**	**Exhibit Number**
Department of Fire and Public Safety	Yes (no comment)	18
Applicant Response		18a
Department of Public Works	No	
Department of Water Supply	Yes	19
Applicant Response		19a
Department of Environmental Management	No	
Department of Parks and Recreation	Yes (no comment)	
Applicant Response		
Police Department	No	
State Agencies:	**Comment**	**Exhibit Number**
Department of Health	Yes (standard comments only)	20
Applicant Response		20a

Department of Transportation	Yes	21
Applicant Response		21a
Department of Land and Natural Resources	No	
Department of Agriculture	Yes	22
Applicant Response		22a
Office of Planning and Sustainable Development	Yes	23
Applicant Response		23a
Federal Agencies:	**Comment**	**Exhibit Number**
Federal Aviation Administration	No	
US Fish & Wildlife Service	No	
Other:	**Comment**	**Exhibit Number**
Office of Hawaiian Affairs	Yes	24
Applicant Response		24a
Na Kupuna O Lahaina	No	
Aha Moku	No	

APPLICABLE REGULATIONS

STATE LAND USE COMMISSION SPECIAL PERMIT

Pursuant to Section 15-15-95, Hawai‘i Administrative Rules (HAR), certain “unusual and reasonable” uses may be permitted within the State Agricultural District. The proposed project is consistent with these guidelines, as summarized below:

1. *The use shall not be contrary to the objectives sought to be accomplished by Chapters 205 and 205A, Hawai‘i Revised Statutes (HRS), and the rules of the Commission.*

   RESPONSE: The purpose of HRS, Chapter 205 is to preserve, protect, and encourage the development of lands in the State for those uses to which these lands are best suited in the interest of public health and welfare of Hawai‘i's people. The request to allow the unusual use of quarrying on the project site provides a local source of aggregate and base course products. The proposed project will provide a local source for materials that are essential to post August 2023 Wildfire rebuilding, infrastructure projects, and sustaining the local construction industry. The use of the property for quarrying and related operations is important to the interests of the island’s residents.

   The proposed unusual use is well suited to the proposed site despite not being

directly related to agricultural use. Quarrying requires a source of rock material as well as open, relatively flat land, which are both characteristics of the Supplemental Quarry Area. The site contains subgrade stone resources anticipated to support quarry operations for approximately 20 years, making it an appropriate location. No alternative site identified contains sufficient subgrade stone resources to support quarrying operations. Following the completion of rock removal, the Supplemental Quarry Area will be restored and made available for agricultural use. When combined with the expected public benefit of locally sourced construction materials, these factors demonstrate substantial compliance with Chapter 205. The proposed use is also not contrary to the objectives and policies of HRS Chapter 205A as the site is outside of the Special Management Area, not within a flood hazard zone, and the Applicant will implement drainage improvements and BMPs to ensure that stormwater runoff does not impact downstream properties.

2. *The desired use would not adversely affect surrounding property.*

RESPONSE: The proposed use will not adversely affect the surrounding properties, which consist of the Existing Quarry Area and agricultural lands owned by MP Central A, LLC. With the implementation of the proposed drainage improvements and other BMPs, the quarry activity is not anticipated to contribute runoff or pollutants that could affect downstream agricultural uses or industrial uses. Further, while there may be some impacts related to air quality and noise during the quarrying operations, implementation of BMPs, the area's relative isolation, and lack of sensitive surrounding land uses adjacent to the Supplemental Quarry Area will ensure that adverse effects are minimized.

3. *The use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage and school improvements, and police and fire protection.*

RESPONSE: As with the existing quarry, access to the proposed Supplemental Quarry Area will be provided by Kamaʻāina Road. The Applicant plans to access the proposed site via a new entrance from the Processing Facility. While a portion of the access point will be located within the State-owned parcel containing the Processing Facility, the Applicant will provide the funding and maintenance for this element of the proposed project, so no additional burden will be placed on the State or County. An alternative access point is also located on the site, which may be used as necessary. The proposed action will not increase population or employment in the area, nor will it require County water, wastewater service, police or fire protection beyond current levels. Accordingly, the project will have minimal impact on public services.

4. *Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established.*

RESPONSE: In 2021, the Applicant applied to amend its existing SUP and CUP for the Puʻunēnē Quarry. During review, the property was sold, and the new owner informed Hawaiian Cement that its lease would terminate in January 2027. To maintain an uninterrupted aggregate supply, the Applicant identified a new quarry site north of the Existing Quarry Area. Additionally, the rebuilding demand following the August 2023 Maui Wildfires has created an urgent need for reconstruction of homes, commercial buildings, and infrastructure. Relocation to the Supplemental Quarry Area will ensure the continued, reliable supply of essential building materials for Maui.

5. *The land upon which the proposed use is sought is unsuited for the uses permitted within the district.*

RESPONSE: The Supplemental Quarry Area is surrounded to the southeast, south, and southwest by the active Hawaiian Cement quarrying operations. At 125 acres, the Supplemental Quarry Area represents only a small portion of Mahi Pono's usable agricultural land. The site contains stone deposits for approximately 20 years of quarry operations, rendering it ideal for the proposed use. Additionally, the Applicant will return the land to agricultural use upon completion of quarrying activities, consistent with the landowner's long-term agricultural objectives. The quarry operation is temporary and will allow for the land to continue to be used for agricultural operations.

IMPORTANT AGRICULTURAL LANDS (IAL)

In accordance with HRS, Chapter 205-6(c), *"The county planning commission may, under such protective restrictions as may be deemed necessary, permit the desired use, but only when the use would promote the effectiveness and objectives of this chapter; provided that a use proposed for designated important agricultural lands shall not conflict with any part of this chapter. A decision in favor of the applicant shall require a majority vote of the total membership of the county planning commission."*

RESPONSE: The Supplemental Quarry Area is located within one of the designated IAL areas as shown in **Exhibit 25**. The Land Study Bureau classifies the agricultural productivity of Hawaiʻi's soils with a rating of "A" through "E", with "A" reflecting lands with the highest productivity and "E" the lowest. The soil underlying the project site is characterized by productivity ratings of "A", "B", and "E" (**Exhibit 26**). The proposed quarry site is currently being used as a citrus orchard by MPL. An application to amend SP 92-380 was reviewed in the context of Section 205-6, HRS, Special Permits. The approximately 125 acres of IAL is under consideration in the application to amend SP 92-380 and will require approval by the SLUC.

In accordance with Section 205-41, HRS, it is a declaration of policy that the people of Hawai‘i have substantial interest to achieve the following:

1. *Conserving and protecting agricultural lands.*

2. *Promoting diversified agriculture.*

3. *Increasing agricultural self-sufficiency.*

4. *Assuring the availability of agriculturally suitable lands.*

RESPONSE: The Applicant proposes to quarry the site incrementally, approximately 30 acres of land at a time. The land will be available for agricultural use following the completion of the quarry operations, as soil that was in place before mining occurred will be replaced over the quarry floor with a depth of at least 24 inches.

Pursuant to Section 205-43, HRS, state and county agricultural policies, tax policies, land use plans, ordinances, and rules shall promote the long-term viability of agricultural use of important agricultural lands and shall be consistent with and implement the following policies:

(1) *Promote the retention of important agricultural lands in blocks of contiguous, intact, and functional land units large enough to allow flexibility in agricultural production and management.*

(2) *Discourage the fragmentation of important agricultural lands and the conversion of these lands to nonagricultural uses.*

(3) *Direct nonagricultural uses and activities from important agricultural lands to other areas and ensure that uses on important agricultural lands are actually agricultural uses.*

(4) *Limit physical improvements on important agricultural lands to maintain affordability of these lands for agricultural purposes.*

(5) *Provide a basic level of infrastructure and services on important agricultural lands limited to the minimum necessary to support agricultural uses and activities.*

(6) *Facilitate the long-term dedication of important agricultural lands for future agricultural use through the use of incentives.*

(7) *Facilitate the access of farmers to important agricultural lands for long-term viable agricultural use.*

(8) Promote the maintenance of essential agricultural infrastructure systems, including irrigation systems.

RESPONSE: The Applicant will incrementally remove the existing soil, mine the area, and return the soil that was in place before mining occurred over the quarry floor. Upon completion of the quarry operations, the Applicant will restore the land for agricultural use. It is also noted that the SP amendment request would remove approximately 178 acres of land from the SP which were previously permitted for quarry use. The lands removed from the SP will be available for agricultural use. There are no proposed structures and Mahi Pono intends to farm the land again upon completion of quarrying operations.

COUNTY SPECIAL USE PERMIT

MCC Section 19.30A.060 designates mining and resource extraction as a Special Use in the Agricultural District. As such, the proposed relocation of the quarry requires a CUP. In accordance with MCC, section 19.510.070, a CUP shall comply with the criteria established for a permit and the policies and objectives of the General Plan and Community Plans of the County, the HRS, and the Revised Charter of the County, as amended (1983) (Charter).

Accordingly, the application for a CUP is reviewed under MCC section 19.510.070, which sets forth the following standards the Commission must apply:

(1) The proposed request meets the intent of the General Plan and the objectives and policies of the applicable community plan of the County.

RESPONSE: The proposed project is consistent with the goals outlined in the Countywide Policy Plan and Maui Island Plan related to strengthening Maui's economy by virtue of providing essential building materials locally. This service is especially important in the context of rebuilding efforts and maintaining public infrastructure that uses cement. The proposed project does not contravene objectives related to protecting the natural environment and cultural and historic resources.

(2) The proposed request is consistent with the applicable community plan land use map of the County.

RESPONSE: The proposed project site is designated as agricultural land by the Kihei-Makena Community Plan. Quarrying is allowed as a special use on agricultural land, and is a temporary use in which the land will be restored to agricultual use after quarrying. Therefore, the proposed project aligns with applicable goals and objectives of the Community Plan.

(3) The proposed request meets the intent and purpose of the applicable district.

RESPONSE: The proposed project meets the intent and purpose of the State Agriculture district, pursuant to HRS Chapter 205. The proposed project also does not contradict the goals and objectives of the Maui County General Plan. The quarry use has been determined to be an appropriate use of the subject lands given the importance of the resources it will produce, particularly in the context of rebuilding efforts, location of the site adjacent to the established Processing Facility, and the ideal supply of rock resources on the site. Quarrying is also a temporary use of land and the site will be returned to normal agricultural use upon completion of mining materials.

(4) The proposed development will not adversely affect or interfere with public or private schools, parks, playgrounds, water systems, sewage and solid waste disposal, drainage, roadway and transportation systems, or other public requirements, conveniences, and improvements.

RESPONSE: The proposed Supplemental Quarry Area is surrounded by agricultural and industrial uses. No parks, schools, or playgrounds are located nearby. There is no adverse effect anticipated on the nearby Maui Raceway Park. Water and wastewater services are handled by the Applicant through private services. Wastewater is handled through portable toilets, and potable water is provided through bottled water vendors. The existing Processing Facility is equipped with a well for non-potable water, which is used in concrete production, dust control, and cleaning of equipment.

In active quarry areas, runoff volume and velocity will increase due to removal of soil. These effects will be mitigated through construction of retention ponds designed to contain the entire volume of additional runoff. Retention ponds will also assist with preventing sedimentation from traveling offsite.

As the Supplemental Quarry Area is located adjacent to the existing site, no new roadway improvements are anticipated to be needed. Traffic impacts from the proposed project are likewise expected to be minimal since employment at the site will not change. Therefore, no adverse effects from the proposed project is anticipated.

(5) The proposed development will not adversely impact the social, cultural, economic, environmental, and ecological character and quality of the area.

RESPONSE: No adverse effects are expected socially, culturally, economically, environmentally, ecologically or on the character of the area. The quarry use is

already well-established in the surrounding area, and the relocation to the Supplemental Quarry Area will not result in job creation or loss because operations and staffing levels will remain consistent. Economically, the proposed project will continue to support Hawaiian Cement and Maui's local construction industry by supplying essential building materials locally without reliance on costly imported sources.

The Archaeological Inventory Survey (AIS) for the Supplemental Quarry completed fieldwork yielded no significant archaeological findings (**Exhibit 27**). Also, the Cultural Impact Assessment (CIA) prepared for the proposed project did not identify any cultural practices that would be adversely affected by the proposed use (**Exhibit 28**).

(6) That the public shall be protected from the deleterious effects of the proposed use.

RESPONSE: Potential deleterious effects of the proposed project include increased runoff, sedimentation, and fugitive dust related to the quarrying use. However, these effects will be mitigated with drainage improvements and other BMPs. No adverse effects are expected with regard to public services, infrastructure, or the environment.

(7) That the need for public service demands created by the proposed use shall be fulfilled.

RESPONSE: The proposed project is not expected to create any additional public service demands. Water and wastewater services will continue to be handled privately by the Applicant, ensuring that no additional strain is placed upon County systems. Also, the quarry use is currently active on the adjacent existing site, so additional fire and public safety service needs are not anticipated.

(8) If the use is located in the State Agricultural and Rural District, the Commission shall review whether the use complies with the guidelines established in Section 15-15-95, HAR.

RESPONSE: This application has been prepared in accordance with HAR Section 15-15-95, and the Applicant will comply with conditions set forth by the Commission regarding the proposed quarry use.

ANALYSIS

LAND USE

Hawai‘i State Planning Act (Hawai‘i Revised Statutes Chapter 226)

The Hawai‘i State Planning Act establishes statewide objectives and policies for socio-cultural advancement, preservation of cultural/historic resources, provision of public facilities, and sound land-use management.

ANALYSIS: The proposed project is consistent with the goals, objectives and policies of the Hawai‘i State Plan. It continues to provide opportunities for employment and stimulates direct economic growth countywide and indirect statewide.

State Land Use Law (HRS Chapter 205); State Land Use District

The subject property lies within the Agricultural District, where uses are established by County zoning and ordinances.

ANALYSIS: No State district boundary amendment is required. The project site lies entirely within the State Agricultural District. The request involves relocation of an existing permitted quarry use within the same parcel and no expansion into other State Land Use Districts.

COUNTYWIDE POLICY PLAN (CWPP)

The CWPP provides countywide goals, objectives, and policies. Applicable themes include:

OBJECTIVE: *Improve land use management and implement a directed-growth strategy.*

Policy 1.j. Enable existing and future communities to be self-sufficient through sustainable land use planning and management practices.

ANALYSIS: The proposed project supports this objective and policy by providing aggregate and concrete that are in-demand and essential building materials, particularly considering rebuilding efforts after the August 2023 Maui Wildfires, and other construction related efforts such as road repaving and affordable housing. It continues to provide opportunities for employment and stimulates direct economic growth countywide. Additionally, the Applicant intends to return the land to agricultural use following the completion of quarrying activities. Therefore, the quarry operation is temporary and will allow for the land to continue in agricultural use.

OBJECTIVE: *Improve planning for and management of agricultural lands and rural areas.*

Policy 2.a. Protect prime, productive, and potentially productive agricultural lands to maintain the islands' agricultural and rural identities and economies.

ANALYSIS: The Supplemental Quarry Area is partially located in Prime lands but is not unique among Maui's Important Agricultural Lands or Prime ALISH Lands, and it constitutes only a small portion of such lands. More generally, the total land area actively used for crops and grazing on Maui was approximately 123,000 acres in 2020. This constituted roughly 53 percent of the total State Agricultural district lands on Maui, leaving approximately 111,000 acres of State Agricultural land unused as of 2020.

The proposed quarry site thus constitutes approximately 0.1 percent of available agricultural land on Maui. Likewise, at 125 acres, the Supplemental Quarry Area represents only a small portion of Mahi Pono's usable agricultural land.

In addition, the use of the property for quarrying and related operations is considered important to the welfare interests of the island's residents. The production of aggregate and construction materials is essential for the recovery of the August 2023 Maui wildfires, expansion of infrastructure, and housing.

Although quarry operations are not permitted outright on agricultural lands, the proposed project meets the intent and purpose of the State Agricultural District, pursuant to HRS Chapter 205, and is in alignment with the goals and objectives of the Community Plan.

Policy 2.c. Discourage developing or subdividing agriculturally designated lands when non-agricultural activities would be primary uses.

ANALYSIS: Quarrying is considered a temporary use, and the lands are intended to be restored back to agricultural use after quarrying operations have been completed.

MAUI ISLAND PLAN (MIP)

OBJECTIVE: *Increase activities that support principles of sustainability.*

Policies: 4.1.2.a Support industries that are sustainable, and culturally and environmentally sensitive.

4.1.2.b Encourage and support local businesses.

4.1.2.c Substitute imports with locally produced services and products where practicable.

4.1.2.e Encourage all businesses to save energy, water, and other resources.

ANALYSIS: The proposed project will provide a local source for materials that are essential to sustaining the local construction industry. These materials are especially important in the context of the rebuilding efforts which entail reconstruction of single-family homes, small businesses, and damaged infrastructure systems. In addition, the continued existence of the Applicant's quarry will provide local jobs and keep the production of construction material and aggregate local. Water and wastewater services

are handled by the Applicant through private services. Wastewater is taken care of with portable toilets, and potable water is provided through bottled water vendors. The existing Processing Facility is equipped with a well for non-potable water, which is used in concrete production, dust control, and cleaning equipment.

OBJECTIVE: *7.1.1 Significantly reduce the loss of productive agricultural lands.*

Policy 7.1.1.j Require all major developments adjacent to agricultural lands to provide an appropriate and site-specific agricultural protection buffer as part of a required site plan.

ANALYSIS: The proposed Supplemental Quarry Area was selected due to its adjacency to the existing Processing Facility and its ample supply of rock resources. Quarrying operations have existed in a lower portion of this same parcel that is now owned by a different company that will be terminating their lease with Hawaiian Cement by January 2027. The proposed project is not a major development, and quarrying is considered a temporary use of land, and the land will be restored for agricultural use upon completion of quarrying operations.

KIHEI-MAKENA COMMUNITY PLAN

The following outline includes goals and policies from the Kihei-Makena Community Plan for consideration:

LAND USE

Goal: A well-planned community with land use and development patterns designed to achieve the efficient and timely provision of infrastructural and community needs while preserving and enhancing the unique character of Ma‘alaea, Kihei, Wailea and Makena as well as the region’s natural environment, marine resources and traditional shoreline uses.

Policy k. Provide for limited expansion of light industrial services in the area south of Ohukai and mauka of Pi‘ilani Highway, as well as limited marine-based industrial services in areas next to Ma‘alaea Harbor. Provide for moderate expansion of light industrial use in the Central Maui Baseyard, along Mokulele Highway. These areas should limit retail business or commercial activities to the extent that they are accessory or provide service to the predominate light industrial use. These actions will place industrial use near existing and proposed transportation arteries for the efficient movement of goods.

Policy r. Allow special permits in the State Agricultural Districts to accommodate unusual yet reasonable uses including:

(1) limited agriculturally related commercial, public and quasi-public uses serving the immediate community;

(2) uses clearly accessory or subordinate to a principal agricultural use on the property;

(3) public facility uses such as utility installations or landfills whose location depends on technical considerations; and

(4) extractive industries, such as quarrying, where the operation would not adversely affect the environment or surrounding agricultural uses.

ANALYSIS: The Community Plan supports the proposed project as it is considered an extractive industry that is also centrally located on Maui Island for efficient movement of goods, considering that it does not adversely affect the environment or surrounding agricultural uses.

ENVIRONMENT

Goal: Preservation, protection, and enhancement of Kihei-Makena's unique and fragile environmental resources.

ANALYSIS: The Applicant is required to restore the Supplemental Quarry Area to agricultural use upon completion of quarrying activities, consistent with the intent of the Community Plan's environmental protection goals.

CULTURAL RESOURCES

Goal: Identification, preservation, enhancement, and appropriate use of cultural resources, cultural practice, and historic sites that:

a. provides a sense of history and defines a sense of place for the Kihei-Makena region; and

b. preserves and protects native Hawaiian rights customarily and traditionally exercised for subsistence, cultural, and religious purposes in accordance with Article XII, Section 7, of the Hawaii State Constitution, and the Hawaii Supreme Court's PASH opinion, 79 Haw. 425 (1995).

ANALYSIS: No adverse effects are anticipated. The AIS for the Supplemental Quarry Area completed fieldwork yielded no significant archaeological findings. Also, the CIA prepared for the proposed project did not identify any cultural practices that would be adversely affected by the proposed use.

ECONOMIC ACTIVITY

Goal: A diversified and stable economic base which serves resident, and visitor needs

while providing long-term resident employment.

ANALYSIS: According to the application, the relocation of quarry operations to the proposed site is not expected to have significant impact on social conditions in Maui. The population of the island will not change as a result, since the relocation will not create jobs or result in loss of jobs. However, Maui's projected population growth means that demand for housing, and hence building materials produced by the Applicant, is expected to grow in coming years. Also, the proposed project produces construction materials that support the rebuilding efforts for the recovery of the August 2023 Maui Wildfires. Construction activity related to the rebuilding is anticipated to take several years. The importance of its products renders the Applicant an essential component of Maui's construction industry. The proposed quarry will allow Hawaiian Cement to continue production, providing the island with a key component of economic development. The Supplemental Quarry Area will also allow Hawaiian Cement to retain its employee base, providing living-wage jobs to members of the Maui community.

Overall, the Applicant is one of the largest producers of aggregate and other similar materials on the Island of Maui and in the State of Hawai'i. Aggregate refers collectively to sand, gravel, and crushed stone. It is widely used in the construction of buildings and roads as structural fill or as an ingredient in asphalt or concrete. The Applicant also facilitates the import of cement for the County of Maui. Cement, which is a key ingredient in concrete, is used in nearly all forms of construction from single family to commercial.

PHYSICAL AND SOCIAL INFRASTRUCTURE

Goal: Provision of facility systems, public services and capital improvement projects in an efficient, reliable, cost effective, and environmentally sensitive manner which accommodates the needs of the Kihei-Makena community, and fully support present and planned land uses, especially in the case of project district implementation.

Allow no development for which infrastructure may not be available concurrent with the development's impacts.

ANALYSIS: The proposed project supports present and planned project district implementation and does not require additional infrastructure use.

DRAINAGE

Policy a. Design drainage systems that protect coastal water quality by incorporating best management practices to remove pollutants from runoff. Construct and maintain, as needed, sediment retention basins and other best management practices to remove sediments and other pollutants from runoff.

Policy b. Construct necessary drainage improvements in flood prone areas. Where replacement drainage are required for flood protection, these systems shall be designed,

constructed, and maintained using structural controls and best management practices to preserve the functions of the natural system that are beneficial to water quality. These functions include infiltration, moderation of flow velocity, reduced erosion, uptake of nutrients and pollutants by plants, filtering, and settlement of sediment particles. The use of landscaped swales and unlined channels shall be urged.

Policy d. Minimize the increase in discharge of storm water runoff to coastal waters by preserving flood storage capacity in low-lying areas, and encouraging infiltration of runoff.

ANALYSIS: The soils of the Supplemental Quarry Area and surrounding lands belong to the Pūlehu-Ewa-Jaucas and Waiakoa-Keahua-Molokai associations. The specific soil types found on the proposed quarry site are Pūlehu silt loam, 0 to 3 percent slopes; Pūlehu silt loam, 3 to 7 percent slopes; Pūlehu cobbly silt loam, 3 to 7 percent slopes; Waiakoa silty clay loam, 3 to 7 percent slopes; Waiakoa very stony silty clay loam, 3 to 7 percent slopes; and Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes. See soil association and classification maps in **Exhibit 29.**

The majority of the soil types found on the proposed site are characterized by moderate to high permeability, slow runoff, and low erosion hazard. The Pūlehu soil series is characterized by well-drained soils found on nearly level to moderately sloping terrain, which developed from basic igneous rock. Typical elevations range from sea level to 300 feet above mean sea level (amsl). Soils from this series are generally used for agricultural use or grazing. Similarly, the Waiakoa series also consists of well-drained soils that developed from basic igneous rock. However, Waiakoa soils tend to be found on steeper grades, from gently sloping to moderately steep, and higher elevations, from 100 to 1,000 feet amsl. Like those of the Pūlehu series, these soils are often used for agricultural production and grazing.

The State Department of Agriculture has established three categories of Agricultural Lands of Importance to the State of Hawai‘i (ALISH): “Prime,” “Unique,” and “Other.” “Prime” lands are those lands which possess the soil quality, growing season, and moisture supply needed to produce high yields of crops economically and when treated and managed according to modern farming techniques. “Unique” lands have similar characteristics, but only for specific crops, while lands designated “Other” are not classified as “Prime” or “Unique” but are of Statewide or local agricultural importance for a different reason. Lands not rated “Prime,” “Unique,” or “Other” are “Unclassified.” The ALISH map designates the lands underlying the Supplemental Quarry Area as “Prime” and “Other,” indicating significant agricultural potential (**Exhibit 30**).

According to the preliminary drainage report, for active quarry areas runoff volume and velocity will increase due to removal of soil (**Exhibit 31**). These effects will be mitigated through construction of retention ponds designed to contain the entire volume of additional runoff. Retention ponds will also assist with preventing sedimentation from traveling offsite. Further, after mining is completed in each increment, the area will be

stabilized with suitable fill for the intended agricultural use. There will be no appreciable offsite runoff that will flow into or out of the quarry area. Most of the offsite flows will be intercepted by Upper Kīhei Road and the adjacent drainageway to the north.

COUNTY ZONING

The project is located in the County's Agricultural District. In accordance with MCC Section 19.30A.060 and Hawai'i Revised Statutes (HRS) Chapter 205, a County Special Use Permit is required for mining and resource extraction in the Agricultural District. A State Special Use Permit is required if the land area is greater than 15 acres (125 acres) or for lands designated as Important Agricultural Lands (IAL).

ANALYSIS: The proposed project is consistent with the standards and requirements of the County Agricultural District with approval of a Special Use permit.

INFRASTRUCTURE AND PUBLIC FACILITIES AND SERVICES

Water: There is no County water service to the project area, however, there is an onsite production well at the existing Processing Facility site that supplies water for non-potable uses such as concrete batching, dust control, and cleaning equipment. Potable water is provided through private bottled water vendors. No changes to water use are anticipated.

Wastewater: There is no County wastewater service to the existing or proposed Supplemental Quarry Area or the Processing Facility. Wastewater service for the existing operations is provided via portable toilet units, a service contracted by the Applicant through a private vendor.

Solid Waste: Solid waste is handled by a private company and is not anticipated to increase due to the proposed project.

Drainage: Generally, the site is flat. The proposed quarry site is located within Flood Zone X according to the Federal Emergency Management Agency's Flood Insurance Rate Map for the area. Flood Zone X is characterized by minimal flood risk. Any incremental runoff from operations will be retained on-site with retention ponds and BMPs will be implemented by the Applicant as part of mining operations, in conformance with County regulations.

Roads: The proposed Supplemental Quarry Area is primarily serviced from the west by the State of Hawai'i's Maui Veterans Highway and Kama'āina Road. No roadway improvements are proposed.

Parks: No adverse effects to County park facilities or the Maui Raceway Park are anticipated.

Schools: The proposed project does not place additional demand upon educational

facilities.

Public Services: No adverse impacts on emergency, police, fire, and medical services are anticipated.

OTHER GOVERNMENTAL APPROVALS

No additional discretionary approvals are required beyond the CUP and SP/SUP1. All necessary building permits will be obtained, and the project will comply with applicable codes.

TESTIMONY

As of November 6, 2025, the Department has received no public testimony on this item.

ALTERNATIVES

1. **Deferral.** The Commission may defer action to another meeting date to obtain additional information that will assist in its deliberation on the request.

2. **Approve With No Conditions.** The Commission may take action to approve the request without imposing any conditions.

3. **Approve With Conditions.** The Commission may take action to approve the request with conditions.

4. **Denial.** The Commission may take action to deny the request.

CONCLUSIONS OF LAW

STATE LAND USE COMMISSION SPECIAL PERMIT:

The application complies with the applicable standards for a State Land Use Commission Special Permit in accordance with HRS Chapter 205 and HAR Section 15-15-95.

COUNTY SPECIAL USE PERMIT:

The application complies with the applicable standards for a County Special Use Permit in accordance with MCC section 19.510.070.

RECOMMENDATION

The Department recommends approval of the proposed project with one new condition related to inadvertent discovery of historic resources to both State Land Use Commission Special Permit SP 92-380 (as a new Condition No. 15) and the County Special Use Permit CUP20060002 (as a new Condition No. 6), as shown below, and one new condition related to reclamation of the 125-acre project site in stages to the County Special Use Permit CUP20060002 (as a new Condition No. 7). Conditions related to the expansion of the previous quarrying operation sites have been deleted from SP 92-380.

STATE LAND USE COMMISSION SPECIAL PERMIT NO. SP 92-380

The Department recommends that the Maui Planning Commission recommend approval of the amendment of the Special Permit SP No. 92-380 to the State Land Use Commission, subject to the following existing and amended conditions:

1. That the State Land Use Commission Special Permit shall be valid to January 1, 2050, subject to further extensions by the Land Use Commission upon a timely request for extension filed at least 120 days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

2. That the conditions of this State Land Use Commission Special Use Permit shall be enforced pursuant to Sections 205-12 and 205-13, Hawai'i Revised Statutes. Failure to comply with one or more of the conditions herein shall result in a notice of violation issued by the appropriate enforcement agency, notifying the permit holder of the violation and providing the permit holder no more than 60 days to cure the violation. If the permit holder fails to cure the violation within 60 days of said notice, the appropriate enforcement agency shall issue an order which may require one or more of the following: that the violative activity cease; that the violative development be removed; that a civil fine be paid not to exceed ONE THOUSAND AND NO/100 DOLLARS ($1,000.00) per violation; that a civil fine not to exceed FIVE THOUSAND AND N0/100 DOLLARS ($5,000.00) shall be issued if violation not cured within six months of the issuance of the order. The order shall become final 30 days after the date of its mailing or hand-delivery unless written request for a hearing is mailed or delivered to the Planning Department within said 30 days. Upon receipt of a request for a hearing, the Planning Department shall specify a time and place for the permit holder to appear and be heard. The hearing shall be conducted by the Planning Director or the Director's designee in accordance with the provisions of Chapter 91, HRS, as amended.

3. That the subject State Land Use Commission Special Use Permit shall not be transferred without the prior written approval of the Land Use Commission. The appropriate Planning Commission shall make a recommendation to the Land Use Commission. However, in the event that a contested case hearing preceded

issuance of said State Land Use Commission Special Use Permit, a public hearing shall be held by the appropriate Planning Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

4. That the applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject State Land Use Commission Special Use Permit and shall procure at its own cost and expense, and shall maintain during the entire period of this State Land Use Commission Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of ONE MILLION AND NO/100 DOLLARS ($1,000,000.00) naming the County of Maui and State of Hawai‘i as an additional named insured, insuring and defending the applicant, County of Maui and State of Hawai‘i against any and all claims or demands for property damage, personal injury, and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the nonobservance or nonperformance of any of the terms and conditions of this permit. A copy of a policy naming the County of Maui as an additional name insured shall be submitted to the Department within 90 calendar days from the date of transmittal of the decision and order.

5. That full compliance with all applicable governmental requirements shall be rendered.

6. That a restoration plan be submitted, showing upon termination of operations, depleted and excavated areas shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and ground cover shall be established.

7. That a detailed drainage plan be submitted to the Department of Public Works and Department of Transportation for their review and approval.

8. That a detailed solid waste management plan be submitted to the Department of Public Works for their review and approval.

9. That an updated maintenance program for the access road be submitted to Department of Transportation Highways Division and Department of Public Works for review and approval prior to commencement of quarry operations into the Supplemental Quarry Area to ensure that loose aggregate, which may have fallen from trucks coming from the quarry site, shall be removed.

10. That the applicant shall continue to comply with air pollution control and all other permits for rock crushing, asphalt batching, and all other operations, including the restoration of the site.

11. An annual progress report shall be submitted to the Planning Director and the State Land Use Commission prior to the anniversary date of the approval of the permit. The report shall include, but not be limited to, the status of the development and to what extent the conditions of approval are being complied with. This condition shall remain in effect until all of the conditions of approval have been complied with and the Planning Director acknowledges that further reports are not required.

12. That prior to commencement of quarry operations into the Supplemental Quarry Area, the applicant shall provide evidence of approval from the State Department of Health regarding modifications to the Clean Air Branch permit.

13. That prior to commencement of quarry operations into the Supplemental Quarry Area, the applicant shall submit an archaeological inventory survey to the State Historic Preservation Division for their review; and shall comply with their subsequent comments.

14. That the new quarry operations shall be confined to the areas depicted on the Project Location Map "Proposed Quarry Site" in Exhibit 1 of the Department's staff report, dated November 25, 2025.

15. In the event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes are identified during the quarrying activity, the Applicant shall cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 692-8015. Work shall not continue in the area of the find until cleared by DLNR-SHPD. The Applicant shall comply with the recommendations of the DLNR-SHPD for archaeological mitigation, as may be required.

COUNTY SPECIAL USE PERMIT CUP20060002

The Department recommends that the Maui Planning Commission approve the amendment to County Special Use Permit CUP20060002, subject to the following existing and amended conditions:

1. That the County Special Use Permit shall be valid until January 1, 2050, or the expiration date for the State Land Use Commission Special Permit, whichever is longer, subject to extension by the Planning Director upon a timely request for

extension filed at least 90 days prior to its expiration. The Planning Director may require a public hearing before the Commission on the time extension.

2. That the County Special Use Permit shall not be transferred without the prior written approval of the Planning Director.

3. That the Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject County Special Use Permit and shall procure at its own cost and expense, and shall maintain during the entire period of this County Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of 1,000,000.00 naming the County of Maui as an additional named insured, insuring and defending the Applicant and County of Maui against any and all claims or demands for property damage, personal injury and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the non-observance or nonperformance of any of the terms and conditions of this permit. A copy of a policy naming County of Maui as an additional named insured shall be submitted to the Department of Planning (Department) within 90 calendar days from the date of transmittal of the decision and order.

4. That full compliance with all applicable governmental requirements shall be rendered.

5. That the Applicant shall submit to the Department of Planning (Department) a copy of a detailed report addressing its compliance with the conditions established with the subject County Special Use Permit CUP20060002 and State Land Use Commission Special Permit SP92-380. The compliance report shall be submitted to the Department for review and approval prior to a time extension request of an amendment to the existing County Special Use Permit.

6. In the event that subsurface historic resources, including human skeletal remains, structural remains, cultural deposits, artifacts, sand deposits, or sink holes are identified during the quarrying activity, the Applicant shall cease work in the immediate vicinity of the find, protect the find from additional disturbance, and contact the State Historic Preservation Division, at (808) 692-8015. Work shall not continue in the area of the find until cleared by DLNR-SHPD. The Applicant shall comply with the recommendations of the DLNR-SHPD for archaeological mitigation, as may be required.

7. That the Applicant shall undertake quarrying of the 125-acre project site in stages and the existing agricultural activity will be allowed to continue in non-quarrying areas. The reclamation of each completed quarried stage shall include topsoil

suited for agricultural cultivation of at least 24 inches depth and the reclaimed lands shall be made available for agricultural use.

It should be noted that any references within the existing condition language to the “State Land Use Commission Special Use Permit” or similar variations refer to the legally designated “State Land Use Commission Special Permit,” in accordance with HRS Chapter 205. The original condition wording is preserved as approved.

In consideration of the foregoing, the Department recommends that the Commission adopt the Department's Report and Recommendation prepared for the November 25, 2025, meeting as the Findings of Fact, Conclusions of Law, and Decision and Order and authorize the Director of Planning to transmit said written Decision and Order on behalf of the Commission.

APPROVED:



KATE L. K. BLYSTONE
Planning Director

EXHIBIT 1

Project Location Maps

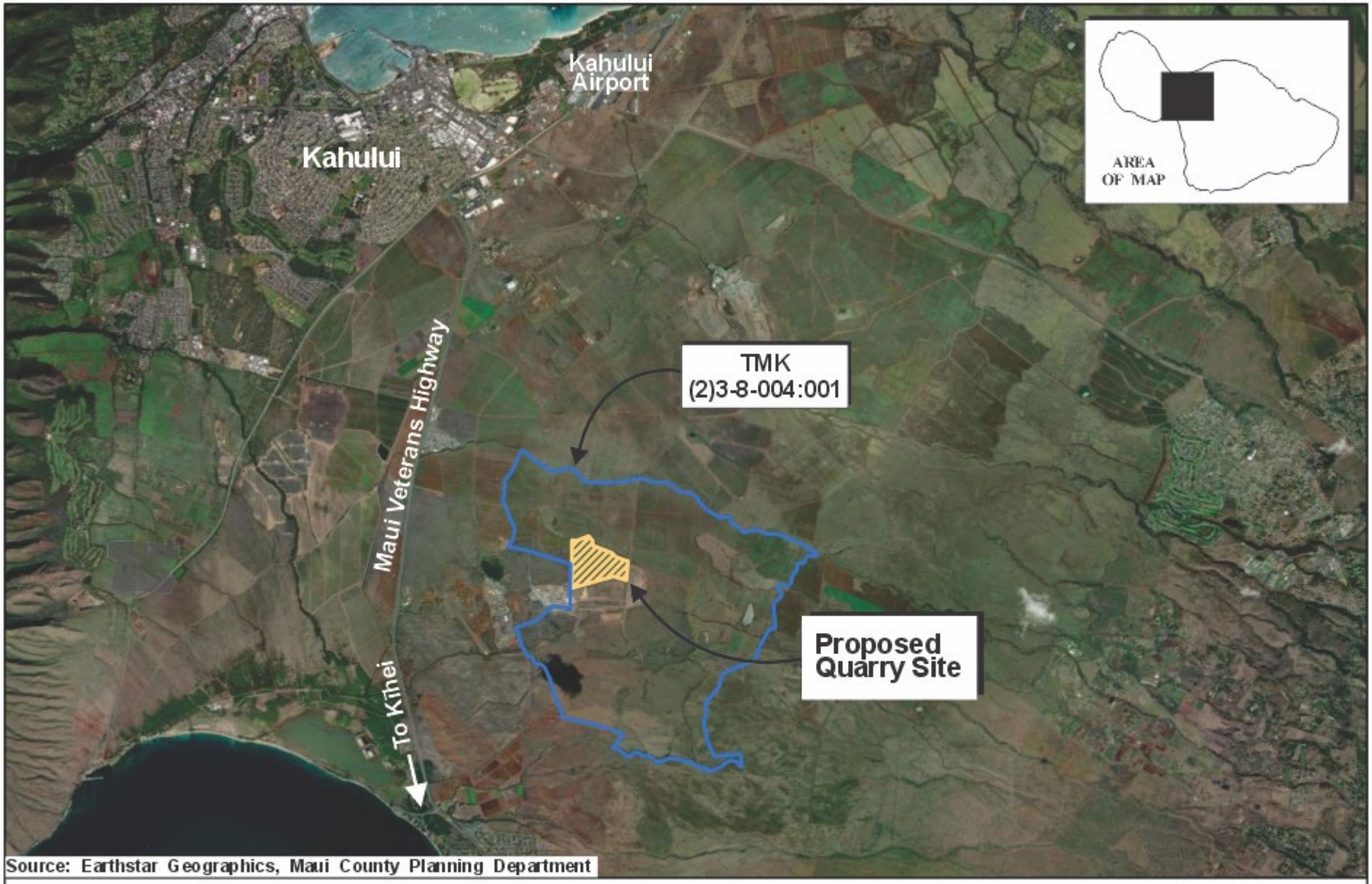


Figure 2

Hawaiian Cement Proposed
Pu'unēnē Supplemental Quarry
Regional Location Map

0 3,750 7,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCem\PuuneneSupplQuarry\Apps\Figs\Regional

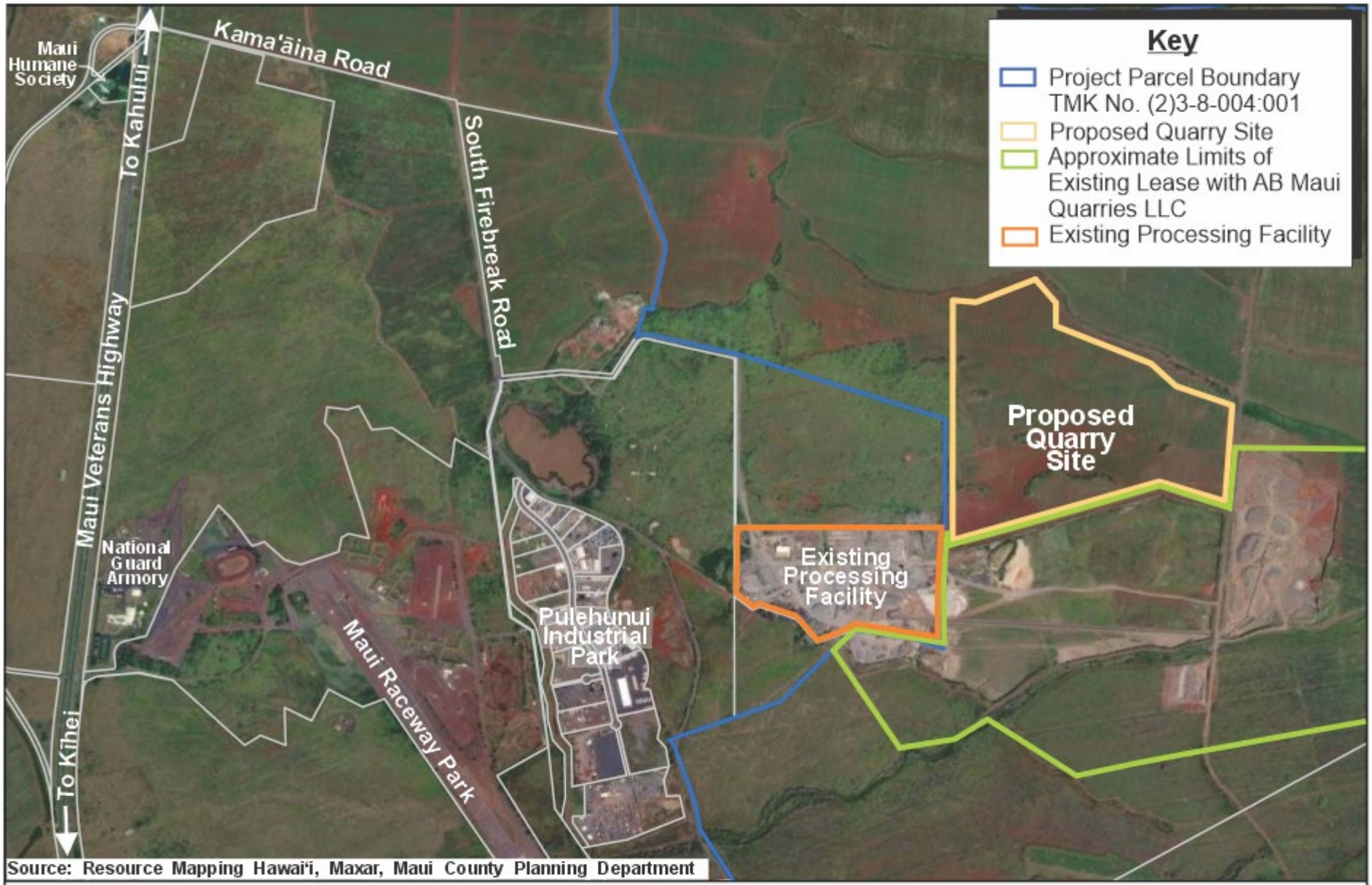


Figure 3

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry

Project Location Map

0 750 1,500

Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCem\PuuneneSuppl\QuarryApps\Figs\Location

EXHIBIT 2

Site Photographs

HAWAIIAN CEMENT PUʻUNĒNĒ QUARRY AND PROCESSING FACILITY

LEFT TURN ON TO KAMAʻĀINA ROAD OFF OF MAUI VETERANS HIGHWAY



PROPOSED “SUPPLEMENTAL 125-ACRE QUARRY SITE”



EXISTING MAHI PONO CITRUS FARM





SURROUNDING LAND CONDITIONS





COMPLETED QUARRY AREA TO BE RECLAIMED/RESTORED









PREVIOUSLY COMPLETED QUARRYING SITE THAT HAS BEEN RECLAIMED/RESTORED





CURRENT QUARRYING SITE AND OPERATIONS






Telestack
TC 420X


www.telestack.com
Telestack
TC 420X

OVERLAND CONVEYOR BELT SYSTEM TRANSPORTS MATERIAL TO PROCESSING FACILITY



LOCALLY SOURCED SAND USED FOR READY MIX CONCRETE



PROCESSING FACILITY LOCATED ON STATE LAND








CAT
980

LOADING AND PREPARING HAWAIIAN CEMENT TRUCKS TO SERVICE CUSTOMERS





EXHIBIT 3

Existing Conditions Map

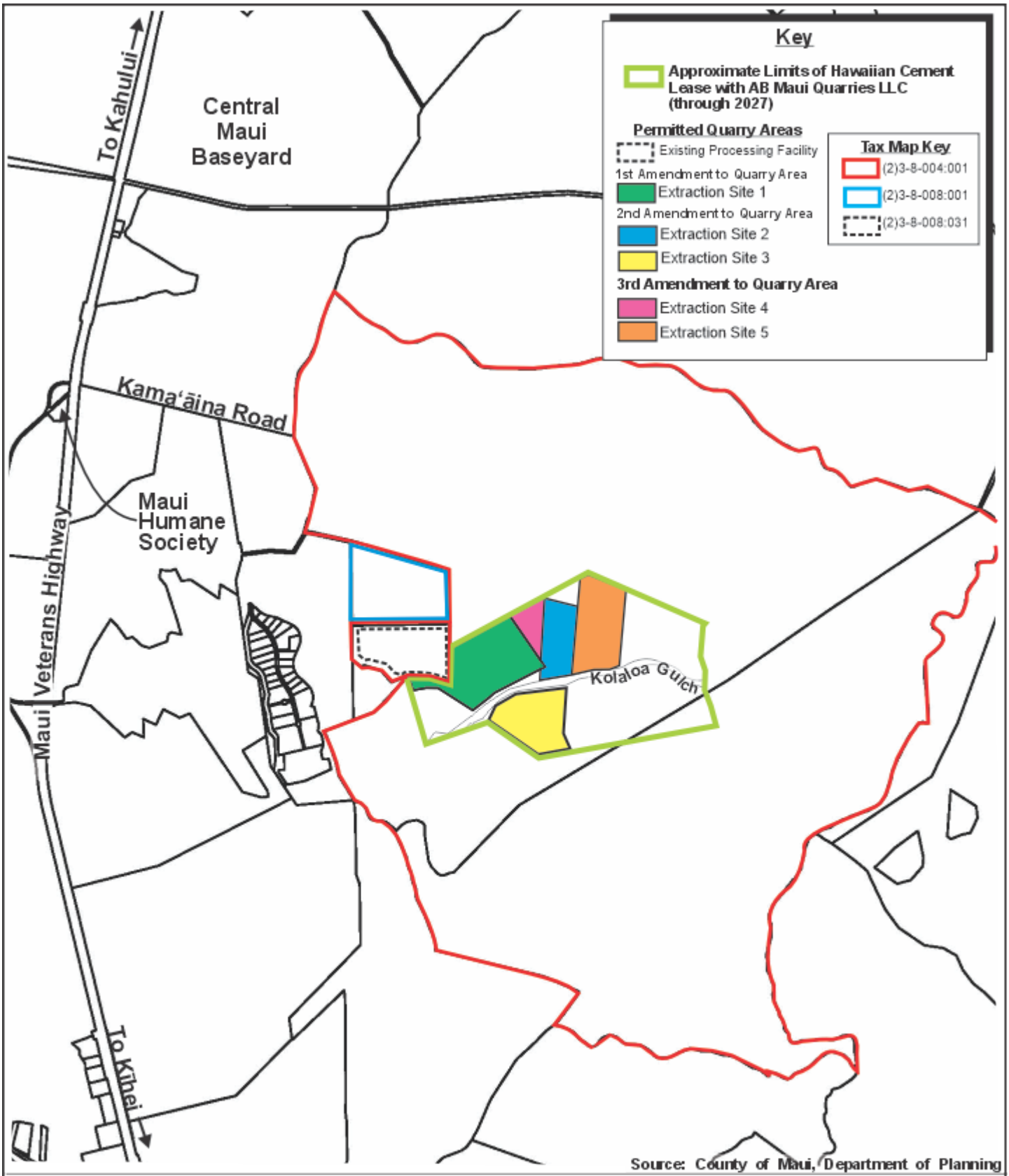


Figure 1 Hawaiian Cement Proposed Puʻunēnē Supplemental Quarry
Existing Conditions Map

Prepared for: Hawaiian Cement

MUNEKIYO HIRAGA

HawnCemt\PuuneneSupplQuarry\Apps\Figs\ExistCond

EXHIBIT 4

CPR Declaration and Map

THE ORIGINAL OF THIS DOCUMENT
RECORDED AS FOLLOWS:
STATE OF HAWAII
BUREAU OF CONVEYANCES
DOCUMENT NO. Doc A - 9257000932
DATE 5/6/2025 2:54 PM

LAND COURT | REGULAR SYSTEM

Return By Mail ☐ Pick-Up ☒ To:

CARLSMITH BALL LLP
121 Waianuenue Avenue
Hilo, Hawaii 96720

Attention: Katherine A. Garson
Telephone: (808) 935-6644

TITLE OF DOCUMENT:

FIRST AMENDMENT TO
DECLARATION OF CONDOMINIUM PROPERTY REGIME
OF HAWAIIAN CEMENT CONDOMINIUM

Condominium Map No. 5868

PARTIES TO DOCUMENT:

MP CENTRAL A: **MP CENTRAL A, LLC**, a Delaware limited liability company, whose mailing address is P.O. Box 1104, Puunene, Hawaii 96784

TAX MAP KEY(S): (2) 3-8-004:001 (CPR 0001 & 0002) (This document consists of 11 pages.)

FIRST AMENDMENT TO DECLARATION OF CONDOMINIUM PROPERTY REGIME OF HAWAIIAN CEMENT CONDOMINIUM

THIS FIRST AMENDMENT TO DECLARATION OF CONDOMINIUM PROPERTY REGIME OF HAWAIIAN CEMENT CONDOMINIUM (this "**Amendment**") is made on May 6, 2025, by MP CENTRAL A, LLC, a Delaware limited liability company (the "**MP CENTRAL A**"), whose mailing address is P.O. Box 1104, Puunene, Hawaii 96784.

RECITALS:

A. ALEXANDER & BALDWIN, LLC, a Delaware limited liability company, created the condominium project known as "Hawaiian Cement Condominium" (the "**Condominium**") pursuant to that certain Declaration of Condominium Property Regime of Hawaiian Cement Condominium dated December 12, 2018 and recorded in the Bureau of Conveyances of the State of Hawaii (the "**Bureau**") as Document No. A-69200802 (the "**Declaration**"), and Condominium Map No. 5868 (the "**Condominium Map**") filed in the Bureau concurrently with the Declaration.

B. On November 15, 2023, Alexander & Baldwin, LLC assigned its rights as Declarant under the Declaration to AB MAUI QUARRIES, LLC, a Delaware limited liability company ("**AB**"), pursuant to that certain Assignment and Assumption of Declarant's Rights dated November 15, 2023, and recorded in the Bureau as Document No. A-87190417-18 (2).

C. As of the date of this Amendment, AB owns Unit 1 of the Condominium. MP Central A is the sole owner of Unit 2 of the Condominium.

D. Section 16.4 of the Declaration provides that the Owner of each Unit may without the consent or joinder of any other Owner or the Association, amend the Declaration and Condominium Map to divide the Owner's Unit into two or more condominium Units so long as the resulting Units contain all of the Land that was included in the original Unit, and each Unit thus created shall be a Unit for all purposes under the Declaration.

E. Section 17.2 of the Declaration provides that each Unit Owner shall have the right to amend the Declaration and Condominium Map and record that amendment in the Bureau, without the approval, consent or joinder of any Persons then owning or leasing any Unit or any other Person, to make such amendments necessary or appropriate to reflect such alterations to the Unit which the Unit owner is permitted to make in accordable with Section 16 of the Declaration, including the division of the Owner's Unit into two or more Units.

F. Section 8.2 of the Declaration provides that a Unit Owner may grant easements through, over and under the Owner's Unit without requiring the consent or joinder of the Owner of any other Unit.

G. MP Central A, being the owner of Unit 2, desires to amend the Declaration to change the boundaries and configurations of Unit 2 and to divide Unit 2 into two additional Units

which shall be referred to as Unit 3 and Unit 4, and create access easements over Unit 2 to Unit 3 and Unit 4.

H. Pursuant to Sections 8.2, 16.4 and 17.2 of the Declaration, this Amendment does not require AB's consent as Unit 3 and Unit 4 were originally contained within Unit 2.

NOW, THEREFORE, for the reasons set forth above, and pursuant to Sections 16.4 and 17.2 of the Declaration, MP Central A hereby amends the Declaration as follows:

1. Definitions. Capitalized terms used in this Amendment have the meanings they are assigned in the Declaration, except as expressly provided in this Amendment.

2. Amendment to Condominium Map. The Condominium Map is hereby amended and replaced in its entirety with the revised Condominium Map filed in the Bureau concurrently with this Amendment. All references to the Condominium Map in the Declaration shall refer to the Condominium Map as so amended.

3. Amendments to Declaration.

A. Amendment to Section 4.1 (Unit & Unit Boundaries). Section 4.1 of the Declaration is hereby deleted in its entirety and replaced with the following language.

> "4.1 **Units & Unit Boundaries**. Four (4) separate freehold estates, designated as Unit 1, Unit 2, Unit 3, and Unit 4 are now established in the spaces within the imaginary vertical surfaces and horizontal planes of each of the four (4) Units in the Condominium, as shown on the Condominium Map. The Units in the Condominium are identified by unit number on the Condominium Map and are located in the Condominium as shown on the Condominium Map. Each Unit is a three dimensional spatial unit at the approximate location and having the approximate dimensions shown on the Condominium Map. The Condominium Map shows the perimeter of each unit. The vertical boundaries of each Unit are imaginary surfaces that extend upwards and downwards from the perimeter at a ninety degree (90°) angle to the Floor Place for the Unit. The metes and bounds of the perimeter of Unit 1, Unit 3, and Unit 4 are described in **Exhibit A-1**, **Exhibit A-3**, and **Exhibit A-4**, attached hereto and made a part hereof, respectively, with Unit 2 being the remainder of Tax Map Key Nos.: (2) 3-8-004-001 excepting out Unit 1, Unit 3 and Unit 4, as shown on the Condominium Map. The top horizontal boundary of each Unit is defined by an imaginary plan parallel to its "Floor Plane" at the elevation of five hundred feet (500') above the Floor Plane. The bottom horizontal boundary of each Unit is defined by an imaginary place parallel to the Floor Place, at the depth of two thousand feet (2,000') below the Floor Plane. Each Unit is the space bounded by these vertical surfaces and horizontal planes,

together with any Improvements and other contents of any kind within the Unit.

Should the descriptions and divisions set forth in this Declaration conflict with the depictions and divisions shown on the Condominium Map, the Condominium Map shall control. The Condominium Map, however, is intended to show only the layout, location, boundaries, unit numbers and dimensions of the Units and is not intended and shall not be deemed to contain or make any representation or warranty."

B. Amendment to Section 5 (Common Interest). Section 5 of the Declaration is hereby deleted in its entirety and replaced with the following language.

"5. Common Interest. Each Unit shall have an appurtenant undivided percentage interest in the Common Elements of the Condominium, and except as provided in Section 13, the same proportionate share in all common profits and expenses of the Condominium and for all other purposes, including voting, as follows:

Unit 1	10%
Unit 2	87%
Unit 3	1%
Unit 4	2%

The percentages of Common Interests appurtenant to the Units in the Condominium were determined by the Declarant based on the approximate proportion that the land area within the boundaries of the Unit bears to the total area of the Land, rounded to the nearest whole number."

C. Amendment to Section 8 (Easements). Section 8 of the Declaration is hereby amended to add new sections 8.1.4 (Unit 3 and 4 Access), and 8.1.5 (Unit 3 Access Over Unit 4) as follows:

"8.1.4 Unit 3 and Unit 4 Access. Units 3 and 4 shall have a non-exclusive easement for vehicular and pedestrian access over the portion of Unit 2 designated as a solid line on **Exhibit A-5** attached hereto and made a part hereof.

(a) The respective Owner of Unit 3 and Unit 4 shall protect, indemnify, defend and hold harmless the Unit 2 Owner from and against any and Liabilities, including loss or damage to the property of the Owners of Unit 3 or Unit 4 or of others, and injury to or death of any person, when such Liabilities arise from the use of said easement area by the Owner of Unit 3 or Unit 4 or their guests and invitees. The respective Owner of Unit 3 and Unit 4 shall further protect, indemnify, defend and hold harmless

the Unit 2 Owner from and against any and all Liabilities that arise out of or are attributable to the Release of Hazardous Materials by the Owner of Unit 3 or Unit 4 or their guests and invitees within said easement area. The provisions of Section 14.1 of this Declaration shall apply to such indemnity and defense obligation for Hazardous Materials.

8.1.4 Unit 3 Access Over Unit 4. Unit 3 shall have a non-exclusive easement for vehicular and pedestrian access over the portion of Unit 4 designated as a dashed line on **Exhibit A-5** attached hereto and made a part hereof.

(a) The Unit 3 Owner shall protect, indemnify, defend and hold harmless the Unit 4 Owner from and against any and all Liabilities, including loss or damage to the property of the Unit 3 Owner or of others, and injury to or death of any person, when such Liabilities arise from the use of said easement area by the Unit 3 Owner or its guests and invitees. The Owner of Unit 3 shall further protect, indemnify, defend and hold harmless the Unit 4 Owner from and against any and all Liabilities that arise out of or are attributable to the Release of Hazardous Materials by the Owner of Unit 3 or their guests and invitees within said easement area. The provisions of Section 14.1 of this Declaration shall apply to such indemnity and defense obligation for Hazardous Materials."

D. New Exhibit A-3. The Declaration is hereby amended to include a new Exhibit A-3 as attached hereto and made a part hereof, to set forth the metes and bounds of the perimeter of Unit 3.

E. New Exhibit A-4. The Declaration is hereby amended to include a new Exhibit A-4 as attached hereto and made a part hereof, to set forth the metes and bounds of the perimeter of Unit 4.

F. New Exhibit A-5. The Declaration is hereby amended to include a new Exhibit A-5 as attached hereto and made a part hereof, depicting the easement for vehicular and pedestrian access over the portion of Unit 2 in favor of Unit 3 and Unit 4, and the easement for vehicular and pedestrian access over a portion of Unit 4 in favor of Unit 3.

4. No Other Amendments. Except as expressly provided in the preceding paragraphs, in all other respects, the Declaration shall remain unmodified and in full force and effect. From and after the date hereof, all references to the Declaration shall be deemed to be references to the Declaration as amended by this Amendment.

5. Captions. The captions in this Amendment are inserted only as a matter of convenience and for reference, and in no way define, limit or describe the scope of this Amendment or the intent of any of its provisions.

6. Counterparts. The parties hereto agree that this Amendment may be executed in counterparts, each of which shall be deemed an original, and said counterparts shall together constitute one and the same agreement, binding all of the parties hereto, notwithstanding all of the parties are not signatory to the original or the same counterparts. For all purposes, including, without limitation, recordation, filing and delivery of this instrument, duplicate unexecuted and unacknowledged pages of the counterparts may be discarded and the remaining pages assembled as one document.

[the remainder of this page intentionally left blank]

IN WITNESS WHEREOF, this Amendment is effective as of the date first set forth above.

MP CENTRAL A, LLC,
a Delaware limited liability company

By: Mahi Pono Holdings, LLC
a Delaware limited liability company
its Sole Member

By: _____
Name: Ceil W. Howe III
Its Authorized Signatory

STATE OF HAWAII)
) SS:
COUNTY OF MAUI)

On this April 30, 2025, before me personally appeared CEIL W. HOWE III, to me personally known/proved to me on the basis of satisfactory evidence, who, being by me duly sworn or affirmed, did say that such person executed the foregoing instrument as the free act and deed of such person, and if applicable in the capacity shown, having been duly authorized to execute such instrument in such capacity.

Jackelyn Thomas NOTARY 19-506 PUBLIC STATE OF HAWAII

Jackelyn Thomas
Name: Jackelyn Thomas

Notary Public, State of Hawaii

My commission expires: 12-1-2027

NOTARY CERTIFICATION STATEMENT

Document Identification or Description: First Amendment to Declaration of Condominium Property Regime of Hawaiian Cement Condominium

Document Date: No Date

No. of Pages: 11

Jurisdiction (in which notarial act is performed): Second Circuit

Jackelyn Thomas 4-30-2025
Signature of Notary — Date of Notarization and Certification Statement

Jackelyn Thomas
Printed Name of Notary

Date of Notary Commission Expiration: 12-1-2027

Jackelyn Thomas NOTARY 19-506 PUBLIC STATE OF HAWAII
(Notary Stamp or Seal)

EXHIBIT A-3

Metes and Bounds of Unit 3

UNIT 3
HAWAIIAN CEMENT CONDOMINIUM
BEING A PORTION OF L. P. 8140, LAND COMMISSION AWARD 5230
TO KEAWEAMAHI
AT PULEHUNUI, WAILUKU, MAUI, HAWAII

Beginning at the Southeast corner of this Unit, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU HELE" being 2,158.05 feet North and 22,413.03 feet East and running by azimuths measured clockwise from True South:

1.	63°	30'	987.77	feet along Unit 1, Hawaiian Cement Condominium;
2.	180°	00'	2,836.00	feet along Parcel 31 of Tax Map Key: (2) 3-8-04, Parcel 01 of Tax Map Key: (2) 3-8-08 and Unit 2, Hawaiian Cement Condominium;
3.	258°	02'	903.63	feet along Unit 2, Hawaiian Cement Condominium;
4.	00°	00'	2,582.62	feet along Unit 4, Hawaiian Cement Condominium to the point of beginning and containing an area of 54.982 Acres.

EXHIBIT A-4

Metes and Bounds of Unit 4

UNIT 4
HAWAIIAN CEMENT CONDOMINIUM
BEING A PORTION OF L. P. 8140, LAND COMMISSION AWARD 5230
TO KEAWEAMAHI
AT PULEHUNUI, WAILUKU, MAUI, HAWAII

Beginning at the Southwest corner of this Unit, the coordinates of said point of beginning referred to Government Survey Triangulation Station "PUU HELE" being 2,158.05 feet North and 22,413.03 feet East and running by azimuths measured clockwise from True South:

1.	180°	00'	2,582.62	feet along Unit 3, Hawaiian Cement Condominium;
2.	258°	02'	36.80	feet along Unit 2, Hawaiian Cement Condominium;
3.	316°	06'	367.76	feet along Unit 2, Hawaiian Cement Condominium;
4.	00°	00'	149.91	feet along Unit 2, Hawaiian Cement Condominium;
5.	294°	02'	1,901.81	feet along Unit 2, Hawaiian Cement Condominium;
6.	05°	44'	1,065.83	feet along Upper Kihei Road;
7.	106°	34'	809.56	feet along Unit 1, Hawaiian Cement Condominium;
8.	63°	30'	1,280.00	feet along Unit 1, Hawaiian Cement Condominium to the point of beginning and containing an area of 70.069 Acres.

EXHIBIT A-5

Map Depicting Access Easement Over Unit 2 in Favor of Unit 3 and Unit 4, and Access Easement Over Unit 4 in Favor of Unit 3



EXHIBIT 5

Existing Quarry Site Reclamation Plan

FIRST AMENDMENT TO AMENDED AND RESTATED LICENSE AGREEMENT

THIS FIRST AMENDMENT TO AMENDED AND RESTATED LICENSE AGREEMENT (this "***Amendment***") dated this ____ day of _____, 2017 (the "***Effective Date***") is made by and between the ALEXANDER & BALDWIN, LLC, SERIES T, a series of a Delaware limited liability company (which series was established after the conversion from Alexander & Baldwin, LLC, a Hawaii limited liability company), hereinafter referred to as "***Licensor***," whose principal place of business and post office address on Maui is 33 Lono Avenue, Kahului, Maui, Hawaii 96732 an in Honolulu is 822 Bishop Street, Honolulu, Hawaii 96813 and **HAWAIIAN CEMENT**, a Hawai'i general partnership, hereinafter referred to as "***Licensee***," whose post office address is 99-1300 Halawa Street, Aiea, Hawaii 96701.

A. Licensor and Licensee entered into that certain Amended and Restated License Agreement dated March 26, 2012, effective as of March 1, 2012 (the "***License Agreement***") whereby Licensor licensed exclusively to Licensee various portions from time to time within up to 350 acres of that certain rock extraction area (the "***Rock Extraction Area***") situate at Waikapu, Maui, Hawaii, being identified as a portion of TMK (2) 3-8-004-002 ("***Parcel 2***") and further described in the License Agreement, for rock extraction. Although the License Agreement provides that the Rock Extraction Area comprises a portion of Parcel 2, the Rock Extraction Area also comprises a portion of TMK (2) 3-8-004-001 ("***Parcel 1***").

B. Alexander & Baldwin, LLC, Series R, a series of a Delaware limited liability company (which series was established after the conversion from Alexander & Baldwin, LLC, a Hawaii limited liability company) ("***ABL Series R***") is the current fee owner of Parcels 1 and 2.

C. ABL Series R, as Grantor, and Licensor, as Grantee, entered into that certain unrecorded Grant of Easement effective as of January 1, 2017, as amended by that certain First Amendment to Grant of Easement effective as of May 5, 2017 (as amended, the "***Easement Agreement***") pursuant to which ABL Series R granted to Licensor and its successors and assigns, a perpetual and exclusive easement over, across, under, along and upon Parcels 1 and 2.

D. In connection with the Easement Agreement, ABL Series R, as Assignor, and Licensor, as Assignee, entered into that certain Assignment and Assumption of Amended and Restated License Agreement effective as of January 1, 2017 ("***Assignment and Assumption***") whereby ABL Series R transferred and assigned to Licensor all right, title and interest of ABL Series R in and to the License Agreement.

E. Licensor and Licensee desire to modify certain terms of the License Agreement as set forth in this Amendment.

NOW, THEREFORE, the parties hereto, in consideration of the premises and of the covenants herein contained, hereby mutually agree to the following terms and conditions:

1. **Amendments**.

1.1 Rock Extraction Area. The first sentence of Section 3 (License) of the License Agreement is hereby amended and restated as follows: "Licensor hereby licenses exclusively to Licensee (except for use by Licensor or its affiliated companies, including but not limited to Hawaiian Commercial and Sugar Company ("***HC&S***") as provided herein, various portions from time to time within up to 350 acres of that certain rock extraction area (the "***Rock Extraction Area***") situate at Waikapu, Maui, Hawaii, as more particularly shown on **Exhibit**

"A" attached hereto and made a part hereof, being identified as a portion of Tax Map Key Nos. (2) 3-8-004-001 and -002."

1.2 Section 3(a) of Exhibit C to the License Agreement is amended and restated as follows:

> (a) Overburden (soil), in place before the mining occurred, shall be replaced with the same material over the quarry floor at a depth not less than 24".

Except as amended by this Amendment, in all other respects, the License Agreement shall remain the same and in full force and effect.

2. **Other Agreements.**

2.1 Each individual signing on behalf of a party hereto is authorized to do so and no approval or consent of any person is required or, if required, has been obtained, in connection with the execution and performance of this Amendment.

2.2 This Amendment shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns.

2.3 This Amendment may be executed in any number of counterparts and by either party hereto on a separate counterpart, each of which when so executed and delivered shall be deemed an original and all of which taken together shall constitute but one and the same instrument. Electronically transmitted executed copies of this Amendment shall be fully binding and effective for all purposes whether or not originally executed documents are transmitted to the other party. Facsimile signatures on documents are to be treated the same as original signatures.

[*signatures appear on following page*]

IN WITNESS WHEREOF, the parties hereto have executed these presents as of the day and year first above written.

ALEXANDER & BALDWIN, LLC, SERIES T
a Delaware limited liability company

By:_____
Name: _____
Its:_____, Series T

By:_____
Name: _____
Its:_____, Series T

Licensor

HAWAIIAN CEMENT, a Hawaii general partnership

By:_____
Name: JASON MACY
Its: PRESIDENT

By:_____
Name: _____
Its:_____

Licensee

IN WITNESS WHEREOF, the parties hereto have executed these presents as of the day and year first above written.

ALEXANDER & BALDWIN, LLC, SERIES T
a Delaware limited liability company

By: _____
Name: NELSON N.S. CHUN
Its: SENIOR VICE PRESIDENT, Series T

By: _____
Name: ALYSON J. NAKAMURA
Its: SECRETARY, Series T

Licensor

HAWAIIAN CEMENT, a Hawaii general partnership

By: _____
Name: _____
Its: _____

By: _____
Name: _____
Its: _____

Licensee

EXHIBIT 6

Mahi Pono Agriculture Use Intent Letter

October 10, 2025

Hawaiian Cement
3000 Maui Veterans Highway
Puunene, HI 96784
Attn: David Gomes, President

RE: Potential to Cultivate Land North of Hawaiian Cement Quarry; TMK (2) 3-8-004-001, Condminium Unit #3 and #4

Aloha David,

Thank you for reaching out to gauge our interest in potentially farming the 125-acre area comprised of TMK (2) 3-8-004-001, Condominum Unit #3 and #4 (collectively, the "Site"), generally located to the immediate north of Hawaiian Cement's quarry operation. Although Mahi Pono recently sold Unit 3 to Hawaiian Cement – with Hawaiian Cement also holding an option to purchase Unit 4 – Mahi Pono remains interested in continuing to cultivate orchard crops at the Site. We are open to discussing a lease, license, or other arrangement that would facilitate Mahi Pono's use of the Site's in the future.

Please let me know if you have any questions, or if you would like to discuss further. I can best be reached by email at grant.nakama@mahipono.com.

Mahalo!

Grant Nakama
Senior Vice President of Operations

EXHIBIT 7

Land Use Designation Form and Maps

COUNTY OF MAUI
DEPARTMENT OF PLANNING
One Main Plaza Building
2200 MAIN STREET, SUITE 315
WAILUKU, HAWAII 96793

Zoning Administration and Enforcement Division (ZAED)
Telephone: (808) 270-7253

LAND USE DESIGNATION FORM

TAX MAP KEY 2380040010000 PLAN NUMBER LUD2024-01332

PROPERTY ADDRESS

☐ Yes ☑ No **Will this Land Use Designation Form be used with a Subdivision Application?**
IF YES, answer questions A and B below and comply with instructions 2 & 3 below:
A) ☐ Yes ☑ No **Will it be processed under a consistency exemption from** Section 18.04.030(B), MCC?
IF YES, which exemption? (No. 1, 2, 3, 4 or 5)
B) State the purpose of subdivision and the proposed land uses (ie 1-lot into 2-lots for all land uses allowed by law):

LAND USE DISTRICTS/DESIGNATIONS (LUD) AND OTHER INFORMATION:[1]

☐ (SMA) Special Management Area

STATE DISTRICT: ☐ Urban ☐ Rural ☑ Agriculture ☐ Conservation

MAUI ISLAND PLAN
Growth Boundary:[2] ☐ Urban ☐ Small Town ☐ Rural ☐ Planned Growth Area ☑ Outside Growth Boundaries
Protected Area:[2] ☐ Preservation ☐ Park ☐ Greenbelt ☐ Greenway ☐ Sensitive Land ☑ Outside Protected Areas

COMMUNITY PLAN:[2] AGRICULTURE

COUNTY ZONING: AGRICULTURE

OTHER/COMMENTS:

☐ (PD) Planned Development
☐ (PH) Project District
☐ See Additional Comments (Pg. 2)
☐ See Attached LUD Map

FEMA FLOOD INFORMATION: A Flood Development Permit (FDP) may be required if any portion of a parcel is designated V, VE, A, AO, AE, AH, D, or Floodway, and the project is in that portion. For more information please visit the FDP Webpage.

FLOOD HAZARD AREA ZONES[3] & BASE FLOOD ELEVATIONS: ZONE:X,A

☐ FEMA DESIGNATED FLOODWAY | For Flood Zone AO, FLOOD DEPTH:

☐ Wellhead Protection Overlay District — Please contact the Department of Water Supply's Water Resources and Planning Division at (808) 463-3110 to determine if a permit is necessary for work done in this area.

SUBDIVISION LAND USE CONSISTENCY: ☐ Not Consistent, (LUDs appear to have NO permitted uses in common).

_____ (Signature)

☐ Not Applicable, (Due to processing under consistency exemption No. ☐ 1, ☐ 2, ☐ 3, ☐ 4, ☐ 5).

☐ Interim Zoning, (The parcel or portion of the parcel that is zoned interim shall not be subdivided).

☐ Consistent [4], (LUDs appear to have ALL permitted uses in common).

☐ Consistent [4], upon obtaining an SMA, PD, or PH subdivision approval from Planning.

☐ Consistent [4], upon recording a permissible uses unilateral agreement processed by Public Works (See Pg. 2).

NOTES:

1) **The conditions and/or representations made in the approval of a State District Boundary Amendment, Community Plan Amendment, County Change in Zoning, SMA Permit, Planned Development, Project District and/or a previous subdivision, may affect building permits, subdivisions, and uses on the land.**
2) **Please review the Maui Island Plan and the Community Plan document for any goals, objectives, policies or actions that may affect this parcel.**
3) **Flood development permits might be required in zones X and XS for any work done in streams, gulches, low-lying areas, or any type of drainageway might require the following designations to be shown on the subdivision map: 100-year flood inundation limits; base flood elevations; drainage reserves,**
4) **Subdivisions will be further reviewed during the subdivision application process to verify consistency, unilateral agreement requirements, and the conditions associated with a unilateral agreement [Section 18.04.030.D, Maui County Code]**

REVIEWED & CONFIRMED BY:

Elycia Naki

Elycia Naki

12/17/2024

Date

For: Planning Program Administrator, Jordan E. Hart

DESIGNATIONS MAY CHANGE

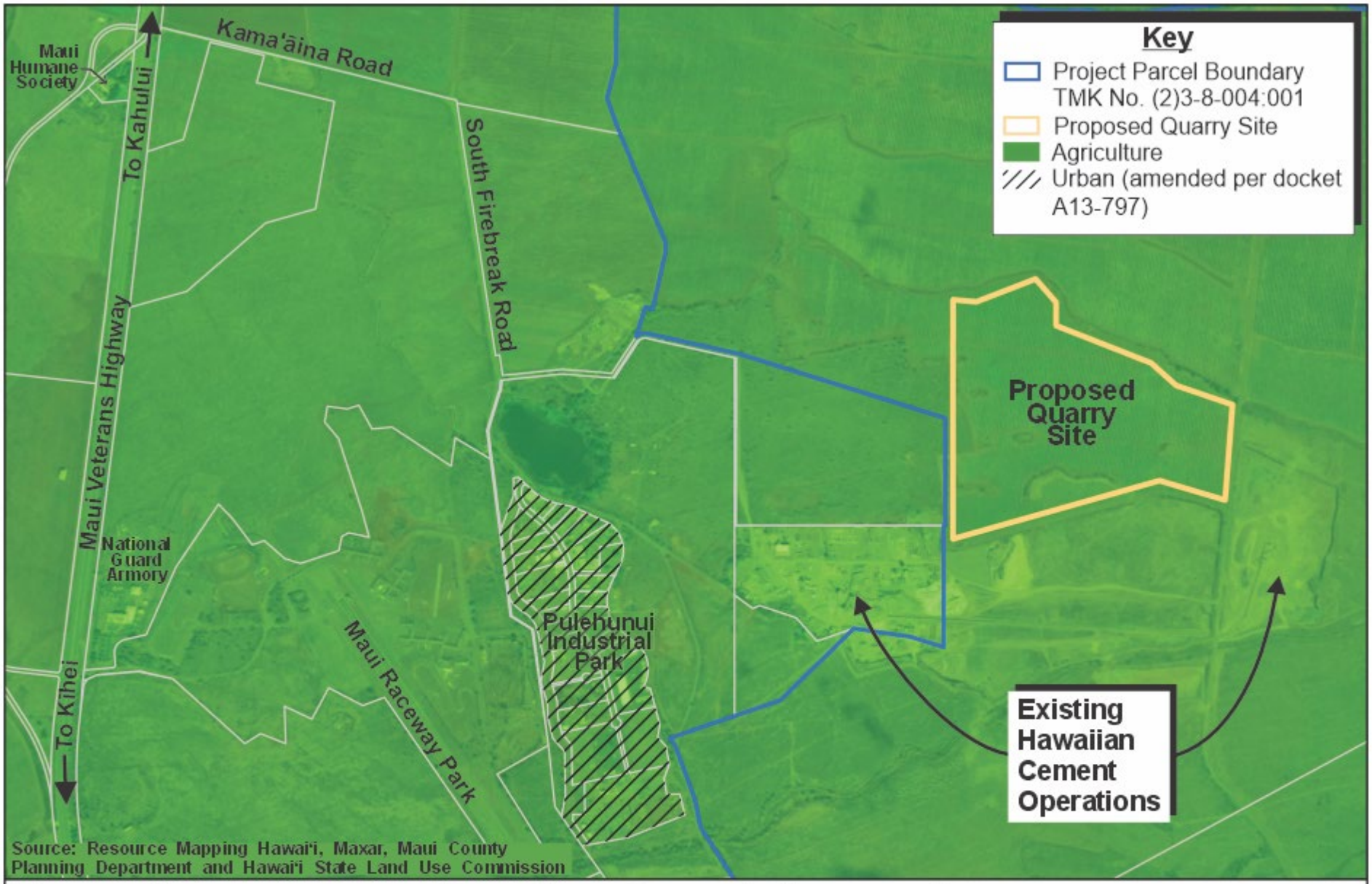


Figure 4

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry
State Land Use District Map

0 750 1,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

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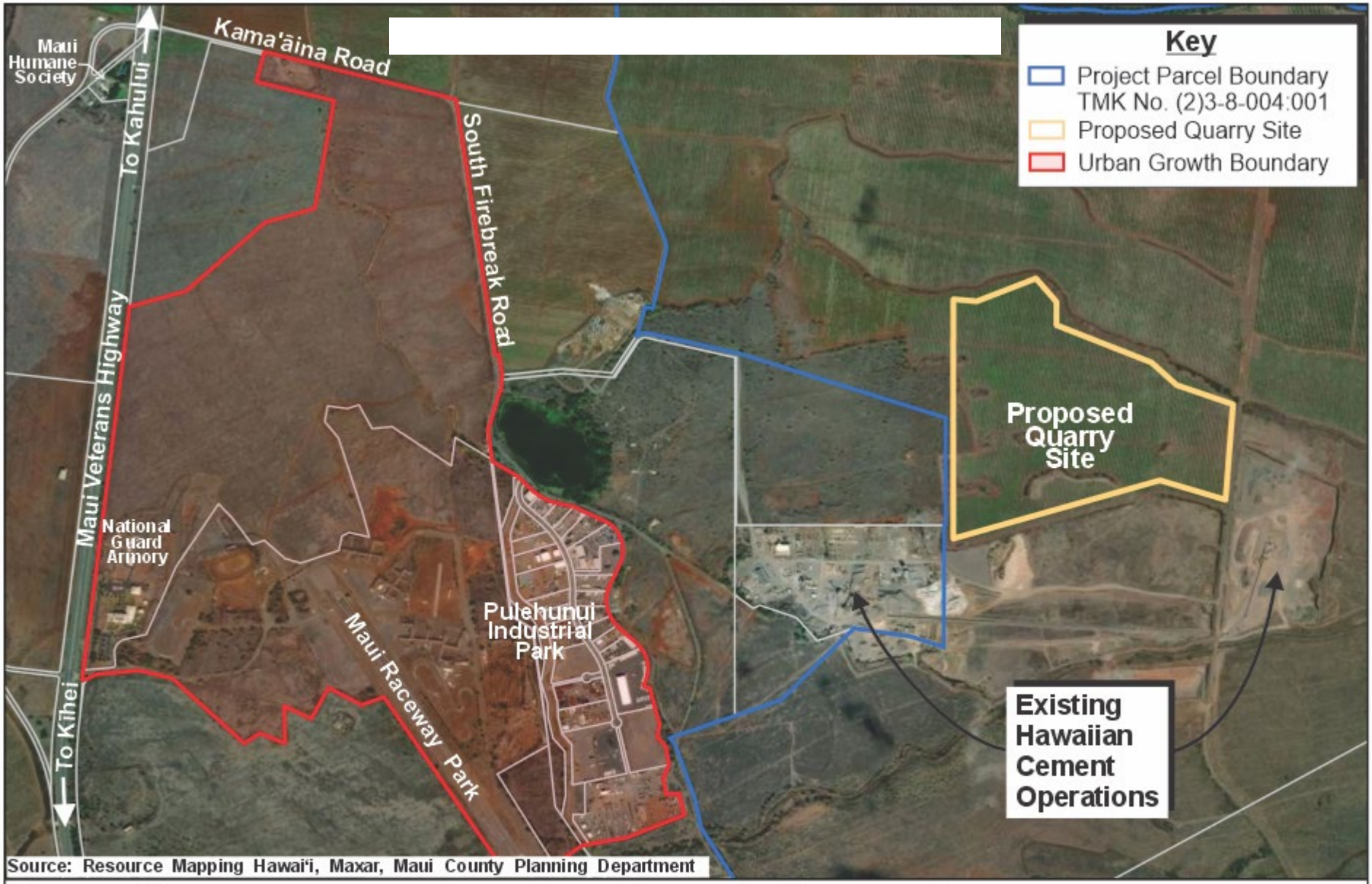


Figure 7

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry

Maui Island Growth Boundaries Map

0 750 1,500

Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawCem\Puunene Suppl Quarry\Apps\Figs\MIP

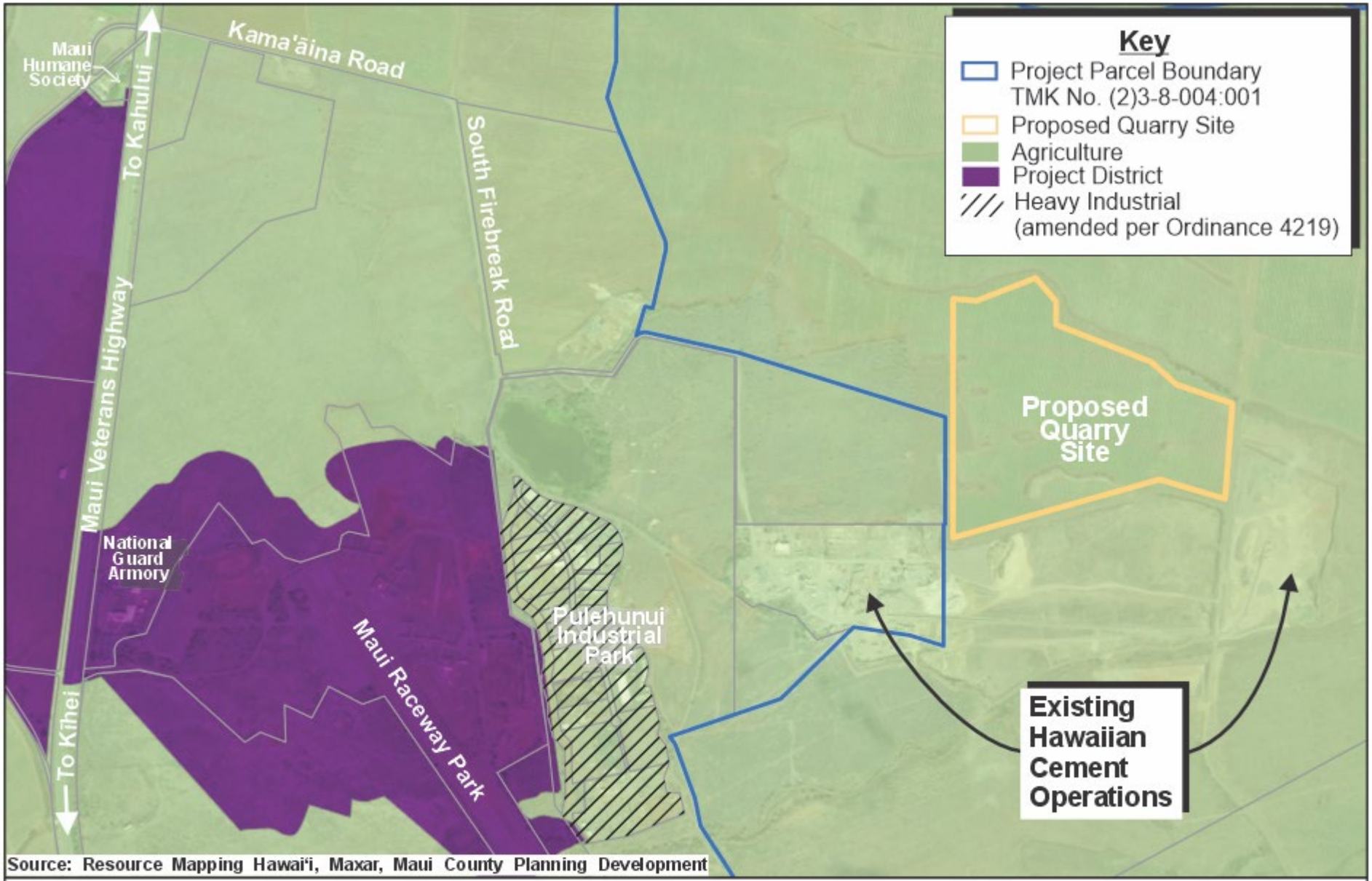


Figure 5

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry

Kihei-Makena Community Plan Map

0 750 1,500

Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

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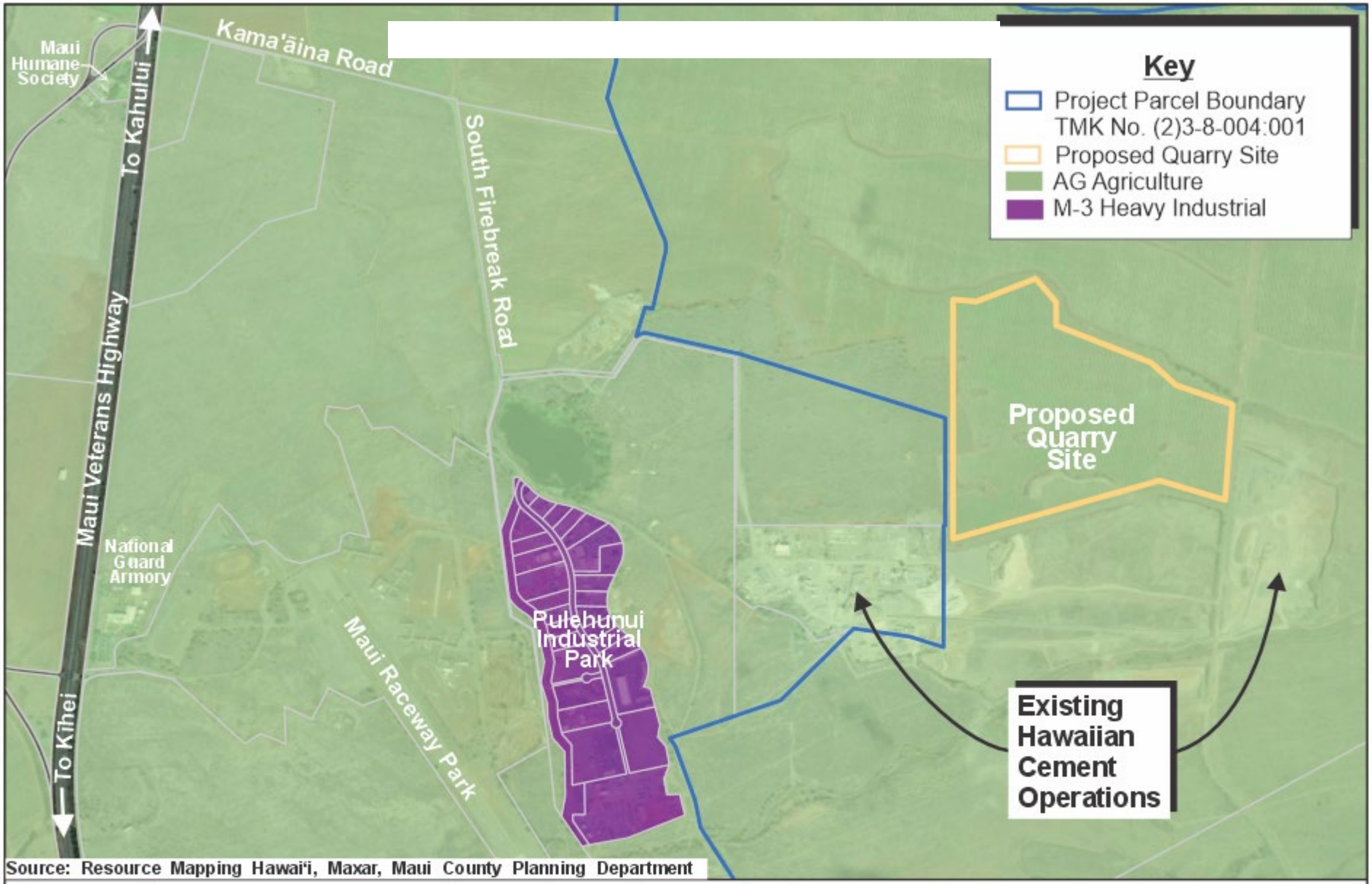


Figure 6

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry

Maui County Zoning Map

0 750 1,500

Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\Figs\Zoning

EXHIBIT 8

Flood Hazard Zones Map

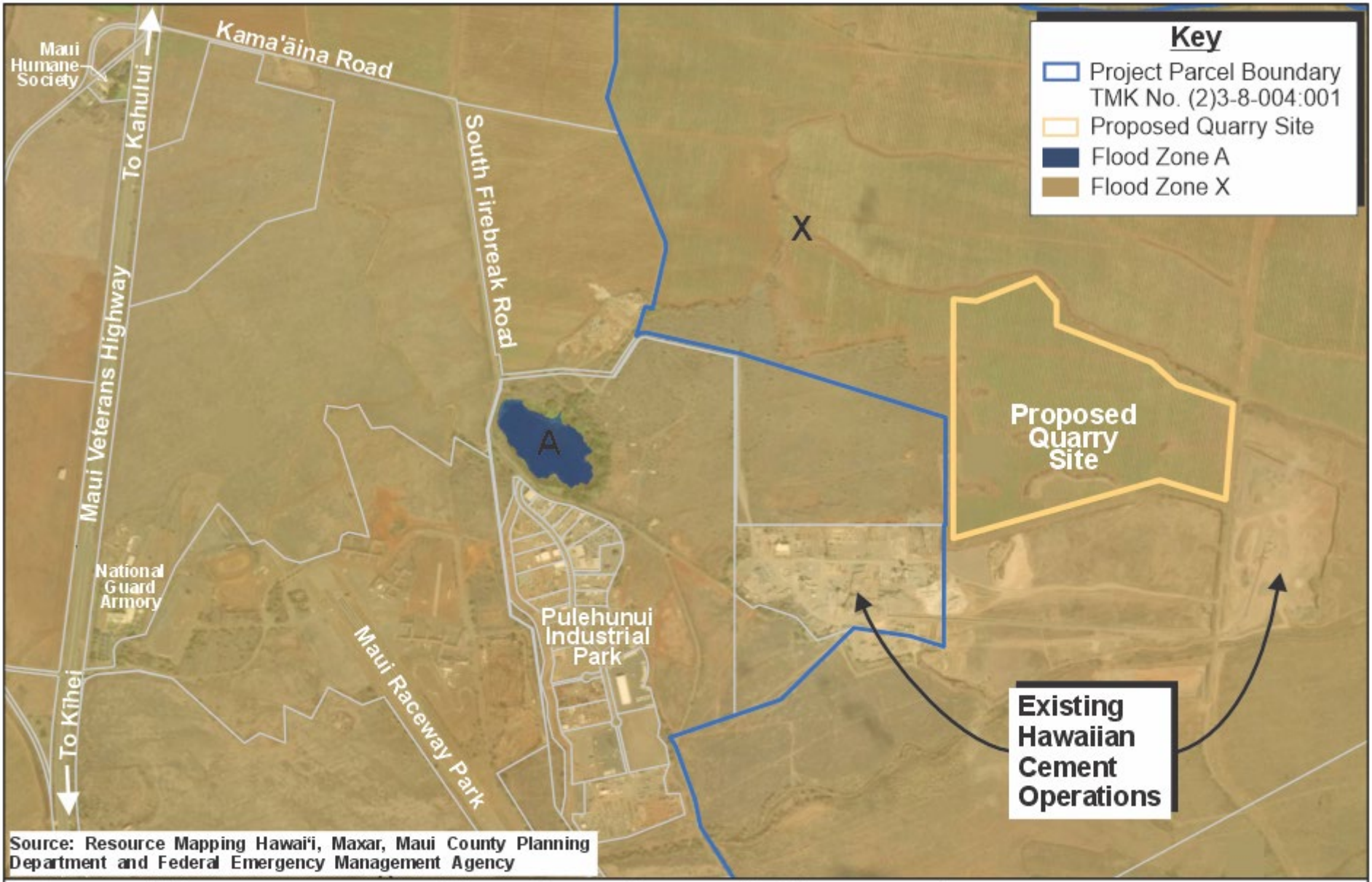


Figure 14

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry
Flood Hazard Zones Map

0 750 1,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCem\Puunene\SupplQuarryApps\Figs\Flood

EXHIBIT 9

1992 Decision and Order

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For a Special Permit to Allow a Rock Quarrying/Crushing Operation and Related Uses on Approximately 45.957 Acres on Land Situated Within the State Land Use Agricultural District at Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	DOCKET NO. SP92-380 HAWAIIAN CEMENT

LAND USE COMMISSION
STATE OF HAWAII
JUL 17 10 45 AM '92

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For a Special Permit to Allow a Rock Quarrying/Crushing Operation and Related Uses on Approximately 45.957 Acres on Land Situated Within the State Land Use Agricultural District at Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	DOCKET NO. SP92-380 HAWAIIAN CEMENT

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

Hawaiian Cement (hereinafter "Applicant") initiated this proceeding pursuant to Section 205-6, Hawaii Revised Statutes, as amended, (hereinafter "HRS") and subchapter 12 of Chapter 15-15, Hawaii Administrative Rules. The Land Use Commission (hereinafter "LUC"), having considered the entire record on this matter, hereby makes the following findings of fact, conclusions of law, and decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. The special permit application (hereinafter "Permit") to allow a rock quarrying/crushing operation and related uses on approximately 45.957 acres at Pulehunui, Wailuku, Maui was filed by the Applicant with the County of Maui Planning Department (hereinafter "Department") on October 1, 1991.

2. The Department transmitted the application to the Department of Public Works (hereinafter "DPW") as part of the standard submittal procedures for all permit applications. The application was deemed to be complete and ready for processing by the DPW on October 4, 1991.

3. The Maui County Planning Commission (hereinafter "Planning Commission") conducted a public hearing on the Permit on February 11, 1992 pursuant to notice published in the Maui News on January 10, 1992. The Planning Commission did not receive any public testimony on the Permit.

4. On February 11, 1992, the Planning Commission recommended approval of the Permit to the LUC subject to 11 conditions. The LUC received the record of the County's proceedings on the Permit on April 14, 1992.

PERMIT BACKGROUND

5. On December 28, 1979, the Board of Land and Natural Resources (hereinafter "BLNR") granted Allied Hauling, Inc.'s (hereinafter "Allied") request for a land license (Land License No. S-291) (hereinafter "License") for quarrying operations on a portion of the present Permit area. This License expires on October 16, 1993 and was subject to the concurrence of Alexander & Baldwin, Inc.

6. At its meeting on April 21, 1982, the LUC approved a special permit (SP82-354) (hereinafter "Special Permit") for Allied to operate a rock crushing and concrete batching plant at

its licensed area. The Special Permit was subject to seven conditions as specified in the order:

"1. That the Special Use Permit be nontransferable and limited to a period of 5 years. Further extensions may be granted upon favorable review by the Maui Planning Commission.

"2. That the uses of the subject property shall be limited to rock crushing, quarrying and concrete batching operations only, as proposed by the subject Special Use Permit application.

"3. That the applicant, prior to construction and operation, comply with the following requirements of the Department of Public Works as per their Memorandum dated February 3, 1982:

a. That a detailed drainage and erosion control plan including, but not limited to, hydrologic and hydraulic calculations, scheme for controlling erosion and disposal of runoff water, and an analysis of the soil loss using the HESL erosion formula, be submitted for review and approval by the Maui Department of Public Works.

b. That the project conform to the Maui Off-Street Parking and Loading Ordinance.

c. That the lot be subdivided per the County's Subdivision Ordinance.

d. That the access road be improved with a minimum pavement width of twenty (20) feet and graded shoulders.

e. That the intersection of the access road with Mokulele Highway be addressed relative to providing adequate sight distance, road signage, etc.

"4. That the applicant, prior to construction, submit a detailed water consumption and development program for approval by the Director of Planning, County of Maui.

"5. That the applicant comply with State Department of Health, Air Pollution Control regulations.

"6. That all other Federal, State and County requirements be met.

"7. The applicant shall commence quarrying operations within one year from the effective date of approval of the Special Permit by the Land Use Commission."

7. On May 24, 1985, the BLNR approved a consent document between Allied and M. Funes Concrete, Inc. (hereinafter "Funes") to allow Funes to conduct quarrying operations on a 40.341 acre portion of Allied's Special Permit area with the balance of 5.616 acres to be retained by Allied. The term of the operating agreement between Allied and Funes extended from July 1, 1985 to April 16, 1993.

8. On January 5, 1988, under Docket No. SP87-367/ Allied Hauling, Inc., the LUC approved Allied's request of a five-year extension to the life of its Special Permit to October 16, 1993, (the termination date of Allied's License agreement with the State of Hawaii), subject to 11 conditions:

"1. That said operation shall be limited to quarrying, rock crushing, and concrete batching and shall be valid until October 16, 1993, the time when the applicant's land license agreement with the State of Hawaii terminates. Time extensions may be granted upon timely request and favorable review by the Maui Planning Commission and the State Land Use Commission.

"2. That appropriate measures shall be taken to mitigate potential adverse impacts relative to soil erosion from wind and rain, ambient noise levels, and traffic disruptions.

"3. That full compliance with the requirements of the Department of Public Works in their memo dated November 10, 1987 shall be rendered unless written verification be submitted to the Planning Department that the conditions have been modified or deleted.

"4. That the Special Use Permit shall be valid only for the uses as approved and in accordance with plans submitted therein.

"5. That the uses or structures allowable by the Special Use Permit shall not be expanded or increased in size or area or changed to another special use, unless authorized by law, utilizing the proper procedures.

"6. In the event any historic, archaeological, or cultural sites, remains, artifacts, or resources are discovered, work shall stop and the State Historic Site Office, Department of Land and Natural Resources, the Office of Hawaiian Affairs, and the County Planning Department shall be duly notified to advise of appropriate action.

"7. That upon termination of operations depleted and excavated areas shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and groundcover shall be established.

"8. That this permit shall be non transferable (Allied Hauling holding the land license agreement and M. Funes Concrete, Inc. being the Operator) unless prior approval has been obtained from the Planning Commission, the State Land Use Commission, and the Board of Land and Natural Resources.

"9. In the event that any of the conditions of this permit are breached the applicant/permittee shall be served a written notice by the Planning Department or appropriate County enforcement agency and shall be required to cease all operations from and after receipt of said notice of the Planning Commission to address the breach of conditions. If no appeal is duly filed by the applicant, the Planning Commission shall revoke the subject Special Use Permit.

"10. That the project shall conform to the requirements of any other applicable Federal, State, and County statutes, ordinances, rules, and regulations or codes.

"11. Petitioner shall incorporate the above Special Permit Conditions Numbers one through ten in its operating agreement with the Operator, M. Funes Concrete, Inc."

9. On January 11, 1988, the Applicant acquired all the shares of stock in Funes (Funes is now a wholly-owned subsidiary of the Applicant).

10. On July 14, 1989, the BLNR approved Allied's request to revise the boundaries of its licensed area to include lands to its immediate east, which were believed to contain larger quantities of rock material, and to delete the northern portion of the licensed area. The licensed area, which was originally identified as Tax Map Key No.: 3-8-08: portion of 1 (and subsequently identified as Tax Map Key No.: 3-8-08: 31 due to the subdivision of parcel 1), was now composed of Tax Map Key No.: 3-8-08: portion of 1 and portion of 31. Although the boundaries of the licensed area were reconfigured, the land area remained approximately 45.957 acres.

11. With the pending expiration on April 16, 1993 of the operating agreement between Allied and Funes, as well as of both the Special Permit and the License granted to Allied on October 16, 1993, the Applicant petitioned the Planning Commission for its own special permit on Allied's reconfigured licensed area to operate and expand the quarry's facilities. The Applicant has already applied to the BLNR for a license to remove and sell rock from the quarry. Upon the issuance of the license and special permit to the Applicant, Allied plans to surrender its License and Special Permit.

DESCRIPTION OF THE PROPERTY AND SURROUNDING AREAS

12. The Permit area, approximately 45.957 acres, is located one mile east off of Mokulele Highway and three miles south of Pu'unene. It is identified as Tax Map Key No.: 3-8-08: portion of 1 and portion of 31 (hereinafter "Property").

13. The Property is owned by the State of Hawaii. Alexander and Baldwin, Inc. has a general lease (S-4197) for the Property and surrounding areas for sugarcane cultivation.

14. Access to the area from Mokulele Highway is along Kamaaina Road, onto a cane haul road, and through an access easement on the adjoining lot. The total road distance from the highway to the Property is approximately two miles.

15. To the north, south, and east of the Property are cane fields. An irrigation reservoir and the Maui Factors Pig Farm lie to the west of the Property. Another quarry operated by the Applicant abuts the Property's eastern boundary. This rock quarry was conditionally approved by the LUC under Special Permit No. SP90-376/Hawaiian Cement by order issued on October 17, 1990.

16. Average rainfall in the area is between 20-30 inches annually.

17. Runoff from sugarcane fields above the Property is directed to Kolaloa Gulch by existing diversionary ditches.

18. According to the U.S. Department of Agriculture, Soil Conservation Service, the predominant type of soil at the Property belongs to the Waiakoa and Pulehu series. The Waiakoa

series includes stony silty clay loam (WGB & WhB). The Pulehu series includes clay loam and cobly clay loam (PsA & PtA) and silt loam and cobly silt loam (PbB & PrB).

19. The slope of the Property averages two to three percent.

20. According to the Land Study Bureau's Detailed Land Classification system, the Property has an overall master productivity of "E".

DESCRIPTION OF THE PROPOSED USE

21. The Applicant proposes to continue the existing rock crushing and concrete batching plant operations, as well as provide additional operations of concrete and asphalt batching plants and related concrete and asphaltic products. The Applicant is requesting that the Permit be granted for ten years to allow for sufficient time in upgrading the existing concrete batching plant and support facilities and establish additional production and services, resulting in competitive prices for the Maui consumer.

STATE AND COUNTY PLANS AND PROGRAMS

22. The State Land Use District Classification of the Property is Agricultural, as reflected on State Land Use District boundary map, M-8, Puu O Kali.

23. The County of Maui zoning designation is Agriculture.

24. The Kihei-Makena Community Plan designates the Property as Agriculture.

25. The Property is not located within the County's Special Management Area.

SUMMARY OF STATE AND COUNTY AGENCIES COMMENTS

26. The DPW offered the following comments on the Applicant's request (Exhibit 3):

"1. That a detailed drainage and erosion control plan including, but not limited to, hydrologic and hydraulic calculations, scheme for controlling erosion and disposal of runoff water, and an analysis of the soil loss using the HESL erosion formula, be submitted for our review and approval. The plan shall provide verification that the grading and runoff water generated by the project will not have an adverse effect on the adjacent and downstream properties. Also, measures to address the overflows of the ponding area shall be provided.

"2. That paved parking spaces be provided per the County's Off-Street Parking and Loading Ordinance.

"3. That a sight distance analysis and traffic assessment be conducted to determine if a left turn lane is warranted at the project's access onto Mokulele Highway.

"4. That the developer shall submit a solid waste management plan acceptable to the Department of Public Works to include the following:

a. Solid waste reduction, re-use and recycling programs to reduce the amount of solid waste to be disposed of at the County landfills.

b. All yard debris shall be composted and re-used on their landscape plantings.

c. Alternatives means of disposal of grubbed material and rock shall be utilized other than disposed of at the County landfills.

For additional information, the developer is requested to contact the Solid Waste Division.

"5. That the subject parcel may need to be subdivided. The applicant is requested to submit copies of the lease, rental, license, and other related documents for our review."

27. The Department of Land and Natural Resources, Historic Preservation Division (hereinafter "DLNR") offered the following comments (Exhibits 4 & 5):

"We believe that this (special permit) application will have 'no effect' on significant historic sites. There are no known historic sites within this property and previous archaeological surveys on adjacent parcels identified no historic sites."

28. The State Department of Transportation, Highways Division (hereinafter "DOT") offered the following comments (Exhibit 6):

"1. Mokulele Avenue will be turned over to the state soon. We request the opportunity to review all requests and/or applications of abutting land parcels to ensure that negative impacts are minimized;

"2. The intersection of Mokulele Avenue and the plantation road (quarry access road) needs to be maintained regularly. The intersection contains loose aggregates that may have fallen from trucks hauling aggregates from the quarry;

"3. The presence of the company sign at the intersection needs to be evaluated. It may be a violation of the outdoor advertising statutes;

"4. The proposed operation is located mauka of the highway, which is flooded regularly. The applicant shall make sure that no additional runoff created by its operation be added into this plain. Diverting runoff to the adjacent gulches will contribute to this problem. We recommend that the onsite retention basin be designed to store more than 10 year, 1 hour storm runoff; and,

"5. Design of intersection geometrics should be verified if it meets current design standards. If the intersection was designed for agricultural equipment crossing only, existing geometrics may not be adequate for heavy vehicles, say WB50, to execute the required movements without affecting the mainstream traffic. Auxiliary lanes may need to be constructed to mitigate this problem; and,

"6. We request the opportunity to review roadway improvement plans, if any."

29. The State Department of Health, Maui District Health Office (hereinafter "DOH") had no objections to the Permit, and commented that the rock crushing and asphalt batching plants would require air pollution control permits.

SOCIO-ECONOMIC IMPACTS

30. The quarry provides another source of concrete and crushed rock at competitive prices to the local building and construction firms. Many jobs are directly and indirectly affected by the quarry and rock crushing plant.

IMPACTS UPON THE RESOURCES OF THE AREA

Agricultural Resources

31. Prior use of the area has been as a rock and cinder quarry. The land has poor productivity potential for most agricultural uses.

Flora and Fauna

32. Inasmuch as the area has previously been used as a rock quarry and the surrounding lands remain under sugarcane cultivation, the effects of the continued quarrying operations on flora and fauna will be minimal. There are no rare, threatened, or endangered species of flora or fauna on the Property.

Scenic Resources

33. The existing quarry is not located near any urbanized areas and is not visible from any major roads.

Archaeological and Cultural Resources

34. The continuance of the quarry mining and rock crushing plant operations will have "no effect" on historical sites since no known historic sites occur within the Property. Earlier archaeological surveys on adjacent parcels identified no historic sites.

ADEQUACY OF PUBLIC FACILITIES AND UTILITIES

Highways and Roadway Facilities

35. The intersection of Mokulele Highway and the plantation road needs to be maintained regularly because of the presence of loose aggregates on the road, which may have fallen from trucks hauling aggregates from the quarry. The design of the intersection geometrics should be verified to determine whether it meets current design standards. Auxiliary lanes may be necessary to handle heavy vehicles associated with quarry activity if the intersection is designed for agricultural equipment crossing only.

Drainage

36. Due to the periodic flooding of the highway, an on-site retention basin designed to store more than a hypothetical ten year-one hour storm runoff is recommended by the DOT as a preventive measure.

Water

37. Existing water is being supplied by an on-site non-potable well with potable water being brought in. The Property is not currently being serviced by the Department of Water Supply.

Solid Waste

38. The nearest landfill site is located at Pu'unene. The DPW has requested that a solid waste management plan be submitted by the Applicant to the DPW with the following requirements: a) solid waste reduction, reuse, and recycling programs to reduce solid waste; b) all yard debris shall be composted and reused on their landscape plantings; c) alternative means of disposal of grubbed material and rock shall be utilized other than disposed of at the County landfills; and d) refuse collection shall be by a private collector.

Sewage

39. Sewage disposal is currently handled through an on-site cesspool. No further improvements will be required by the DOH.

Police and Fire Protection

40. A fully manned police station is located in Wailuku approximately seven miles from the Property. A fully manned fire station is located at Kahului approximately 4.5 miles from the Property.

Electricity and Telephone Service

41. Electrical and telephone services are currently available to the Property from overhead lines within the immediate area.

CONFORMANCE WITH SPECIAL USE PERMIT TESTS

42. The Department did not offer any specific comments with respect to the Permit's conformance with the Special Use Permit Tests. The LUC finds that the Permit conforms with the criteria as follows:

1. The use shall not be contrary to the objectives sought to be accomplished by Chapter 205 and Chapter 205A, HRS, and Chapter 15-15, Hawaii Administrative Rules.

   The potential for agricultural activity on the Property is poor. The Land Study Bureau's Detailed Land Classification designates the Property with an overall master productivity of "E".

   The area has been the site of a rock and cinder quarry for the past ten years.

   According to the Kihei-Makena Community Plan, Special Permits in the State Agricultural District may be allowed only to accommodate extractive industries, such as quarrying, where the operation would not adversely offset the environment or surrounding agricultural uses. The proposed use is an extracting industry that would not adversely impact the environment and surrounding agricultural uses provided appropriate mitigative measures are incorporated.

2. The desired use would not adversely affect surrounding property.

   Prior use of the area as a rock and cinder quarry has not adversely affected surrounding properties nor precluded other viable agricultural activities in the area.

3. The use would not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage and school improvements, and police and fire protection.

The proposed use would not unreasonably burden public agencies to provide additional infrastructure. There are adequate facilities existing to serve the proposed use. Mitigative measures have been proposed in the event improvements to the infrastructure are deemed necessary.

4. Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established.

The Applicant has stated that the Maui consumer will benefit by continued and improved quarrying and rock crushing services and products.

5. The land upon which the proposed use is sought is unsuited for the uses permitted within the district.

The Property has poor productivity potential for most agricultural uses.

PLANNING COMMISSION RECOMMENDATIONS

43. At its meeting of February 11, 1992, the Planning Commission recommended approval of the Permit to the LUC subject to the following conditions:

"1. That the Land Use Commission Special Use Permit shall be valid for a period of ten (10) years from the date of its granting, subject to further extensions by the Land Use Commission upon a timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

"2. That the conditions of this Land Use Commission Special Use Permit shall be self enforcing and, accordingly, upon due notice by the Planning Department to the permit holder and the Land Use Commission that there is prima facie evidence that a breach has occurred the permit shall be automatically suspended pending action by the Land Use Commission. A hearing on the continuity of such Land Use Commission Special Use Permit may be held, provided that written request for such a hearing is filed with the Land

Use Commission within ten (10) working days of the date of such notice of alleged breach. If no request for hearing is filed within said ten (10) working day period, the Land Use Commission may revoke said Land Use Commission Special Use Permit.

"3. That the subject Land Use Commission Special Use Permit shall not be transferred without the prior written approval of the Land Use Commission. The appropriate Planning Commission shall make a recommendation to the Land Use Commission. However, in the event that a contested case hearing preceded issuance of said Land Use Commission Special Use Permit, a public hearing shall be held by the appropriate Planning Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

"4. That the applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject Land Use Commission Special Use Permit and shall hold the County of Maui State of Hawaii harmless from and against any loss, liability, claim or demand arising out of this permit.

"5. That full compliance with all applicable governmental requirements shall be rendered.

"6. That a restoration plan be submitted, showing that upon termination of operations depleted and excavated areas shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and ground cover shall be established.

"7. That a detailed drainage plan be submitted to the Department of Public Works and Department of Transportation for their review and approval.

"8. That a detailed solid waste management plan be submitted to Public Works for their review and approval.

"9. That a regular maintenance program for the access road be submitted to Department of Transportation Highways Division and Department of Public Works for review and approval to ensure that loose aggregate, which may have fallen from trucks coming from the quarry site, shall be removed.

"10. That air pollution control permits, for the rock crushing and asphalt batching plants, be obtained.

"11. That a sight distance analysis and traffic assessment shall be conducted to determine if intersection improvements are warranted at the projects' access to Mokulele Highway to the satisfaction of the Director of Public Works. If improvements are warranted, such improvements shall be provided at the applicant's expense to county or state standards as may be applicable at the time of the improvements."

CONCLUSIONS OF LAW

The Special Permit request to allow a rock quarrying/crushing operation and related uses constitutes an "unusual and reasonable" use as defined in Chapter 205-6, HRS, as amended, and the proposed use is not contrary to the objectives sought to be accomplished by the State Land Use Law to preserve, protect, and encourage development of lands in the State for those uses to which they are best suited in the interest of the public health and welfare.

ORDER

IT IS HEREBY ORDERED that Special Permit Docket No. SP92-380 to allow a rock quarrying/crushing operation and related uses on approximately 45.957 acres of land designated within the State Land Use Agricultural District, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31 at Pulehunui, Wailuku, Maui, and approximately identified on Exhibit "A" attached hereto and incorporated by reference herein, is hereby approved with modification and subject to the following conditions:

1. That the Land Use Commission Special Use Permit shall be valid for a period of ten (10) years from the date of its granting, subject to further extensions by the Land Use

Commission upon a timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

2. That the conditions of this Land Use Commission Special Use Permit shall be enforced by the County of Maui pursuant to Section 205-12, Hawaii Revised Statutes, and accordingly, upon due notice by the Planning Department and Planning Commission to the permit holder and the Land Use Commission that there is prima facie evidence that a breach has occurred, a hearing on the continuity of such Special Use Permit may be held, provided that written request for such a hearing is filed by Applicant with the Planning Department and Planning Commission within ten (10) working days of the date of such notice of alleged breach. If no request for hearing is filed by Applicant within said ten (10) working day period, the Planning Department and Planning Commission may revoke said Land Use Commission Special Use Permit.

3. That the subject Land Use Commission Special Use Permit shall not be transferred without the prior written approval of the Land Use Commission. The appropriate Planning Commission shall make a recommendation to the Land Use Commission. However, in the event that a contested case hearing preceded issuance of said Land Use Commission Special Use Permit, a public hearing shall be held by the appropriate Planning

Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

4. That Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject Land Use Commission Special Use Permit and shall hold the County of Maui and the State of Hawaii harmless from and against any loss, liability, claim or demand arising out of this permit.

5. That full compliance with all applicable governmental requirements shall be rendered.

6. That a restoration plan be submitted, showing that upon termination of operations, depleted and excavated areas shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and ground cover shall be established.

7. That a detailed drainage plan be submitted to the Department of Public Works and Department of Transportation for their review and approval.

8. That a detailed solid waste management plan be submitted to Public Works for their review and approval.

9. That a regular maintenance program for the access road be submitted to Department of Transportation Highways Division and Department of Public Works for review and approval to ensure that loose aggregate, which may have fallen from trucks coming from the quarry site, shall be removed.

10. That air pollution control permits, for the rock crushing and asphalt batching plants, be obtained.

11. That a sight distance analysis and traffic assessment shall be conducted to determine if intersection improvements are warranted at the projects' access to Mokulele Highway to the satisfaction of the Director of Public Works. If improvements are warranted, such improvements shall be provided at the applicant's expense to county or state standards as may be applicable at the time of the improvements.

12. Applicant shall cause Allied Hauling, Inc. to submit a request through the Maui Planning Commission to revoke its special use permit issued under Docket No. SP87-367/Allied Hauling, Inc. for quarrying purposes on the Property within two (2) months from filing of the Decision and Order of the Land Use Commission approving this application.

13. An annual progress report shall be submitted to the Planning Director and the State Land Use Commission prior to the anniversary date of the approval of the permit. The report shall include, but not be limited to, the status of the development and to what extent the conditions of approval are being complied with. This condition shall remain in effect until all of the conditions of approval have been complied with and the Planning Director acknowledges that further reports are not required.

DOCKET NO. SP92-380 - HAWAIIAN CEMENT

Done at Honolulu, Hawaii, this 13th day of July 1992, per motions on May 28, 1992 and July 10, 1992.

LAND USE COMMISSION
STATE OF HAWAII

By _____
RENTON L. K. NIP
Chairman and Commissioner

By _____
ALLEN K. HOE
Vice Chairman and Commissioner

By _____
ALLEN Y. KAJIOKA
Vice Chairman and Commissioner

By _____
KAREN S. AHN
Commissioner

By (absent)
EUSEBIO LAPENIA, JR.
Commissioner

By _____
JOANN N. MATTSON
Commissioner

By _____
TRUDY K. SENDA
Commissioner

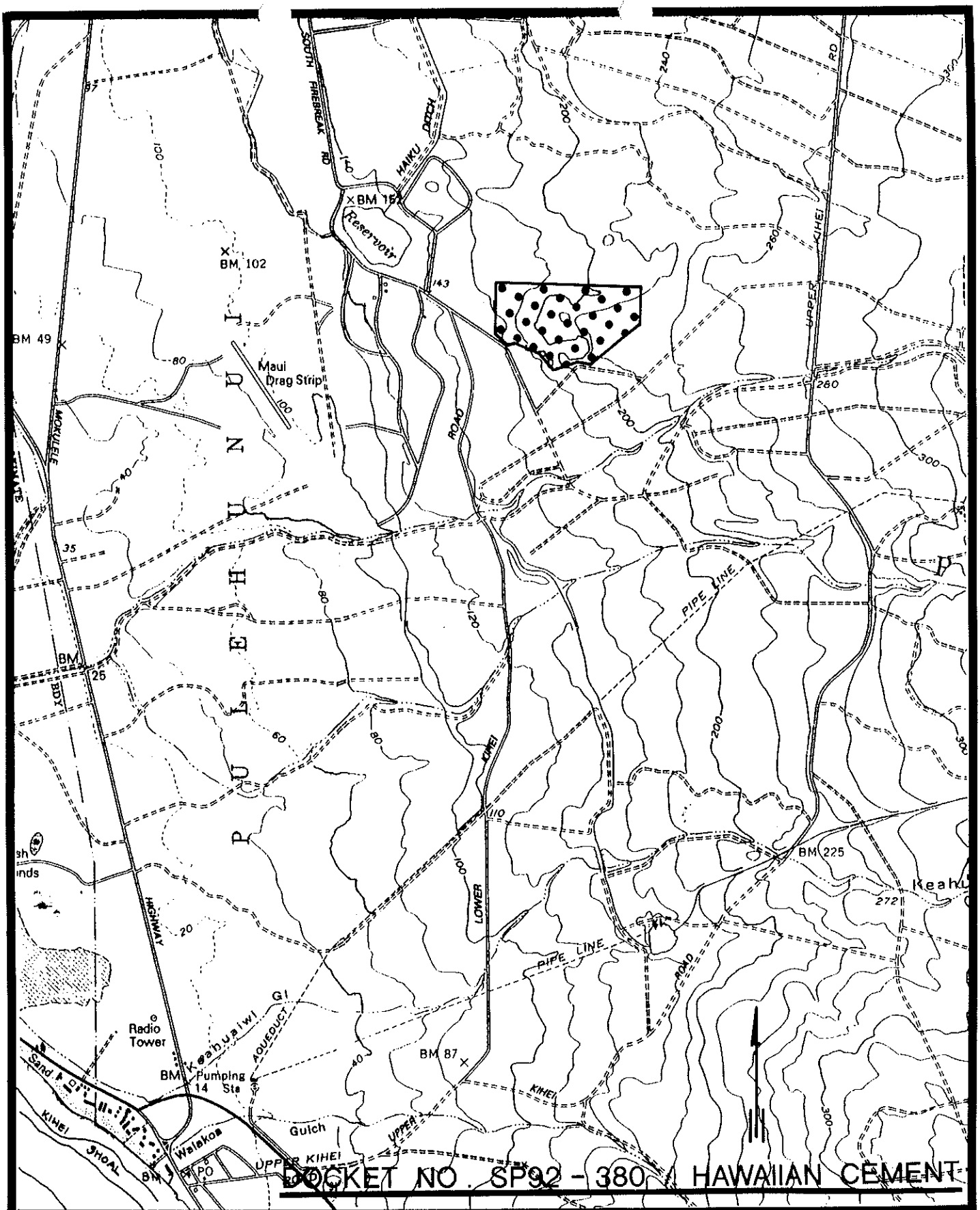
By _____
ELTON WADA
Commissioner

By (absent)
DELMOND J. H. WON
Commissioner

Filed and effective on
July 13, 1992

Certified by:

_____
Executive Officer



LOCATION MAP

TAX MAP KEY: 3 – 8 – 08: por. 01 & por. 31

PULEHUNUI, WAILUKU, MAUI

SCALE: 1" = 2,000 ft. ±

PERMIT AREA

EXHIBIT "A"

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For a Special Permit to Allow a Rock Quarrying/Crushing Operation and Related Uses on Approximately 45.957 Acres on Land Situated Within the State Land Use Agricultural District at Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	DOCKET NO. SP92-380 HAWAIIAN CEMENT

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Findings of Fact, Conclusions of Law, and Decision and Order was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by certified mail:

CERT. BRIAN MISKAE, Planning Director
Planning Department, County of Maui
250 South High Street
Wailuku, Hawaii 96793

CERT. GUY A. HAYWOOD, ESQ.
Corporation Counsel
Office of the Corporation Counsel
County of Maui
200 South High Street
Wailuku, Hawaii 96793

CERT. LAWRENCE ING, ESQ, Attorney for Petitioner
Ing and Ige
Wells Street Professional Center
2145 Wells Street
Wailuku, Hawaii 96793-2222

CERT. W. W. HORNEMAN, Vice President
Hawaiian Cement
Suite 1700, 220 South King Street
Honolulu, Hawaii 96813-4547

DATED: Honolulu, Hawaii, this 13th day of July 1992.

ESTHER UEDA
Executive Officer

EXHIBIT 10

1996 Decision and Order

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 45.957 Acres of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	)	DOCKET NO. SP92-380 FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

LAND USE COMMISSION
STATE OF HAWAII
NOV 25 8 35 AM '96

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 45.957 Acres of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	DOCKET NO. SP92-380 FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

FINDINGS OF FACT, CONCLUSIONS OF LAW, AND DECISION AND ORDER

Hawaiian Cement ("Applicant") initiated this proceeding pursuant to Section 205-6, Hawaii Revised Statutes ("HRS"), and Sections 15-15-95 and 15-15-96, Hawaii Administrative Rules ("HAR"). The Land Use Commission ("LUC"), having considered the entire record on this matter, hereby makes the following findings of fact, conclusions of law, and decision and order:

FINDINGS OF FACT

PROCEDURAL MATTERS

1. On March 7, 1996, a letter requesting incorporation of approximately sixty (60) acres of land into the subject Special Permit to continue quarrying/crushing operations and related uses was filed by the Applicant with the County of Maui Planning Department ("Planning Department").

2. On April 3, 1996, the Planning Department received the requisite forms ("Application") from the Applicant to process the proposed incorporation.

3. On July 9, 1996, the Maui Planning Commission ("Planning Commission") conducted a public hearing on the Application.

4. No oral public testimony was provided at the July 9, 1996 Planning Commission hearing.

5. On July 9, 1996, after due deliberation, the Planning Commission recommended approval of the Application to the LUC, subject to all conditions imposed in LUC Docket No. SP92-380, with the exception of the deletion of Condition No. 12, renumbering of Condition No. 13 as Condition No. 12, and amendment of Condition No. 11.

6. On September 6, 1996, the LUC received and accepted for consideration a copy of the record of the Planning Commission's proceedings on the Application and the Planning Commission's decision and recommendation.

7. On October 10, 1996, the LUC held a meeting in Honolulu, Oahu on the Application. Mr. W.W. Horneman represented the Applicant, and Mr. Clayton Yoshida represented the County of Maui Planning Department.

DESCRIPTION OF THE PROPERTY AND SURROUNDING AREA

8. The area proposed to be incorporated into the permit area under LUC Docket No. SP92-380 consists of approximately sixty (60) acres and is located at Pulehunui,

Wailuku, Maui ("Property"). The Property is further identified as Tax Map Key No.: 3-8-04: portion of 1, and portion of 2.

9. The Property was the subject of LUC Docket No. SP90-376/Hawaiian Cement, which allowed the establishment and operation of a rock quarry. LUC Docket No. SP90-376 was granted by the LUC pursuant to Findings of Fact, Conclusion of Law, and Decision and Order dated October 17, 1990.

10. LUC Docket No. SP90-376 was subject to nine conditions. Among the conditions imposed, a time limitation for the life of the Special Permit was imposed. Condition No. 1 of the Special Permit stated that the Special Permit was valid for a period of five (5) years from the date of the granting of the permit. Additionally, extensions were also possible upon submission of a timely application and favorable review by the Planning Commission and LUC.

11. Pursuant to Condition No. 1, the Special Permit granted under LUC Docket No. SP90-376 had an expiration date of August 17, 1995.

12. The Property is owned in fee by A&B Properties, Inc.

13. Current access to the Property is from a service road from Mokulele Highway. Mokulele Highway is approximately 1½ miles west of the Property.

14. The Property is approximately 3½ miles south of Puunene, and approximately 4½ miles south of Kahului.

15. The Property is currently being utilized for quarry operations. The Property is bounded on the north, east,

and south by agricultural fields, and to the west by lands that are the subject of LUC Docket No. SP92-380/Hawaiian Cement.

16. The lands under LUC Docket No. SP92-380, which allowed the establishment of a rock quarrying/crushing operation, and other related uses, consists of approximately 45.957 acres within the State Land Use Agricultural District, and identified further as Tax Map Key No.: 3-8-08: portion of 1, and portions of 31, and situated at Pulehunui, Wailuku, Maui.

17. The Special Permit under LUC Docket No. SP92-380 was approved pursuant to Findings of Fact, Conclusions of Law, and Decision and Order dated July 13, 1992, and is subject to thirteen (13) conditions. Among the conditions imposed, Condition No. 1 states that the Special Permit is valid for a period of ten (10) years from the date of its granting and subject to further extensions by the LUC upon a timely request for extension. Thus, the Special Permit is valid until July 13, 2002.

18. The approximately 45.957 acre parcel under LUC Docket No. SP92-380 was the also the subject of LUC Docket No. SP87-367/Allied Hauling, Inc. Said Special Permit was granted by the LUC pursuant to a Decision and Order issued on February 18, 1988, and was valid until February 18, 1993.

DESCRIPTION OF PROPOSED USES

19. The Applicant is requesting that the Property be incorporated into the Special Permit area under LUC Docket No. SP92-380. The Applicant represented that it wishes to continue rock quarry operations on the Property, and that incorporation of

the Property into LUC Docket No. SP92-380 will be beneficial for all concerned as far as one Special Permit and a single expiration date.

20. No new uses are being proposed for the Property and the approximately 45.957 acres that are the subject of LUC Docket No. SP92-380.

STATE AND COUNTY PLANS AND PROGRAMS

21. The Property is situated within the State Land Use Agricultural District, as depicted on the State Land Use District Boundary Map M-8 (Puu O Kali).

22. The County of Maui Kihei-Makena Community Plan designates the Property as Agricultural.

23. County of Maui Zoning Maps designate the Property as Agricultural.

24. Although the Property is within the Coastal Zone Management Area, the Property is not located within the Special Management Area as designated by the County of Maui, pursuant to Hawai'i Revised Statutes ("HRS"), Chapter 205A.

SUMMARY OF COUNTY, STATE AND FEDERAL AGENCY COMMENTS

County Agencies

25. The Department of Public Works and Waste Management had no comments to offer on the Application.

26. The Department of Fire Control had no comments to offer on the Application.

27. The Board of Water Supply did not provide comments on the Application.

State Agencies

28. The Department of Health had no comments on the Application.

29. The Department of Land and Natural Resources had no comment on the Application.

30. The State Historic Preservation Division of the Department of Land and Natural Resources commented that the Application would have "no effect" on significant historic sites.

31. The Department of Transportation (DOT) acknowledged receipt of the traffic assessment report and construction plans, and commented that the Applicant had not fully complied with the intersection improvements required at the project access to Mokulele Highway. DOT also recommended that the Applicant work with the Highways Division to provide intersection improvements.

32. The Office of Planning (formerly Office of State Planning) did not provide any comments on the Application.

Federal Agencies

33. The Natural Resources Conservation Services had no comments to offer on the Application.

34. The U.S. Army Corps of Engineers did not provide any comments on the Application.

IMPACTS UPON THE RESOURCES OF THE AREA

35. The Planning Department, in its report to the Planning Commission stated that as the land area and uses of LUC Docket Nos. SP90-376 and SP92-380 have not expanded, increased in size, or changed to another special use, the assessment of the

impacts upon resources of the respective Special Permits originally presented remain valid.

CONFORMANCE WITH SPECIAL PERMIT CRITERIA

36. The Planning Department, in its report to the Planning Commission on the Application, stated that uses in the respective Special Permits previously met the five tests for "unusual and reasonable" use in the State Agricultural District. Because the uses have not changed, the uses continue to meet the five tests.

PLANNING COMMISSION RECOMMENDATION

37. At its meeting on July 9, 1996, the Planning Commission recommended approval of the Application to the LUC, subject to all conditions of LUC Docket No. SP92-380, with the exception of the deletion of Condition No. 12, renumbering of Condition No. 13 as Condition No. 12, and amendment of Condition No. 11. As recommended by the Planning Commission, the conditions would read as follows (items deleted as bracketed, additions are underscored):

1) That the Land Use Commission Special Use Permit shall be valid for a period of ten (10) years from the date of its granting, subject to further extensions by the Land Use Commission upon timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

2) That the conditions of this Land Use Commission Special Use Permit shall be enforced by the County of Maui pursuant to Section 205-12, Hawai'i Revised Statutes, and accordingly, upon due notice by the Planning Department and Planning Commission to the permit holder and the Land Use Commission that there is a evidence that a breach has occurred, a hearing on the continuity of such Special Use Permit may be held, provided that

written request for such a hearing is filed by Applicant with the Planning Department and Planning Commission within ten (10) working days of the date of such notice of alleged breach. If no request for hearing is filed by Applicant within said ten (10) working day period, the Planning Department and Planning Commission may revoke said Land Use Commission Special Use Permit.

3) That the subject Land Use Commission Special Use Permit shall not be transferred without the prior written approval of the Land Use Commission. The appropriate Planning Commission shall make a recommendation to the Land Use Commission. However, in the event that a contested case hearing preceded issuance of said Land Use Commission Special Use Permit, a public hearing shall be held by the appropriate Planning Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

4) That Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject Land Use Commission Special Use Permit and shall hold the County of Maui and the State of Hawai'i harmless from and against any loss, liability, claim or demand arising out of this permit.

5) That full compliance with all applicable governmental requirements shall be rendered.

6) That a restoration plan be submitted, showing that upon termination of operations, depleted and excavated area shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and ground cover shall be established.

7) That a drainage plan be submitted to the Department of Public Works and Department of Transportation for their review and approval.

8) That a detailed solid waste management plan be submitted to Public Works for their review and approval.

9) That a regular maintenance program for the access road be submitted to Department of Transportation Highways Division and Department of Public Works for review and approval to ensure that loose aggregate, which may have fallen from trucks coming from the quarry site, shall be removed.

10) That air pollution control permits, for the rock crushing and asphalt batching plants, be obtained.

11) [That a sight distance analysis and traffic assessment shall be conducted to determine if intersection improvements are warranted at the projects' access to Mokulele Highway to the satisfaction of the Director of Public Works. If improvements are warranted, such improvements shall be provided at the applicant's expense to county or state standards as may be applicable at the time of the improvements.] That intersection improvements on Mokulele Highway, as warranted and approved by the Department of Transportation, shall be provided on Mokulele Highway within a period of one (1) year from the date that the construction plans have been approved by the Department of Transportation.

12) [Applicant shall cause Allied Hauling, Inc. to submit a request through the Maui Planning Commission to revoke its special use permit issued under Docket No. SP87-367/Allied Hauling, Inc. for quarrying purposes on the Property within two (2) months from filing of the Decision and Order of the Land Use Commission approving this application.

13)] An annual progress report shall be submitted to the Planning Director and the State Land Use Commission prior to the anniversary date of the approval of the permit. The report shall include, but not be limited to, the status of the development and to what extent the conditions of approval are being complied with. This condition shall remain in effect until all of the conditions of approval have been complied with and the Planning Director acknowledges that further reports are not required.

38. Any findings of fact that may be a conclusion of law shall be deemed a conclusion of law.

CONCLUSIONS OF LAW

The Special Permit Application to incorporate approximately sixty (60) acres of land into the Special Permit area under LUC Docket No. SP92-380 in order to continue rock quarrying activities constitutes an "unusual and reasonable" use as provided in Section 205-6, HRS, and as established in Section

15-15-95(b), Hawai'i Administrative Rules, and the proposed use is not contrary to the objectives sought to be accomplished by the State Land Use Law to preserve, protect, and encourage development of lands in the State for those uses to which they are best suited in the interest of the public health and welfare.

ORDER

IT IS HEREBY ORDERED that the Special Permit Application that is the subject of LUC Docket No. SP92-380, requesting the incorporation of approximately sixty (60) acres of land situated within the State Land Use Agricultural District, and that is the subject of LUC Docket No. SP90-376, into the Special Permit area under LUC Docket No. SP92-380 and identified as Tax Map Key No.: 3-8-04: portion of 1, and portion of 2, situated at Pulehunui, Wailuku, Maui, and approximately identified on "Exhibit A" attached hereto and incorporated by reference herein, is hereby approved and the entire approximately 105.957 acres that is the subject of LUC Docket No. SP92-380, is subject to the following conditions:

1. That the Land Use Commission Special Permit shall be valid until July 13, 2002, subject to further extensions by the Land Use Commission upon timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

2. That the conditions of this Land Use Commission Special Permit shall be enforced by the County of Maui pursuant

to Section 205-12, Hawai'i Revised Statutes, and accordingly, upon due notice by the Planning Department and Planning Commission to the permit holder and the Land Use Commission that there is a prima facie evidence that a breach has occurred, a hearing on the continuity of such Special Permit may be held, provided that written request for such a hearing is filed by Applicant with the Planning Department and Planning Commission within ten (10) working days of the date of such notice of alleged breach. If no request for hearing is filed by Applicant within said ten (10) working day period, the Planning Department and Planning Commission may revoke said Land Use Commission Special Permit.

3. That the subject Land Use Commission Special Permit shall not be transferred without the prior written approval of the Land Use Commission. The appropriate Planning Commission shall make a recommendation to the Land Use Commission. However, in the event that a contested case hearing preceded issuance of said Land Use Commission Special Permit, a public hearing shall be held by the appropriate Planning Commission upon due published notice, including actual written notice to the last known addresses of parties to said contested case and their counsel.

4. That Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject Land Use Commission Special Permit and shall hold the County of Maui and the State of

Hawai'i harmless from and against any loss, liability, claim or demand arising out of this permit.

5. That full compliance with all applicable governmental requirements shall be rendered.

6. That a revised restoration plan, which includes the approximately sixty (60) acres to be incorporated into the Special Permit be submitted, showing that upon termination of operations, depleted and excavated area shall be graded to blend with the surrounding natural contours and that appropriate vegetative cover consisting of trees, shrubs, and ground cover shall be established.

7. That a revised drainage plan, which includes the approximately sixty (60) acres to be incorporated into the Special Permit be submitted to the County of Maui Department of Public Works and Waste Management and Department of Transportation for their review and approval.

8. That a revised detailed solid waste management plan, which includes the approximately sixty (60) acres to be incorporated into the Special Permit be submitted to the County of Maui Department of Public Works and Waste Management for their review and approval.

9. That a regular maintenance program for the access road be submitted to the Department of Transportation Highways Division and County of Maui Department of Public Works and Waste Management for review and approval to ensure that loose aggregate, which may have fallen from trucks coming from the quarry site, shall be removed.

10. That air pollution control permits, for the rock crushing and asphalt batching plants, be obtained.

11. That intersection improvements on Mokulele Highway, as warranted and approved by the Department of Transportation, shall be provided on Mokulele Highway within a period of one (1) year from the date that the construction plans have been approved by the Department of Transportation.

12. An annual progress report shall be submitted to the Planning Director and the State Land Use Commission prior to the anniversary date of the approval of the permit. The report shall include, but not be limited to, the status of the development and to what extent the conditions of approval are being complied with. This condition shall remain in effect until all of the conditions of approval have been complied with and the Planning Director acknowledges that further reports are not required.

Done at Honolulu, Hawai'i, this 25th day of November 1996, per motions on October 10, 1996 and November 1, 1996.

LAND USE COMMISSION
STATE OF HAWAI'I

By _____
TRUDY K. SENDA
Chairperson and Commissioner

By (absent)
RUPERT K. CHUN
Vice Chairperson and Commissioner

By _____
LAWRENCE N.C. ING
Commissioner

By _____
M. CASEY JARMAN
Commissioner

By _____
HERBERT S.K. KAOPUA, SR.
Commissioner

By _____
LLOYD F. KAWAKAMI
Commissioner

By _____
MERLE A. K. KELAI
Commissioner

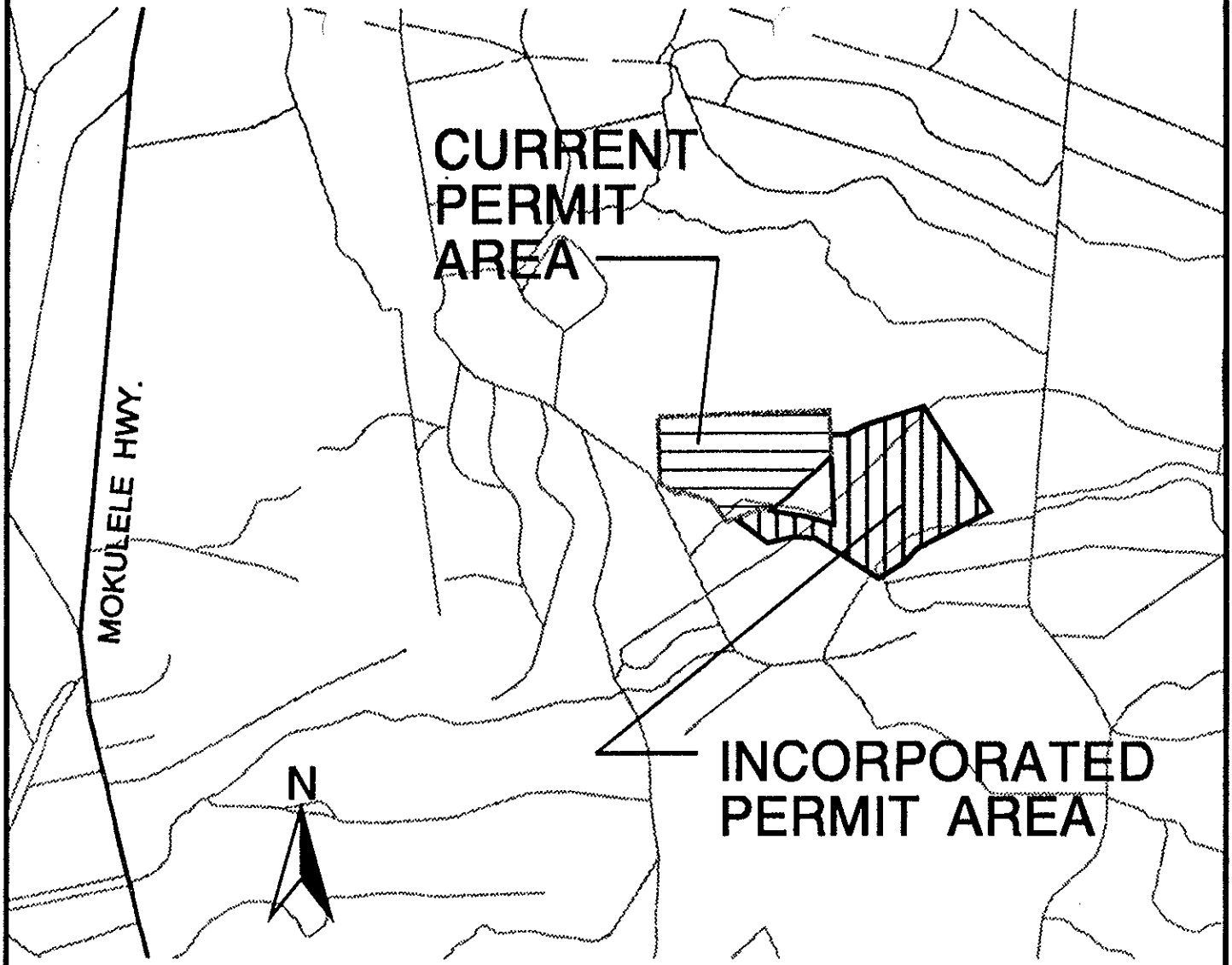
Filed and effective on
November 25, 1996

Certified by:

_____
Executive Officer

By (absent)
EUSEBIO LAPENIA, JR.
Commissioner

By (absent)
JOANN N. MATTSON
Commissioner



Docket No. SP92-380 /
HAWAIIAN CEMENT

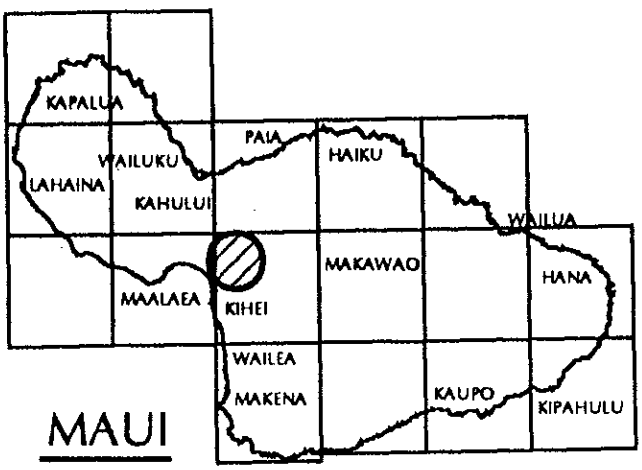
LOCATION MAP

Tax Map Key: 3-8-04: por. 1, por. 2; 3-8-08: por. 1, & por. 31

Pulehunui, Wailuku, Maui

Scale: 1" = 2,000 ft.

EXHIBIT "A"



MAUI

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAII

In the Matter of the Petition of HAWAIIAN CEMENT For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 45.957 Acres of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Tax Map Key No.: 3-8-08: portion of 1 and portion of 31	DOCKET NO. SP92-380 CERTIFICATE OF SERVICE

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Findings of Fact, Conclusions of Law, and Decision and Order was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by certified mail:

DEL. RICK EGGED, Director
Office of Planning
P. O. Box 2359
Honolulu, Hawaii 96804-2359

CERT. DAVID W. BLANE, Director of Planning
Planning Department, County of Maui
250 South High Street
Wailuku, Hawaii 96793

CERT. JEFFREY SCHMIDT, ESQ.
Corporation Counsel
Office of the Corporation Counsel
County of Maui
200 South High Street
Wailuku, Hawaii 96793

CERT. W.W. HORNEMAN, Vice-President
Hawaiian Cement
P. O. Box 488
Kahului, Hawaii 96732

DATED: Honolulu, Hawaii, this 25th day of November 1996.

ESTHER UEDA
Executive Officer

EXHIBIT 11

2006 Decision and Order

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

'06 DEC 19 P2:26

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

06/1163

In The Matter Of The Application Of	)	DOCKET NO. SP92-380
	)	
HAWAIIAN CEMENT	)	DECISION AND ORDER
	)	APPROVING AMENDMENT
For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 105.957 Acres Of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1 And Portion Of 2 And 3-8-08: Portion Of 1 And Portion Of 31	)	TO SPECIAL USE PERMIT

DECISION AND ORDER APPROVING AMENDMENT TO SPECIAL USE PERMIT

This is to certify that this is a true and correct copy of the document on file in the office of the State Land Use Commission, Honolulu, Hawaii.

DEC 18 2006 by _____
Date Executive Officer

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of	)	DOCKET NO. SP92-380
	)	
HAWAIIAN CEMENT	)	DECISION AND ORDER
	)	APPROVING AMENDMENT
For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 105.957 Acres Of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1 And Portion Of 2 And 3-8-08: Portion Of 1 And Portion Of 31	)	TO SPECIAL USE PERMIT

DECISION AND ORDER APPROVING AMENDMENT TO SPECIAL USE PERMIT

On August 30, 2005, Hawaiian Cement ("Applicant") filed a written request to amend the special use permit issued in the above-entitled docket ("Proposed Amendment") with the County of Maui Department of Planning ("DP"), pursuant to section 205-6, Hawai`i Revised Statutes ("HRS"), and sections 15-15-95 and 15-15-96, Hawai`i Administrative Rules ("HAR"). The Applicant requested the expansion of its existing rock quarry and concrete aggregate operations on approximately 66.444 acres of land within the State Land Use Agricultural District,

identified as Tax Map Key: 3-8-04: por. 1, at Pulehunui, Wailuku, Maui, Hawai`i ("Expansion Areas").[1]

The LUC has jurisdiction over the Applicant's Proposed Amendment. Section 205-6, HRS, and sections 15-15-95 and 15-15-96, HAR, authorize the LUC to approve special use permits and amendments thereto for areas greater than 15 acres.

On June 27, 2006, the County of Maui Planning Commission ("Planning Commission") conducted a hearing on the Applicant's Proposed Amendment. There was no public testimony provided on the Proposed Amendment. After due deliberation, the Planning Commission recommended approval of the Applicant's Proposed Amendment to the LUC, subject to the following five additional conditions, which augment the existing 11 conditions previously imposed by the LUC in its Decision And Order Approving A Time Extension To A Special Use Permit ("Decision And Order Approving A Time Extension") dated July 15, 2005:

12. That a grading permit from the Public Works Department shall be obtained prior to any land disturbance in the new quarry areas.

---

[1] By Findings Of Fact, Conclusions Of Law, And Decision And Order issued on July 13, 1992, the Land Use Commission ("LUC") approved the special use permit to establish the rock quarry and concrete aggregate operations on approximately 45.957 acres of land. By Findings Of Fact, Conclusions Of Law, And Decision And Order issued on November 25, 1996, the LUC approved an additional approximately 60 acres of land to the special use permit for a total area of 105.957 acres. Based on the configuration of the 105.957 acres in the record and the current tax maps, the existing rock quarry and concrete aggregate operations are located on Tax Map Keys: 3-8-04: por. 1 and 3-8-08: por. 20 and por. 31.

The existing configuration of the 105.957 acres in the record differs significantly from the boundaries of the actual area of use.

13. That prior to issuance of a grading permit, the applicant shall provide evidence of approval from the State Department of Transportation regarding a maintenance program for the driveway and surrounding roadway.

14. That prior to issuance of a grading permit, the applicant will provide evidence of approval from the State Department of Health regarding modifications to the Clean Air Branch permit.

15. That prior to issuance of a grading permit, the applicant shall submit an archeological [sic] inventory survey to the State Historic Preservation Division for their review; and shall comply with their subsequent comments.

16. That the new quarry operations shall be confined to the areas depicted on Exhibit 2 of the Planning Department staff report as "24.476 Acres" and "41.968 Acres" (attached as "Proposed Quarry Mining Site" map, dated July 7, 2005).

On August 25 and October 30, 2006, the LUC received a copy of the decision and a portion of the record of the Planning Commission's proceedings on the Applicant's Proposed Amendment. On November 14, 2006, the LUC received the remaining portion of the record.

On December 8, 2006, the LUC met at the Hapuna Beach Prince Hotel located on the Kohala Coast, South Kohala, Hawai`i, to consider the Applicant's Proposed Amendment. William Horneman appeared on behalf of the Applicant. Jeff Hunt appeared on behalf of the DP. Bryan C. Yee, Esq., and Abe Mitsuda also were present on behalf of the State Office of Planning ("OP").

At the meeting, the DP stated, among other things, that based on an e-mail received on July 18, 2006, the County Department of Public Works and Environmental Management clarified that the expansion of the quarry was in fact exempt from a grading permit, and therefore Condition Number 12 should be deleted and that references to the issuance of a grading permit in Condition Numbers 13, 14, and 15 should be rephrased to require that the respective actions occur prior to initiating the proposed quarry operations. The DP also clarified that Condition Number 13 addresses a maintenance program for the driveway and surrounding roadway including Mokulele Highway, whereas Condition Number 9 pertains primarily to a maintenance program for the access road. The Applicant then provided a background of the existing rock quarry and concrete aggregate operations. The Applicant pointed out, among other things, that he provided approximately 80,000 tons of aggregate per year and in excess of 160,000 cubic yards of concrete from the existing quarry to the economy of Maui. The Applicant noted that at the current rate of mining, he would run out of material at the current site by the middle of 2007, and therefore he intended to start quarrying operations into the Expansion Areas as soon as possible. In response to questioning from the LUC, the Applicant clarified that its existing restoration plan will apply to the Expansion Areas, and that it will amend or supplement its existing solid waste management plan to include the Expansion Areas. The Applicant further noted that it had no

objections to the revisions to Condition Numbers 13, 14, and 15 as recommended by the DP. The OP was then asked to provide comments on the Proposed Amendment. The OP stated that it had not yet received confirmation that the State Department of Transportation ("DOT") reviewed and approved the Applicant's maintenance program. The OP added, however, that with the assumption that (i) the term "surrounding roadway" in Condition Number 13 includes Mokulele Highway; (ii) the DOT's approval of a maintenance program is necessary prior to commencement of quarrying in the Expansion Areas; and (iii) the County of Maui will enforce violations of any maintenance program approved by the DOT, the OP had no objections to the Proposed Amendment.

Thereafter, a motion was made and seconded to approve the Applicant's Proposed Amendment, subject to the following additional conditions to the Decision And Order Approving A Time Extension dated July 15, 2005:

12. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall provide evidence of approval from the State Department of Transportation regarding a maintenance program for the driveway and surrounding roadway.

13. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall provide evidence of approval from the State Department of Health regarding modifications to the Clean Air Branch permit.

14. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall submit an archaeological inventory survey to the State Historic Preservation Division for their review; and shall comply with their subsequent comments.

15. That the new quarry operations shall be confined to the areas depicted on Exhibit 2 of the Planning Department staff report as "24.476 Acres" and "41.968 Acres" (attached as "Proposed Quarry Mining Site" map, dated July 7, 2005).

16. That the applicant shall file within one year of the issuance of this Decision and Order a request with the County of Maui Department of Planning to amend the special use permit to reflect the current boundaries of the existing 105.957-acre quarry site.

Following deliberation by the Commissioners, a vote was taken on the motion. There being a vote tally of 7 ayes, 0 nays, and 2 absent, the motion carried.

ORDER

The LUC, having duly considered the complete record of the Applicant's Proposed Amendment and the oral arguments presented by the parties present in the proceeding, and a motion having been made at a meeting on December 8, 2006, at the Hapuna Beach Prince Hotel located on the Kohala Coast, South Kohala, Hawai`i, and the motion having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion,

HEREBY ORDERS that the Applicant's Proposed Amendment to expand its existing rock quarry and concrete aggregate operations on approximately 66.444 acres of land within the State Land Use Agricultural District at Pulehunui, Wailuku, Maui, Hawai`i, identified as Tax Map Key: 3-8-04: por. 1, and approximately identified on Exhibit "A," attached hereto and incorporated by

reference herein, be APPROVED, subject to the following conditions to the Decision And Order Approving A Time Extension dated July 15, 2005:

12. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall provide evidence of approval from the State Department of Transportation regarding a maintenance program for the driveway and surrounding roadway.

13. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall provide evidence of approval from the State Department of Health regarding modifications to the Clean Air Branch permit.

14. That prior to commencement of quarry operations into the Expansion Areas, the applicant shall submit an archaeological inventory survey to the State Historic Preservation Division for their review; and shall comply with their subsequent comments.

15. That the new quarry operations shall be confined to the areas depicted on Exhibit 2 of the Planning Department staff report as "24.476 Acres" and "41.968 Acres" (attached as "Proposed Quarry Mining Site" map, dated July 7, 2005).

16. That the applicant shall file within one year of the issuance of this Decision and Order a request with the County of Maui Department of Planning to amend the special use permit to reflect the current boundaries of the existing 105.957-acre quarry site.

All other conditions to the Decision And Order Approving A Time Extension dated July 15, 2005, are hereby reaffirmed and shall continue in effect.

Done at Honolulu, Hawai`i, this 18th day of December, 2006.

APPROVED AS TO FORM:

Deputy Attorney General

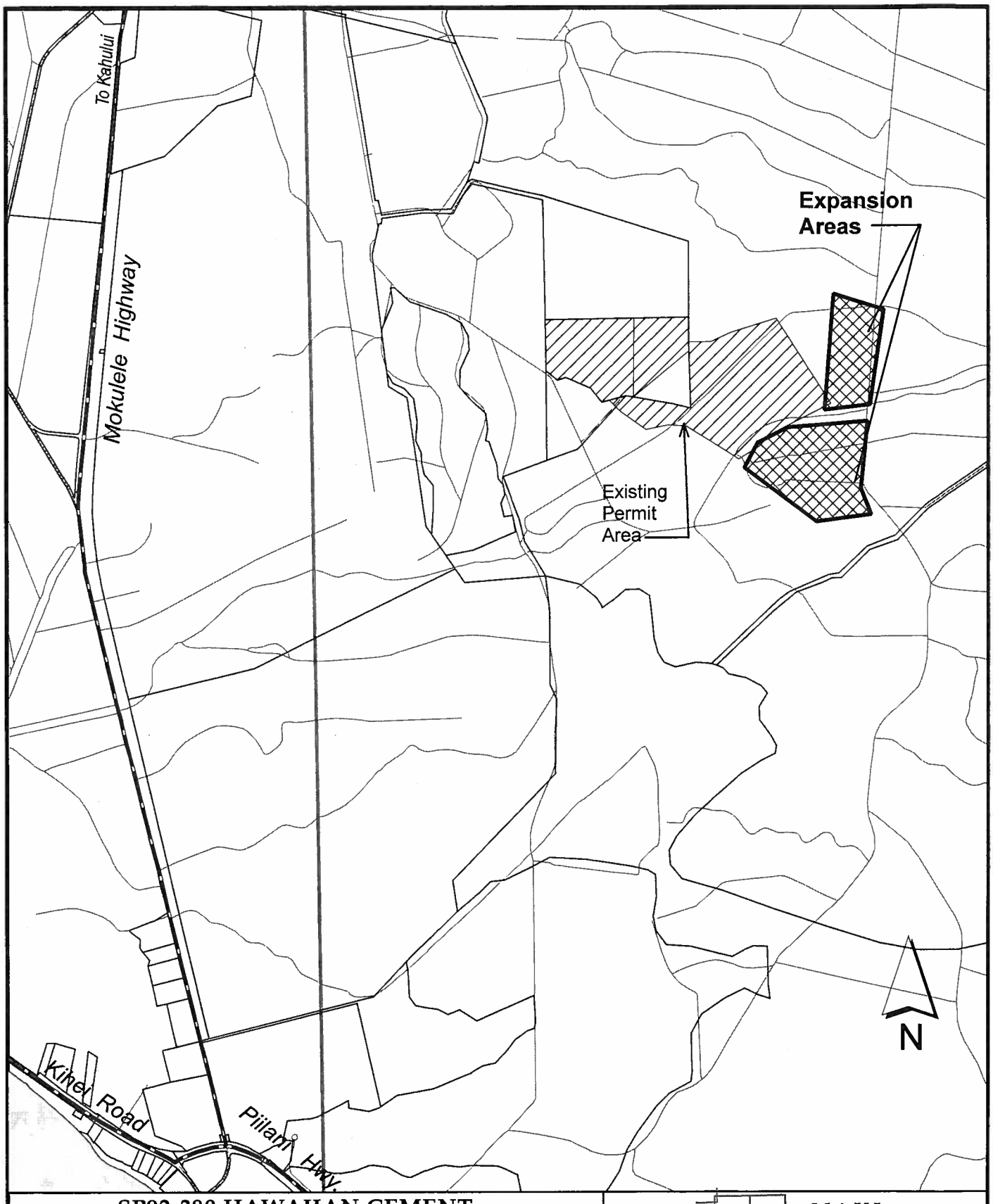
LAND USE COMMISSION
STATE OF HAWAI`I

By Lisa Judge
LISA JUDGE
Chairperson and Commissioner

Filed and effective on
DEC 18 2006

Certified by:

ANTHONY J. H. CHING, Executive Officer



SP92-380 HAWAIIAN CEMENT

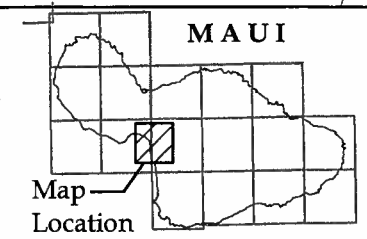
LOCATION MAP

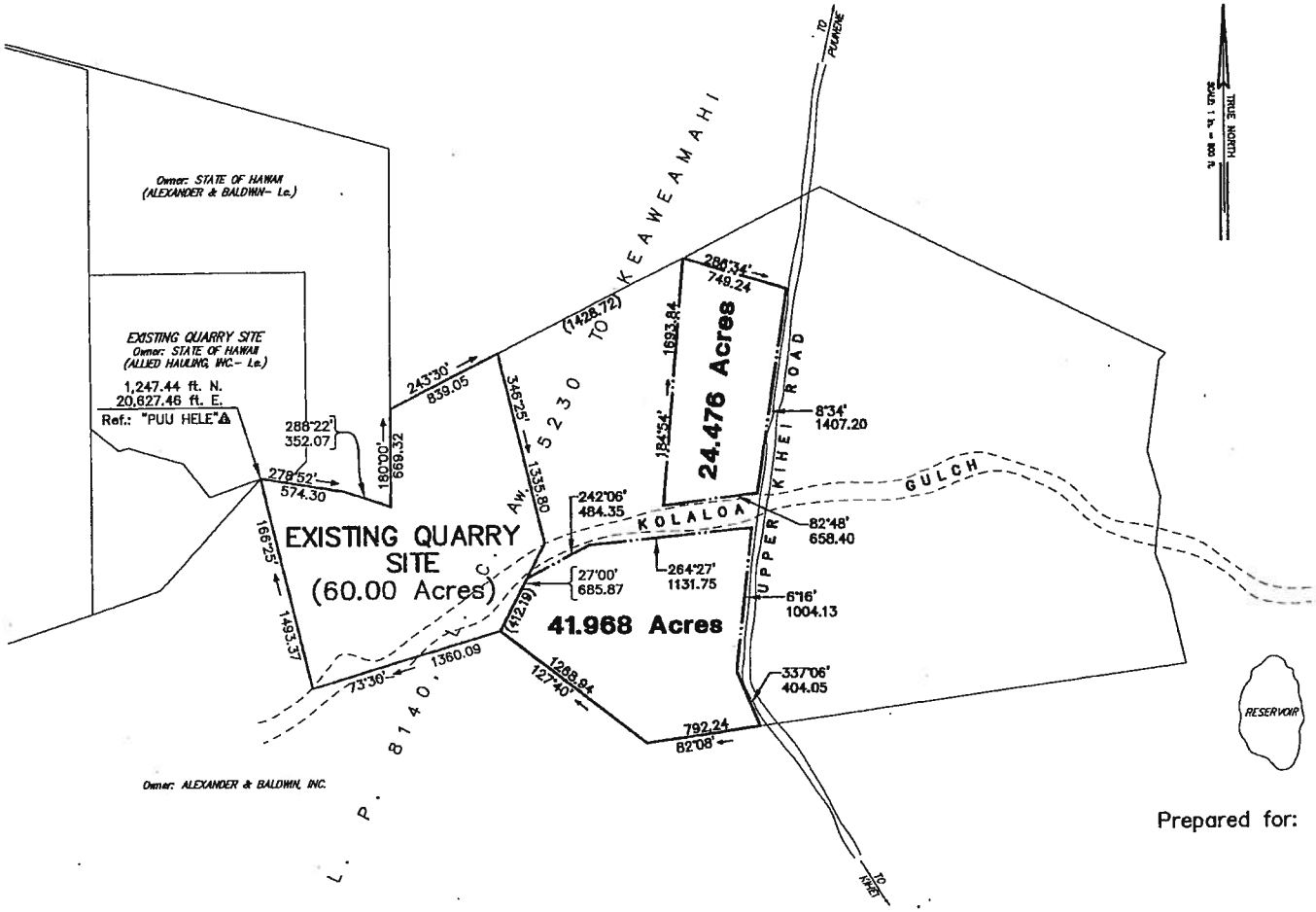
Tax Map Key: 3-8-04: 1 (por.), 2 (por.), and 3-8-08: 1 (por.) and 31 (por.)

Pulehunui, Wailuku, Maui, Hawai`i

Scale 1" = 2,000 feet

Exhibit "A"





Prepared for: HAWAIIAN CEMENT
220 SOUTH KING STREET
HONOLULU, HAWAII 96813

PROPOSED QUARRY MINING SITE

AT PULEHUNUI, WAILUKU (KULA), MAUI, HAWAII

800 400 0 800 1600
GRAPHIC SCALE IN FEET

Tax Map Key (2) 3–8–04: 01 (Portion)

JULY 07, 2005

JOB NO. 05–065

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.

Q:\2005\05-065\PROP-QUARRY-MINING-SITE-JULY2005.dwg

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of	)	DOCKET NO. SP92-380
	)	
HAWAIIAN CEMENT	)	CERTIFICATE OF SERVICE
	)	
For A Special Permit To Allow A Rock Quarrying/Crushing Operation And Related Uses On Approximately 105.957 Acres Of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1 And Portion Of 2 And 3-8-08: Portion Of 1 And Portion Of 31	)	

CERTIFICATE OF SERVICE

I hereby certify that a copy of the Decision And Order Approving Amendment To Special Use Permit was served upon the following by either hand delivery or depositing the same in the U. S. Postal Service by regular or certified mail as noted:

DEL. LAURA THIELEN, Director
Office of Planning
P. O. Box 2359
Honolulu, Hawaii 96804-2359

BRYAN YEE, Esq.
Deputy Attorney General
Hale Auhau, Third Floor
425 Queen Street
Honolulu, Hawaii 96813

MICHAEL FOLEY, Director
County of Maui, Planning Department
250 South High Street
Wailuku, Hawaii 96793

BRIAN MOTO, Esq.
JANE LOVELL, Esq.
Corporation Counsel
County of Maui
250 South High Street
Wailuku, Hawaii 96793

CERT: WILLIAM HORNEMAN
99-130 Halawa Valley Street
Aiea, Hawaii 96701-3289

Honolulu, Hawai`i, DEC 18 2006.

ANTHONY J.H. CHING
Executive Officer

EXHIBIT 12

2014 Decision and Order

RECEIVED
2014 NOV 34 P 2:47
COUNTY OF MAUI
DEPT. OF PLANNING
ADMINISTRATION

LAND USE COMMISSION
STATE OF HAWAII
2014 DEC -3 P 12:05

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of	DOCKET NO. SP92-380
HAWAIIAN CEMENT	DECISION AND ORDER APPROVING AN AMENDMENT TO SPECIAL USE PERMIT; AND CERTIFICATE OF SERVICE
For An Amendment To Special Use Permit That Established A Rock Quarrying/Crushing Operation And Related Uses On Approximately 172.401 Acres Of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1 And 3-8-08: Portion Of 1 And Portion Of 31	

DECISION AND ORDER APPROVING AN AMENDMENT TO SPECIAL USE PERMIT

AND

CERTIFICATE OF SERVICE

THIS IS TO CERTIFY THAT THIS IS A TRUE AND CORRECT COPY OF THE DOCUMENT ON FILE IN THE OFFICE OF THE STATE LAND USE COMMISSION, HONOLULU, HAWAI`I.

Date December 3, 2014

BY _____
Executive Officer

LAND USE COMMISSION
STATE OF HAWAII

2014 DEC -3 P 12:05

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of)	DOCKET NO. SP92-380
)	
HAWAIIAN CEMENT)	DECISION AND ORDER
)	APPROVING AN
For An Amendment To Special Use Permit)	AMENDMENT TO SPECIAL
That Established A Rock Quarrying/Crushing)	USE PERMIT; AND
Operation And Related Uses On)	CERTIFICATE OF SERVICE
Approximately 172.401 Acres Of Land Situated)	
Within The State Land Use Agricultural)	
District At Pulehunui, Wailuku, Maui,)	
Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1)	
And 3-8-08: Portion Of 1 And Portion Of 31)	
)	

DECISION AND ORDER APPROVING AN AMENDMENT
TO SPECIAL USE PERMIT

AND

CERTIFICATE OF SERVICE

LAND USE COMMISSION
STATE OF HAWAII

2014 DEC -3 P 12:05

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of HAWAIIAN CEMENT For An Amendment To Special Use Permit That Established A Rock Quarrying/Crushing Operation And Related Uses On Approximately 172.401 Acres Of Land Situated Within The State Land Use Agricultural District At Pulehunui, Wailuku, Maui, Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1 And 3-8-08: Portion Of 1 And Portion Of 31	DOCKET NO. SP92-380 DECISION AND ORDER APPROVING AN AMENDMENT TO SPECIAL USE PERMIT

DECISION AND ORDER APPROVING AN AMENDMENT TO SPECIAL USE PERMIT

On February 20, 2013, Hawaiian Cement ("Applicant") filed a request with the County of Maui Department of Planning ("DP") to amend the special use permit issued in the above-entitled docket pursuant to section 205-6, Hawai`i Revised Statutes ("HRS"), and sections 15-15-95 and 15-15-96, Hawai`i Administrative Rules ("HAR") by (1) expanding the existing Pu`unēnē Quarry by an additional 41.968 acres of land identified as Tax Map Key ("TMK"): 3-8-04: por. 1 ("Quarry Site 'C'"); (2) including 9.697 acres of land identified as TMK: 3-8-04: por. 1 within the existing quarry operation as part of the permitted area; (3) deleting Condition Number 16 of the

Decision and Order Approving Amendment to Special Permit filed December 18, 2006; and (4) extending the life of the special use permit by 15 years (collectively "Request").

On May 27, 2014, the County of Maui Planning Commission ("Planning Commission") considered the Applicant's Request. There was no public testimony received by the Planning Commission. After due deliberation, at its meeting on May 27, 2014, the Planning Commission recommended approval of the Request to the State of Hawai`i Land Use Commission ("LUC").

On July 30, 2014, the LUC received a copy of the decision and a portion of the record of the Planning Commission's proceedings on the Applicant's Request. On October 15, 2014, the LUC received the remaining portion of the record.

The LUC has jurisdiction over the Applicant's Request. Section 205-6, HRS, and sections 15-15-95 and 15-15-96, HAR, authorize the LUC to approve special use permits and amendments thereto for areas greater than 15 acres.

On November 20, 2014, the LUC met in Kahului, Maui, Hawai`i, to consider the Applicant's Request. Karlynn Fukuda and Dave Gomes appeared on behalf of the Applicant. Kristin Tarnstrom, Esq., and Paul Fasi appeared on behalf of the DP. Bryan C. Yee, Esq., and Rodney Funakoshi also were present on behalf of the State of Hawai`i Office of Planning ("OP").

At the meeting, the Commission heard public testimony from Wil Cambra, Keoni Gomes, Clare Apana, and Johanna Kamaunu. Following the receipt of public testimony, the Applicant provided a presentation on its Request.

As part of its testimony, the DP noted that it had thoroughly reviewed the Applicant's Request and affirmed the Planning Commission's recommendation on the matter. Upon questioning, the DP acknowledged receipt of the December 10, 2007, revised map of the boundaries of the then 105.957-acre Pu`unēnē Quarry approved pursuant to the Findings of Fact, Conclusions of Law, and Decision and Order filed November 25, 1996.

The OP stated that it had no objections to the Applicant's Request.

Following discussion, a motion was made and seconded to approve the Applicant's Request, subject to the following amendment to Condition Number 1 and additional Condition Numbers 16 and 17 as follows:

1. That the State Land Use Commission Special Use Permit shall be valid to July 21, 2032, subject to further extension by the Land Use Commission upon a timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

16. That prior to commencement of quarry operations on Quarry Site "C," the Applicant shall submit an archaeological inventory survey of Quarry Site "C" to the State Historic Preservation Division for their review and shall comply with their subsequent comments.

17. That the new quarry operations on Quarry Site "C" shall be confined to the area identified as Quarry Site "C" on the attached Exhibit "A" entitled *Plan Showing Hawaiian Cement Quarry Mining Sites* (Revised December 13, 2013).

Following deliberation by the Commissioners, a vote was taken on the motion. There being a vote tally of 7 ayes, 0 nays, and 1 excused, the motion carried.

ORDER

The LUC, having duly considered the complete record of the Applicant's Request and the oral arguments presented by the Applicant, OP, and the DP, and a motion having been made at a meeting on November 20, 2014, in Kahului, Maui, Hawai`i, and the motion having received the affirmative votes required by section 15-15-13, HAR, and there being good cause for the motion,

HEREBY ORDERS that the Applicant's Request to (1) expand the existing Pu`unēnē Quarry by an additional 41.968 acres of land identified as TMK: 3-8-04: por. 1 and further identified as Quarry Site "C"; (2) include 9.697 acres of land identified as TMK: 3-8-04: por. 1 within the existing quarry operation as part of the permitted area; (3) delete Condition Number 16 of the Decision and Order Approving Amendment to Special Permit filed December 18, 2006; and (4) extend the life of the special use permit by 15 years be APPROVED, subject to the following amendment to Condition Number 1:

1. That the State Land Use Commission Special Use Permit shall be valid to July 21, 2032, subject to further extension by the Land Use

Commission upon a timely request for extension filed at least one-hundred twenty (120) days prior to its expiration. The appropriate Planning Commission shall make a recommendation to the Land Use Commission and may require a public hearing on the time extension.

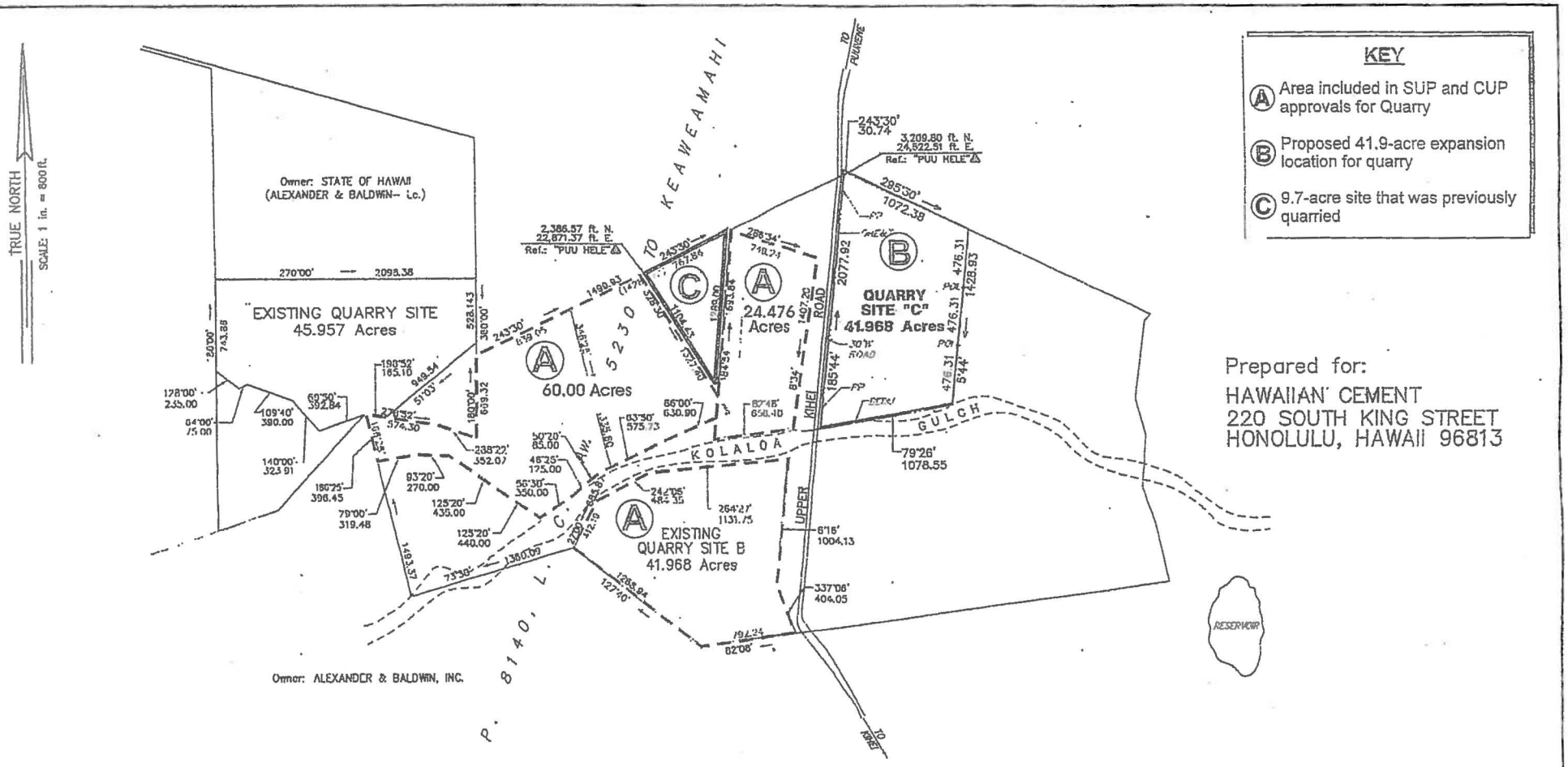
IT IS FURTHER ORDERED that the Applicant's Request be APPROVED, subject to the following additional Condition Numbers 16 and 17:

16.[1] That prior to commencement of quarry operations on Quarry Site "C," the Applicant shall submit an archaeological inventory survey of Quarry Site "C" to the State Historic Preservation Division for their review and shall comply with their subsequent comments.

17. That the new quarry operations on Quarry Site "C" shall be confined to the area identified as Quarry Site "C" on the attached Exhibit "A" entitled *Plan Showing Hawaiian Cement Quarry Mining Sites* (Revised December 13, 2013).

IT IS FURTHER ORDERED that all other conditions to the Decision and Order Approving a Time Extension filed July 15, 2005, and the Decision and Order Approving Amendment to Special Use Permit filed December 18, 2006, shall remain in full force and effect.

[1] This new condition replaces the previous Condition No. 16 of the Decision and Order Approving Amendment to Special Permit filed December 18, 2006, which is deleted with this Decision and Order.



PLAN SHOWING
HAWAIIAN CEMENT QUARRY MINING SITES
AT PULEHUNUI, WAILUKU (KULA), MAUI, HAWAII

800 400 0 800 1600
GRAPHIC SCALE IN FEET

Tax Map Key (2) 3–8–04: 01 (Portion)

REVISED: DECEMBER 13, 2013
REVISED: OCTOBER 15, 2012
REVISED: JUNE 14, 2012
DECEMBER 10, 2007

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS – CIVIL & STRUCTURAL ENGINEERS

HawaiiCem\Puunene Quarry\Mining\Sites JOB NO. 05-065

EXHIBIT "A"

ADOPTION OF ORDER

This ORDER shall take effect upon the date this ORDER is certified by this Commission.

Done at Honolulu, Hawai'i, this 3rd, day of December, 2014, per motion on November 20, 2014.

LAND USE COMMISSION

APPROVED AS TO FORM

STATE OF HAWAI'I

Deputy Attorney General

By _____
Chad McDonald
Chairperson and Commissioner

Filed and effective on:

12/3/14

Certified by:

_____
DANIEL ORODENKER
Executive Officer

LAND USE COMMISSION
STATE OF HAWAII

2014 DEC -3 P 12: 05

BEFORE THE LAND USE COMMISSION

OF THE STATE OF HAWAI`I

In The Matter Of The Application Of)	DOCKET NO. SP92-380
)	
HAWAIIAN CEMENT)	CERTIFICATE OF SERVICE
)	
For An Amendment To Special Use Permit)	
That Established A Rock Quarrying/Crushing)	
Operation And Related Uses On)	
Approximately 172.401 Acres Of Land Situated)	
Within The State Land Use Agricultural)	
District At Pulehunui, Wailuku, Maui,)	
Hawai`i, Tax Map Keys: 3-8-04: Portion Of 1)	
And 3-8-08: Portion Of 1 And Portion Of 31)	
)	

CERTIFICATE OF SERVICE

I hereby certify that a DECISION AND ORDER APPROVING AN AMENDMENT TO SPECIAL USE PERMIT was served upon the following by either hand delivery or depositing the same in the U.S. Postal Service by regular or certified mail as noted:

CERTIFIED MAIL: KARLYNN FUKUDA
Munekiyo & Hiraga Inc.
305 S. High Street
Wailuku, Hawai`i 96793
Petitioner Representative

DEL.: LEO ASUNCION, Acting Director
State Office of Planning
P. O. Box 2359
Honolulu, Hawai`i 96804-2359

REGULAR MAIL: BRYAN C. YEE, Esq.
Deputy Attorney General
425 Queen Street
Honolulu, Hawai`i 96813
Attorney for State Office of Planning

REGULAR MAIL: KRISTIN TARNSTROM, Esq.
Department of the Corporation Counsel
County of Maui
200 South High Street
Wailuku, Hawai`i 96793
Attorney for the County of Maui

REGULAR MAIL: WILLIAM SPENCE, Director
Department of Planning
County of Maui
200 South High Street
Wailuku, Hawai`i 96793

Dated: Honolulu, Hawai`i, December 3, 2014

DANIEL ORODENKER

Executive Officer

EXHIBIT 13

Letter of Submission of Supplemental Materials

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

June 27, 2025

Ana Lilis, Deputy Director
County of Maui
Department of Planning
One Maine Plaza
2200 Main Street
Wailuku, Hawai'i 96793

SUBJECT: Submission of Supplemental Materials for State Special Permit Amendment Application for the Hawaiian Cement Pu'unēnē Quarry Site (TMK Nos. (2)3-8-004:001, (2)3-8-006:001, and (2)3-8-001:031) (SP 92-380)

Dear Deputy Director Lilis:

We are writing on behalf of Hawaiian Cement (Applicant), in order to submit supplemental information related to the Applicant's pending State Special Permit (SP) amendment request for the Pu'unēnē Quarry (SP 92-380). Per our meetings with you in January of this year, we are submitting this supplemental information packet to support Hawaiian Cement's request to amend its existing SP. The SP allows the Applicant to quarry the permitted Pu'unēnē Quarry area for sub-soil stone resources for use in producing aggregate, base course, and other similar construction materials.

The most recent request to amend SP 92-380 was submitted in 2021, and requested that the permitted quarry area be expanded in order for the Applicant to continue quarrying activities. A similar amendment request was submitted for the County Special Use Permit (CUP) for the project. The CUP amendment was approved by the Maui Planning Commission (MPC) in 2022, and the SP amendment request was recommended for approval and forwarded to the State Land Use Commission (SLUC) for further processing. The SLUC staff sought additional comments on the SP amendment request from the State Department of Agriculture (DOA), and State Office of Planning and Sustainable Development (OPSD) prior to scheduling a hearing for the amendment request. Following their review, the State agencies requested that further work be undertaken to ensure that no archaeological or cultural resources would face adverse impacts as a result of quarry expansion.

Our office submitted supplemental information to the Planning Department (Department) in October 2023, with regard to both the State agency comments and additional information requested by the SLUC staff. Additionally, a request was made to be scheduled before the MPC in order to amend the record for the 2021 SP amendment request. The 2021 SP amendment request is, therefore, pending scheduling before the MPC and, as such, per our discussions, final SLUC action on the SP amendment application is pending as well.

However, before the MPC meeting could be scheduled to amend the record for the SP, the ownership of the quarry area changed from Alexander and Baldwin (A&B) to AB Maui Quarries, LLC. The new landowner will terminate the Applicant's lease to the quarry site, including the proposed expansion area, effective January 2027. As such, per our discussions with you, the Applicant is seeking to further amend the pending SP amendment request to: 1) remove the existing quarry area and proposed expansion area from consideration, effective January 31, 2027 and 2) propose a new Supplemental Quarry site of 125 acres. The Applicant has purchased 55 acres of the Supplemental Quarry site from MP Central A, LLC, a subsidiary of Mahi Pono Holdings LLC, and will purchase the remainder of the property (70 acres) should all necessary permits and approvals be received.

Per our discussion, it was determined that a new amendment application for SP 92-380 would not be necessary. Instead, submission of supplementary application information for the existing SP amendment request would be the appropriate permitting path, given that the application is still active pending final action by the MPC and SLUC. We met with staff from the OPSD, DOA, and SLUC, and they are supportive of this approach. Separately, an Application for Amendment to Permit Terms, Conditions, and Time Stipulations will be submitted to the Department to amend the CUP application, since that approval process fully concluded when the most recent amendment request was approved by the MPC in 2022.

A Project Assessment Report (PAR) is provided as **Exhibit "A"** which includes information related to the proposed amendment to add the 125 acres to the SP. The PAR provides detailed explanations of permitting history, the current request, and potential environmental impacts and mitigation measures related to the Supplemental Quarry site. Letters of Authorization are also provided from the Applicant and co-landowner as **Exhibit "B"**.

Thank you for your review of this supplemental information. Should you have any questions or require additional information, please feel free to contact me by phone at (808) 244-2015 or by email at finn@munekiyohiraga.com.

Very truly yours,



Finn Gibson
Analyst

FG:de
Attachments

cc: David Gomes, Hawaiian Cement (w/attachments)
Keoni DeRego, Hawaiian Cement (w/attachments)
Jeffrey Ueoka, Wells Street Law, (w/attachments)
Grant Nakama, Mahi Pono, Inc (w/attachments)
K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\PAR\SP Cover Letter.docx

EXHIBIT 14

Maui Planning Commission Approval
2006

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

Don Couch
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

June 27, 2006

Mr. Wilder W. Hornerman
Vice President
Hawaiian Cement
P. O. Box 488
Kahului, Hawaii 96733

Dear Mr. Hornerman:

RE: Amendment to State Land Use Commission Special Use Permit and a County Special Use Permit to Move the Location of the Pu`unene Rock Quarry at TMK (2) 3-8-004: 001 por., Pulehunui, Wailuku, Island of Maui, Hawaii (SUP 92-380), (SUP1 91-0013), (CUP 2006/0002)

At its regular meeting on June 27, 2006, the Maui Planning Commission reviewed the above requests and voted to recommend approval for the amendment to the State Land Use Commission Special Use Permit (SUP 92-380) (SUP1 91-0013) subject to the following conditions:

STATE SPECIAL USE PERMIT AMENDMENT CONDITIONS:

In addition to compliance with conditions 1 through 11 from the July 15, 2005 Order approving the timeline extension, compliance with the following additional conditions for the proposed quarry sites of 24.47 acres and 41.96 acres:

12. That a grading permit from the Public Works Department shall be obtained prior to any land disturbance in the new quarry areas;

13. That prior to issuance of a grading permit, the applicant shall provide evidence of approval from the State Department of Transportation regarding a maintenance program for the driveway and surrounding roadway;

14. That prior to issuance of a grading permit, the applicant will provide evidence of approval from the State Department of Health regarding modifications to the Clean Air Branch permit;

15. That prior to issuance of a grading permit, the applicant shall submit an archeological inventory survey to the State Historic Preservation Division for their review; and shall comply with their subsequent comments; and

16. That the new quarry operations shall be confined to the areas depicted on Exhibit 2 of the Planning Department staff report as "24.476 Acres" and "41.968 Acres" (attached as "Proposed Quarry Mining Site" map, dated July 7, 2005).

Furthermore, at its regular meeting on June 27, 2006, the Maui Planning Commission voted to approve the County Special Use Permit (CUP 2006/0002) to include the new quarry area, subject to the following conditions:

STANDARD CONDITIONS:

1. That the County Special Use Permit shall be valid until July 31, 2018, or the expiration date for the State Land Use Commission Special Use Permit, whichever is longer, subject to extension by the Maui Planning Commission upon a timely request for extension filed at least ninety (90) days prior to its expiration. The Commission may require a public hearing on the time extension;

2. That the County Special Use Permit shall not be transferred without the prior written approval of the Maui Planning Commission;

3. That the applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject County Special Use Permit and shall procure at its own cost and expense, and shall maintain during the entire period of this County Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of ONE MILLION AND NO/100 DOLLARS (1,000,000.00) naming the County of Maui as an additional named insured, insuring and defending the applicant and County of Maui against any and all claims or demands for property damage, personal injury and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the non-observance or non-performance of any of the terms and conditions of this permit. A copy of a policy naming County of Maui as an additional named insured shall be submitted to the Department within ninety (90) calendar days from the date of transmittal of the decision and order;

4. That full compliance with all applicable governmental requirements shall be rendered; and

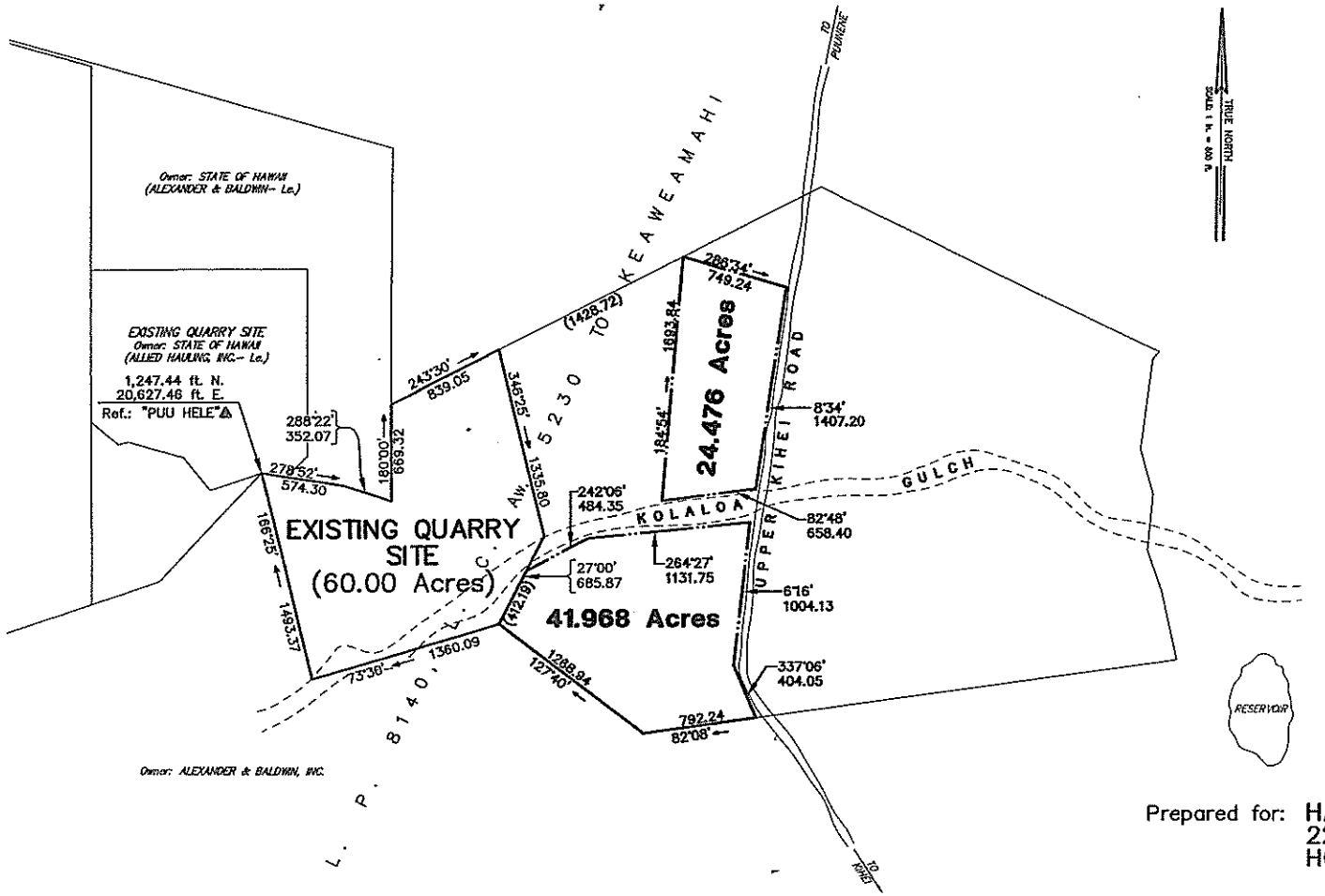
5. That the applicant shall submit to the Planning Department five copies of a detailed report addressing its compliance with the conditions established with the subject County Special Use Permit and State Land Use Commission Special Use Permit SUP 91/0013 (SP 92-380). The compliance report shall be submitted to the Planning Department for review and approval prior to a time extension request or an amendment to the existing County Special Use Permit.

Thank you for your cooperation. If additional clarification is required, please contact Mr. Jeff Hunt, AICP, Staff Planner, of this office at 270-6271.

Sincerely,

MICHAEL W. FOLEY
Planning Director

Enclosure
MWF:JH:sec
c: Clayton I. Yoshida, AICP, Planning Program Administrator
Aaron H. Shinmoto, Planning Program Administrator (2)
Development Services Administration (2)
Anthony Ching, Executive Officer, State Land Use Commission
Herbert S. Matsubayashi, State Department of Health, Maui District
Rodney K. Haraga, State Department of Transportation
Melanie Chinen, State Historic Preservation Division
Jeff Hunt, AICP, Staff Planner
Bob Tanaka, Tanaka Engineers, Inc.
Project File
General File
K:\WP_DOCS\PLANNING\SUP1\1991\0013_HawaiianCementQuarry_tx\QuarryExpansion2005\MPC_approval.wpd



Prepared for: HAWAIIAN CEMENT
220 SOUTH KING STREET
HONOLULU, HAWAII 96813

PROPOSED QUARRY MINING SITE

AT PULEHUNUI, WAILUKU (KULA), MAUI, HAWAII

800 400 0 800 1600
GRAPHIC SCALE IN FEET

Tax Map Key (2) 3–8–04: 01 (Portion)

JULY 07, 2005

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.

JOB NO. 05–065

P–QUARRY–MINING–SITE–JULY2005.dwg
O:\2005\05–065

EXHIBIT 15

Maui Planning Commission Approval 2014

ALAN M. ARAKAWA
Mayor

WILLIAM R. SPENCE
Director

MICHELE CHOUTEAU McLEAN
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

June 18, 2014

Ms. Karlynn Fukuda, Executive Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Fukuda:

SUBJECT: AMENDMENT TO STATE LAND USE COMMISSION SPECIAL PERMIT (SP) AND AMENDMENT TO COUNTY SPECIAL USE PERMIT (CUP) FOR THE HAWAIIAN CEMENT PUUNENE ROCK QUARRY, PULEHUNUI, KAHULUI, ISLAND OF MAUI, HAWAII; TMK: (2) 3-8-004:001 (POR.) (SUP1 91-0013) (SP 92-380) (CUP 2006/0002)

At its regular meeting on May 27, 2014, the Maui Planning Commission (Commission) voted to recommend approval to the State Land Use Commission, the following proposed amendments to **State Land Use Commission Special Permit (SP 92-380):**

1. To expand the quarry area by approximately 42 acres at TMK: (2) 3-8-004:001 (por.);

2. To include the 9.697-acre portion of the quarry within the permitted area (Area "C");

3. To delete Condition No. 16 of SP 92-380 as the Applicant has submitted said updated map to the Department of Planning; and

4. To approve a 15-year time extension for SP 92-380.

Further, the Commission also approved the proposed amendments to the **County Special Use Permit (CUP 2006/0002)** as follows:

Note: New material underlined; deleted material [bracketed]

1. That the County Special Use Permit shall be valid until July 21, 2032 [July 31, 2018], or the expiration date for the State Land Use Commission Special Permit, whichever is longer, subject to extension by the Planning Director [Maui Planning Commission] upon a timely request for extension filed at least ninety (90) days prior to its expiration. The Commission may require a public hearing on the time extension.

2. That the County Special Use Permit shall not be transferred without the prior written approval of the Planning Director [Maui Planning Commission].

3. That the Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject County Special Use Permit and shall procure at its own cost and expense, and shall maintain during the entire period of this County Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of ONE MILLION AND NO/100 DOLLARS (1,000,000.00) naming the County of Maui as an additional named insured, insuring and defending the Applicant and County of Maui against any and all claims or demands for property damage, personal injury and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the non-observance or non-performance of any of the terms and conditions of this permit. A copy of a policy naming County of Maui as an additional named insured shall be submitted to the Department of Planning (Department) within ninety (90) calendar days from the date of transmittal of the decision and order.

4. That full compliance with all applicable governmental requirements shall be rendered; and

5. That the Applicant shall submit to the Department two (2) copies of a detailed report addressing its compliance with the conditions established with the County Special Use Permit CUP 2006/0002 and State Land Use Commission Special Permit SP 92-380. The compliance report shall be submitted to the Department for review and approval prior to a time extension request or an amendment to the existing County Special Use Permit.

6. That the quarry area is expanded by approximately 42 acres and includes the 9.697-acre portion of the quarry within the permitted area, known as Area "C".

The Commission adopted the Report and Recommendation prepared by the Department of Planning for the May 27, 2014, meeting as its Findings of Fact, Conclusions of Law, and Decision and Order. Parties to proceedings before the Commission may obtain Judicial Review of Decision and Orders issued by the Commission in the manner set forth in Chapter 91-14, Hawaii Revised Statutes (HRS).

Thank you for your cooperation. If additional clarification is required, please contact Staff Planner Paul Fasi at paul.fasi@mauicounty.gov or at (808) 270-7814.

Sincerely,

WILLIAM SPENCE
Planning Director

xc: Clayton I. Yoshida, AICP, Planning Program Administrator (PDF)
Paul F. Fasi, Staff Planner (PDF)
Development Services Administration
William Aila, Jr., Chairperson, Department of Land and Natural Resources
State of Hawaii Land Use Commission
CZM File (SUP)
Project File
General File

WRS:PFF:nst
K:\WP_DOCS\PLANNING\SUP1\1991\0013_HawaiianCementQuarry_tx\Quarry Expansion 2014\MPCappvl.doc

EXHIBIT 16

Maui Planning Commission Approval 2022

MICHAEL P. VICTORINO
Mayor

MICHELE CHOUTEAU MCLEAN, AICP
Director

JORDAN E. HART
Deputy Director



DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAII 96793

June 23, 2022

Ms. Karlynn Fukuda, Executive Vice President
Munekiyo & Hiraga, Inc.
305 High Street, Suite 104
Wailuku, Hawaii 96793

Dear Ms. Fukuda:

SUBJECT: AMENDMENTS TO STATE LAND USE COMMISSION SPECIAL PERMIT AND COUNTY SPECIAL USE PERMIT FOR THE HAWAIIAN CEMENT PUUNENE ROCK QUARRY, PULEHUNUI, KAHULUI, ISLAND OF MAUI, HAWAII; TMK: (2) 3-8-004:001 (POR.) (SUP1 91-0013) (SP 92-380) (CUP 2006/0002)

At its regular meeting on May 24, 2022, the Maui Planning Commission (Commission) approved amendments to both the State Special Permit (SP 92-380) and County Special Use Permit (CUP 2006/0002) subject to their existing conditions. Added were the following underlined conditions to both permits (see 7 and 8):

1. That the County Special Use Permit shall be valid until July 21, 2032, or the expiration date for the State Land Use Commission Special Permit, whichever is longer, subject to extension by the Planning Director (Director) upon a timely request for extension filed at least 90 days prior to its expiration. The Commission may require a public hearing on the time extension.

2. That the County Special Use Permit shall not be transferred without the prior written approval of the Director.

3. That the Applicant, its successors and permitted assigns shall exercise reasonable due care as to third parties with respect to all areas affected by subject County Special Use Permit and shall procure at its own cost and expense, and shall maintain during the entire period of this County Special Use Permit, a policy or policies of comprehensive liability insurance in the minimum amount of

ONE MILLION AND NO/100 DOLLARS (1,000,000.00) naming the County of Maui (County) as an additional named insured, insuring and defending the Applicant and County against any and all claims or demands for property damage, personal injury and/or death arising out of this permit, including but not limited to: (1) claims from any accident in connection with the permitted use, or occasioned by any act or nuisance made or suffered in connection with the permitted use in the exercise by the Applicant of said rights; and (2) all actions, suits, damages and claims by whomsoever brought or made by reason of the non-observance or non-performance of any of the terms and conditions of this permit. A copy of a policy naming the County as an additional named insured shall be submitted to the Department of Planning (Department) within 90 calendar days from the date of transmittal of the decision and order.

4. That full compliance with all applicable governmental requirements shall be rendered.

5. That the Applicant shall submit to the Department two copies of a detailed report addressing its compliance with the conditions established with the County Special Use Permit CUP 2006/0002 and State Land Use Commission Special Permit SP 92-380. The compliance report shall be submitted to the Department for review and approval prior to a time extension request or an amendment to the existing County Special Use Permit.

6. That the quarry area is expanded by approximately 42 acres and includes the 9.697-acre portion of the quarry within the permitted area, known as Area "C".

7. That the quarry area is expanded by approximately by 45.4 acres at TMK: (2) 3-8-004:001 (por.);

8. That the Applicant comply with the reclamation plan identified as "Exhibit 15" of the staff report and to stabilize the soil after the use is complete. (Exhibit 15 attached)

The Commission has adopted the Department's Report and Recommendation as its Findings of Fact, Conclusions of Law, and Decision and Order will forward the approval of SP 92-380 to the State Land Use Commission for further action.

If additional clarification is required, please contact Staff Planner Paul Fasi at paul.fasi@mauicounty.gov or at (808) 270-7814.

Sincerely,

MICHELE MCLEAN, AICP
Planning Director

xc: Ann Cua, Planning Program Administrator (PDF)
Paul F. Fasi, Staff Planner (PDF)
State Land Use Commission
Project File

MCM:PFF:rma
K:\WP_DOCS\PLANNING\CUP\2006\0002_Hawaiian Cement (Puunene)\2021 Amendment\MPCappvl2.doc

EXHIBIT 17

Notice of Application

NOTARIZED AFFIDAVIT OF MAILING OF NOTICE OF APPLICATION

I, Karlynn Fukuda , being first duly sworn on oath, deposes and says that:

1. Affiant is the applicant for a County Special Use Permit for land situated at Pu'unene, Maui Hawai'i , TMK (2): 3-8-004:001(por.)
2. Affiant did on October 7, 2025, deposit in the United States mail, postage prepaid, a copy of a Notice of Filing of Application with a location map, a copy of which is attached hereto as "Exhibit A" and made a part hereof, addressed to each of the persons identified in the list of recorded owners and lessees identified as "Exhibit B," attached hereto and made a part hereof.

Further, Affiant sayeth naught.

K. G-Fell

subscribed and sworn to before me this 9th day of October, 2025.

[Stamp or Seal] TRACY NAKAMOTO NOTARY PUBLIC No. 2000-515 STATE OF HAWAII

Tracy Nakamoto
Notary Public, State of Hawaii

Print Name: Tracy Nakamoto

My commission expires: 10/15/28

NOTARY PUBLIC CERTIFICATION

Doc. Date:	none	# Pages:	8
Notary Name:	Tracy Nakamoto	Judicial Circuit:	Second

Doc. Description:

County of Maui
Application for County Special Use Permit

[Stamp or Seal] TRACY NAKAMOTO NOTARY PUBLIC No. 2000-515 STATE OF HAWAII

Notary Signature: Tracy Nakamoto

Date: 10/9/25

EXHIBIT A.

Notice of Application and Location Map

NOTICE OF APPLICATION

Date: 10/07/25

TO: Owners/Lessee
(owner/lessee of record)

Please be informed that the undersigned has applied for a County Special Use Permit with the County of Maui, Department of Planning for the following parcel(s):

1. Tax Map Key Number: (2) 3-8-004:001(por.) (see attached location map)
2. Location (street address): Not Applicable (see attached location Map)
3. Land Use Designations:

   State Land Use District: Agricultural

   Community Plan: Agriculture

   County Zoning: AG Agriculture

   Other: Important Agricultural Land (IAL)

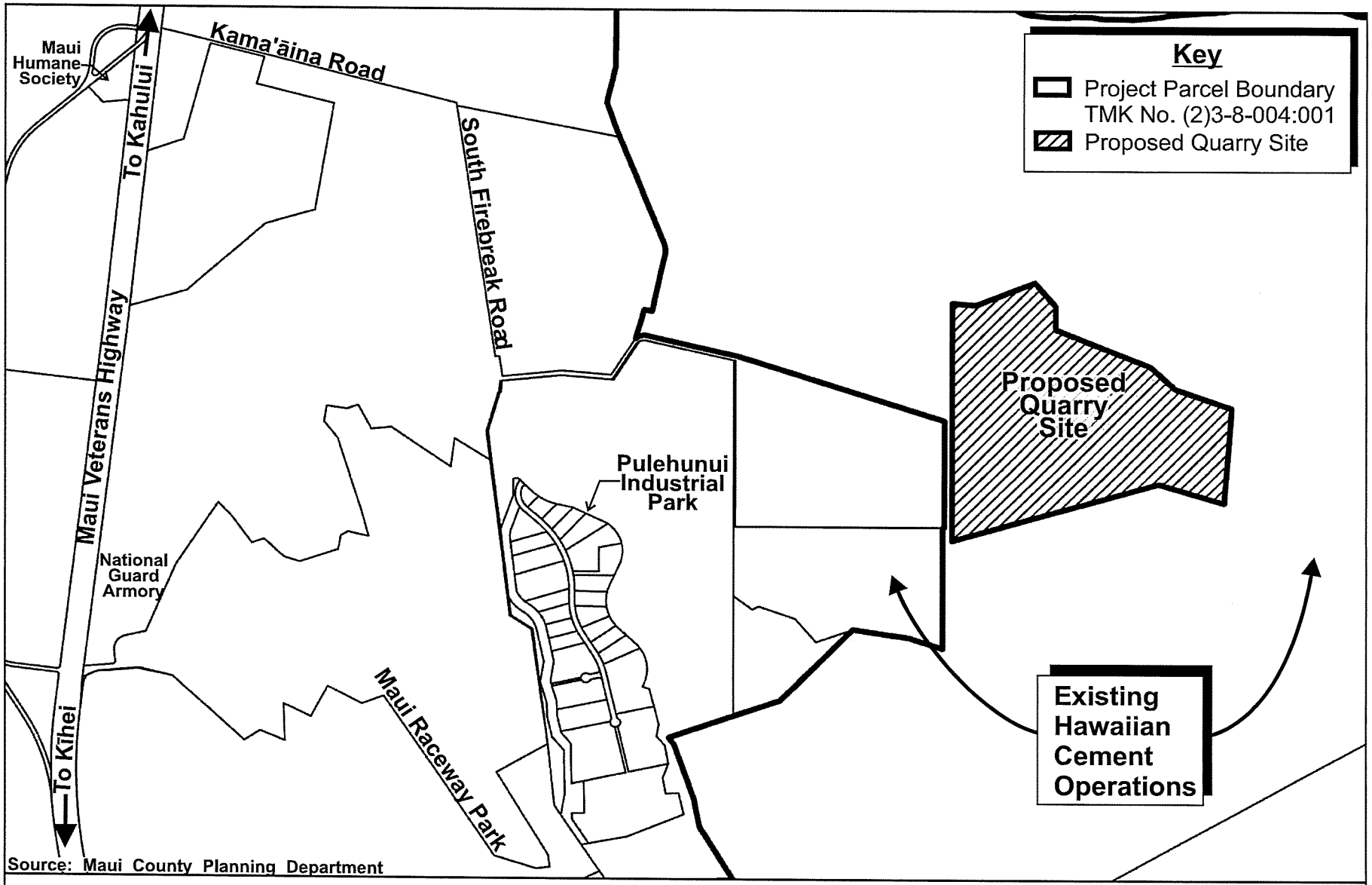
4. Description of the existing use on the Property:

   The subject property currently consists of agricultural land, a portion of which is currently cultivated with citrus trees. The land is owned jointly by Hawaiian Cement (Applicant) and Mahi Pono.

5. Description of the proposed use on the Property:

   The Applicant proposes to relocate its existing Puunene Quarry site to the subject property. Quarry activities will involve removal of soil and quarrying of the underlying rock deposits. Rock material will then be moved to the adjacent processing facility via conveyor belt. The extent of quarrying will be limited to 30 acres at any given time. When the resources of each 30-acre portion are depleted, the soil will be restored and quarrying will continue elsewhere within the subject 125 acre portion of the parcel.

David Gomes, President, Hawaiian Cement	Karlynn Fukuda, Munekiyo Hiraga
(Owner/Applicant)	(Agent)
dave gomes	Kalyn Fuk
(Signature)	(Signature)
99-1300 Halawa Valley Street Aiea, Hawai'i 96701	305 High Street, Suite 104 Wailuku, Hawai'i 96793
(Address)	(Address)
(808) 532-3400	(808) 244-2015
(Telephone)	(Telephone)



Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry
Project Location Map

0 750 1,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K\DATA\HawnCemt\PuuneneSupplQuarryApps\Figs\BW

EXHIBIT B.

List of Owners/Lessees within 500 Feet of Project Site

HAWN CEMENT-PUUNENE SUPPL QUARRY (2600)
TMK LIST OF OWNERS/LESSEES WITHIN 500 FEET OF SUBJECT PROPERTY FOR NOA MAILING

10/7/2025

ITEMID	TMK NO	TO NAME*	TO COMPANY	TO ADDRESS*	TO CITY	TO STATE	TO ZIP
1	2250010010000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
2	2250010080000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
3	2250010170000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
4	2250010180000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
5	2250010190000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
6	2250010210000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
7	2380030020000	COEUS CONDOMINIUM - CONDO MASTER	ALEXANDER & BALDWIN LLC	PO BOX 156	KAHULUI	HI	96732
8	2380030020001	MP CENTRAL A LLC		PO BOX 1104	PUUNENE	HI	96784
9	2380030020002	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
10	2380030030000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
11	2380039990000	NOT ON FTP OR RPT					
12	2380040220000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
13	2380040320000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
14	2380050010000	CENTRAL MAUI BASEYARD CONDO-CONDO MASTER	ALEXANDER & BALDWIN LLC	822 BISHOP ST	HONOLULU	HI	96813

HAWN CEMENT-PUUNENE SUPPL QUARRY (2600)
TMK LIST OF OWNERS/LESSEES WITHIN 500 FEET OF SUBJECT PROPERTY FOR NOA MAILING

ITEMID	TMK NO	TO NAME*	TO COMPANY	TO ADDRESS*	TO CITY	TO STATE	TO ZIP
15	2380050010001	MP CENTRAL A LLC		PO BOX 1104	PUUNENE	HI	96784
16	2380050010002	ALEXANDER & BALDWIN LLC		822 BISHOP ST	HONOLULU	HI	96813
17	2380050010002	S & F LAND CO INC		PO BOX 806	PUUNENE	HI	96784
18	2380050010002	SCHNITZER STEEL HAWAII CORP	C/O SOS METALS ISLAND RECYCLING LLC	PO BOX 1473	PUUNENE	HI	96784
19	2380080010000	STATE OF HAWAII	DEPT OF AGRICULTURE	1428 S KING STREET	HONOLULU	HI	96814
20	2380080010000	STATE OF HAWAII	DEPT OF DEFENSE HAWAII ARMY NATIONAL GUARD	3949 DIAMOND HEAD ROAD	HONOLULU	HI	96816
21	2380080050000	PULEHUNUI INDUSTRIAL LLC		135 N WENATCHEE AVE	WENATCHEE	WA	98801
22	2380080060000	MP CENTRAL A LLC		PO BOX 565	PUUNENE	HI	96784
23	2380080200000	STATE OF HAWAII	DEPARTMENT OF LAND AND NATURAL RESOURCES LAND DIVISION	PO BOX 621	HONOLULU	HI	96809
24	2380080310000	HAWAIIAN CEMENT (OVER 45.957 AC) (G.L. S-5284-A) ETAL		P O BOX 488	KAHULUI	HI	96733
25	2380080340000	HAWAIIAN HOME LANDS		PO BOX 1879	HONOLULU	HI	96805
26	2381040130000	L C MAUI INVESTMENTS LLC		PO BOX 29540	HONOLULU	HI	96820
27	2381040140000	JAS W GLOVER HOLDING COMPANY LTD		PO BOX 579	HONOLULU	HI	96809

ITEMID	TMK NO	TO NAME*	TO COMPANY	TO ADDRESS*	TO CITY	TO STATE	TO ZIP
28	2381040150000	GOODFELLOW BROS INC		PO BOX 220	KIHEI	HI	96753

EXHIBIT 18

Department of Fire and Public Safety Agency Review Comments

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

BRADFORD K. VENTURA
Fire Chief

GAVIN L.M. FUJIOKA
Deputy Fire Chief



DEPARTMENT OF FIRE & PUBLIC SAFETY
COUNTY OF MAUI
200 DAIRY ROAD
KAHULUI, MAUI, HAWAI'I 96732
www.mauicounty.gov

September 5, 2025

VIA MAPPS

SUBJECT: CUP20060002 - HAWAIIAN CEMENT
TMK: 2380040010000-24390

Dear Applicant,

Thank you for the opportunity to review your project. At this time, the Fire Prevention Bureau has no comments. Please feel free respond back should you want to identify or inquire about any specific fire-related public safety concerns for this or any additional future projects.

Our office reserves the right to review and comment on future permit applications when detailed plans for this project are routed to our office for review. If there are any questions or comments, please feel free to contact our office at (808) 876-4690 or by email at fire.prevention@mauicounty.gov

Sincerely,

Plans Review - Fire Prevention Bureau

cg

EXHIBIT 18a

Applicant Response to Department of Fire and Public Safety Agency Review Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Via email: fire.planreview@mauicounty.gov

Bradford K. Ventura, Fire Chief
County of Maui
Department of Fire and Public Safety
200 Dairy Road
Kahului, Hawai'i 96732

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Chief Ventura:

Thank you for your letter dated September 5, 2025 providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we acknowledge that the Department of Fire and Public Safety has no comments to offer at this time.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,

Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\SSP1-PAR\Response Letter\MFD.docx

EXHIBIT 19

Department of Water Supply Comments

RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JOHN STUFFLEBEAN, P.E.
Director

JAMES A. LANDGRAF
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAI'I 96793
http://www.mauicounty.gov/water



October 23, 2025

Brailey Gonsalves, Planner III
County of Maui Department of Planning
One Main Plaza
2200 Main Street, Suite 315
Wailuku, HI 96793

Dear Ms. Gonsalves:

RE: Application for Amendment to Permit Terms, Conditions, and Time Stipulations for the Hawaiian Cement Proposed Pu'unēnē Supplementary Quarry Site, Pu'unēnē, Maui, Hawai'i. TMK No. (2)3-8-004:001 (por.) (CUP2006-0002).

The Department of Water Supply (DWS) appreciates the opportunity to comment on the proposed Hawaiian Cement Pu'unēnē Quarry State Special Permit (SP) amendment application.

WATER RESOURCES

The project site is not served by the DWS.

Non-potable water for concrete batching, dust control, and cleaning equipment is provided through an existing private well that draws from a brackish portion of the aquifer for non-potable uses. Potable water for employees is supplied by a private bottled water vendor.

FIRE PROTECTION NEEDS

The applicant must ensure that water flows for fire protection needs are adequate, and that the project independently has an approved on-site water source and infrastructure to meet all relevant fire codes.

Should you have any questions, please contact either Geovanna Torres, at (808) 463-3104 or via email at Geovanna.Torres@co.maui.hi.us or Yoash Tilles at (808) 270-7940 or via email at Yoash.Tilles@co.maui.hi.us.

Sincerely,

John Stufflebean, P.E.
Director of Water Supply
GT

Cc: DWS Department of Engineering

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RICHARD T. BISSEN, JR.
Mayor

JOSIAH K. NISHITA
Managing Director

JOHN STUFFLEBEAN, P.E.
Director

JAMES A. LANDGRAF
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAI'I 96793
http://www.mauicounty.gov/water



October 23, 2025

Brailey Gonsalves, Planner III
County of Maui Department of Planning
One Main Plaza
2200 Main Street, Suite 315
Wailuku, HI 96793

Dear Ms. Gonsalves:

RE: Submission of Supplemental Materials for State Special Permit Amendment for the Hawaiian Cement Proposed Pu'unēnē Quarry Site, Pu'unēnē, Maui, Hawai'i. TMK Nos. (2)3-8-004:001 (SP92-380).

The Department of Water Supply (DWS) appreciates the opportunity to comment on the proposed Hawaiian Cement Pu'unēnē Quarry State Special Permit (SP) amendment application.

WATER RESOURCES

The project site is not served by the DWS.

Non-potable water for concrete batching, dust control, and cleaning equipment is provided through an existing private well that draws from a brackish portion of the aquifer for non-potable uses. Potable water for employees is supplied by a private bottled water vendor.

FIRE PROTECTION NEEDS

The applicant must ensure that water flows for fire protection needs are adequate, and that the project independently has an approved on-site water source and infrastructure to meet all relevant fire codes.

Should you have any questions, please contact either Geovanna Torres, at (808) 463-3104 or via email at Geovanna.Torres@co.maui.hi.us or Yoash Tilles at (808) 270-7940 or via email at Yoash.Tilles@co.maui.hi.us.

Sincerely,

John Stufflebean, P.E.
Director of Water Supply
GT

Cc: DWS Department of Engineering

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EXHIBIT 19a

Applicant Response to Department of Water Supply Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

John Stufflebean, P.E., Director
County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawai'i 96793

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Mr. Stufflebean:

Thank you for your letter dated October 23, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we offer the following information in response.

Comment No. 1

The Applicant must ensure that water flows for fire protection needs are adequate, and that the project independently has an approved on-site water source and infrastructure to meet all relevant fire codes.

Response: Water for fire protection purposes will be provided by the Applicant's existing non-potable well. It is noted that the Applicant will access the proposed quarry area in 30-acre increments at a time, and as such, the quarry operation would be active within limited areas.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,



Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\CSUP Cmt.Rsp Ltrs\CmtTemplate.docx

EXHIBIT 20

Department of Health Agency Review Comments

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

Lorrin W. Pang, M.D., M.P.H.
District Health Officer

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

September 19, 2025

TO: Brailey Gonsalves
Staff Planner
County of Maui Department of Planning
2200 Main Street
Wailuku, HI 96793
brailey.gonsalves@co.maui.hi.us

FROM: Patti Kitkowski
Maui District Environmental Health Program Chief
54 S. High St., Rm 300
Wailuku, HI 96793

SUBJECT: **SUP1910013 HAWAIIAN CEMENT**

In most cases, the District Health Office will no longer provide individual comments to agencies or project owners to expedite the land use review and process.
Agencies, project owners, and their agents should apply Department of Health "Standard Comments" regarding land use to their standard project comments in their submittal. Standard comments can be found on the Land Use Planning Review section of the Department of Health website: https://health.hawaii.gov/epo/landuse/ . Contact information for each Branch/Office is available on that website.

Note: Agencies and project owners are responsible for adhering to all applicable standard comments and obtaining proper and necessary permits before the commencement of any work.

General summary comments have been included for your convenience. However, these comments are not all-inclusive and do not substitute for review of and compliance with all applicable standard comments for the various DOH individual programs.

Clean Air Branch
1. All project activities shall comply with the Hawaii Administrative Rules (HAR), Chapters 11-59 and 11-60.1.

2. Control of Fugitive Dust: You must reasonably control the generation of all airborne, visible fugitive dust and comply with the fugitive dust provisions of HAR §11-60.1-33. Note that activities that occur near existing residences, businesses, public areas, and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne and visible fugitive dust and that buffer zones be established wherever possible.
3. Standard comments for the Clean Air Branch are at: https://health.hawaii.gov/epo/landuse/2

Clean Water Branch

1. All project activities shall comply with the HAR, Chapters 11-53, 11-54, and 11-55.
The following Clean Water Branch website contains information for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with HAR, Chapters 11-53, 11-54, and 11-55: https://health.hawaii.gov/cwb/clean-water-branch-home-page/cwb-standard-comments/.

Hazard Evaluation & Emergency Response Office

1. A Phase I Environmental Site Assessment (ESA) and Phase II Site Investigation should be conducted for projects wherever current or former activities on site may have resulted in releases of hazardous substances, including oil or chemicals. Areas of concern include current and former industrial areas, harbors, airports, and formerly and currently zoned agricultural lands used for growing sugar, pineapple or other agricultural products.
2. Standard comments for the Hazard Evaluation & Emergency Response Office are at: https://health.hawaii.gov/epo/landuse/.

Indoor and Radiological Health Branch

1. Project activities shall comply with HAR Chapters 11-39, 11-45, 11-46, 11-501, 11-502, 11-503, 11-504.
2. Construction/Demolition Involving Asbestos: If the proposed project includes renovation/demolition activities that may involve asbestos, the applicant should contact the Asbestos and Lead Section of the Branch at https://health.hawaii.gov/irhb/asbestos/.

Safe Drinking Water Branch

1. Agencies and/or project owners are responsible for ensuring environmental compliance for their projects in the areas of: 1) Public Water Systems; 2) Underground Injection Control; and 3) Groundwater and Source Water Protection in accordance with HAR Chapters 11-19, 11-20, 11-21, 11-23, 11-23A, and 11-25. They may be responsible for fulfilling additional requirements related the Safe Drinking Water program: https://health.hawaii.gov/sdwb/.
2. Standard comments for the Safe Drinking Water Branch can be found at: https://health.hawaii.gov/epo/landuse/.

Solid & Hazardous Waste Branch

1. Hazardous Waste Program - The state regulations for hazardous waste and used oil are in HAR Chapters 11-260.1 to 11-279.1. These rules apply to the identification, handling, transportation, storage, and disposal of regulated hazardous waste and used oil.
2. Solid Waste Programs - The laws and regulations are contained in HRS Chapters 339D, 342G, 342H and 342I, and HAR Chapters 11-58.1, and 11-282. Generators and handlers of solid waste shall ensure proper recycling or disposal at DOH-permitted solid waste management facilities. If possible, waste prevention, reuse and recycling are preferred options over disposal. The Office of Solid Waste Management also oversees the electronic device recycling and recovery law, the glass advanced disposal fee program, and the deposit beverage container program.
3.Underground Storage Tank Program – The state regulations for underground storage tanks are in HAR Chapter 11-280.1. These rules apply to the design, operation, closure, and release response requirements for underground storage tank systems, including unknown underground tanks identified during construction.
4.Standard comments for the Solid & Hazardous Waste Branch can be found at: https://health.hawaii.gov/epo/landuse/. Wastewater Branch For comments, please email the Wastewater Branch at doh.wwb@doh.hawaii.gov.

Sanitation / Local DOH Comments:
1.Noise may be generated during demolition and/or construction. The applicable maximum permissible sound levels, as stated in Title 11, HAR, Chapter 11-46, "Community Noise Control," shall not be exceeded unless a noise permit is obtained from the Department of Health.
2.According to HAR §11-26-35, Vector Control, No person, firm, or corporation shall demolish or clear any structure, place, or vacant lot without first ascertaining the presence or absence of rodents that may endanger public health by dispersal from such premises. Should any such inspection reveal the presence of rodents, the rodents shall be eradicated before demolishing or clearing the structure, site, or vacant lot. A demolition or land clearing permit is required prior to demolition or clearing.

Other
1.CDC - Healthy Places - Healthy Community Design Checklist Toolkit recommends that state and county planning departments, developers, planners, engineers, and other interested parties apply these principles when planning or reviewing new developments or redevelopment projects.
2.If new information is found or changes are made to your submittal, DOH reserves the right to implement appropriate environmental health restrictions as required. Should there be any questions on this matter, please contact the Department of Health Maui District Health Office at 808 984-8230 or email patricia.kitkowski@doh.hawaii.gov.

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

Lorrin W. Pang, M.D., M.P.H.
District Health Officer

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
Maui District Health Office
54 South High St. Rm. #300
Wailuku, HI 96793

September 19, 2025

Bailey K. Gonsalves
Staff Planner
County of Maui Dept. of Planning
2200 Main Street
Wailuku, Maui HI 96793
bailey.k.gonsalves@co.maui.hi.us

Dear Bailey Gonsalves:

Subject: **SUP19100013 HAWAIIAN CEMENT**

Thank you for the opportunity to comment on this project. The Department of Health, Environmental Health Services Division, Food Safety Branch has no comments to offer currently.

It is strongly recommended that the Standard Comments found at the Department's website: https://health.hawaii.gov/epo/landuse/ be reviewed and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please contact me at patricia.kitkowski@doh.hawaii.gov or 808 984-8230.

Sincerely,

Patti Kitkowski

Patti Kitkowski
District Environmental Health Program Chief

c: EMD

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

Lorrin W. Pang, M.D., M.P.H.
District Health Officer

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P. O. BOX 3378
HONOLULU, HI 96801-3378

September 19, 2025

TO: Brailey Gonsalves
Staff Planner
County of Maui Department of Planning
2200 Main Street
Wailuku, HI 96793
brailey.gonsalves@co.maui.hi.us

FROM: Patti Kitkowski
Maui District Environmental Health Program Chief
54 S. High St., Rm 300
Wailuku, HI 96793

SUBJECT: **CUP20060002 HAWAIIAN CEMENT**

In most cases, the District Health Office will no longer provide individual comments to agencies or project owners to expedite the land use review and process.
Agencies, project owners, and their agents should apply Department of Health "Standard Comments" regarding land use to their standard project comments in their submittal. Standard comments can be found on the Land Use Planning Review section of the Department of Health website: https://health.hawaii.gov/epo/landuse/ . Contact information for each Branch/Office is available on that website.

Note: Agencies and project owners are responsible for adhering to all applicable standard comments and obtaining proper and necessary permits before the commencement of any work.

General summary comments have been included for your convenience. However, these comments are not all-inclusive and do not substitute for review of and compliance with all applicable standard comments for the various DOH individual programs.

Clean Air Branch
1. All project activities shall comply with the Hawaii Administrative Rules (HAR), Chapters 11-59 and 11-60.1.

2. Control of Fugitive Dust: You must reasonably control the generation of all airborne, visible fugitive dust and comply with the fugitive dust provisions of HAR §11-60.1-33. Note that activities that occur near existing residences, businesses, public areas, and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne and visible fugitive dust and that buffer zones be established wherever possible.
3. Standard comments for the Clean Air Branch are at: https://health.hawaii.gov/epo/landuse/2

Clean Water Branch

1. All project activities shall comply with the HAR, Chapters 11-53, 11-54, and 11-55.
The following Clean Water Branch website contains information for agencies and/or project owners who are seeking comments regarding environmental compliance for their projects with HAR, Chapters 11-53, 11-54, and 11-55: https://health.hawaii.gov/cwb/clean-water-branch-home-page/cwb-standard-comments/.

Hazard Evaluation & Emergency Response Office

1. A Phase I Environmental Site Assessment (ESA) and Phase II Site Investigation should be conducted for projects wherever current or former activities on site may have resulted in releases of hazardous substances, including oil or chemicals. Areas of concern include current and former industrial areas, harbors, airports, and formerly and currently zoned agricultural lands used for growing sugar, pineapple or other agricultural products.
2. Standard comments for the Hazard Evaluation & Emergency Response Office are at: https://health.hawaii.gov/epo/landuse/.

Indoor and Radiological Health Branch

1. Project activities shall comply with HAR Chapters 11-39, 11-45, 11-46, 11-501, 11-502, 11-503, 11-504.
2. Construction/Demolition Involving Asbestos: If the proposed project includes renovation/demolition activities that may involve asbestos, the applicant should contact the Asbestos and Lead Section of the Branch at https://health.hawaii.gov/irhb/asbestos/.

Safe Drinking Water Branch

1. Agencies and/or project owners are responsible for ensuring environmental compliance for their projects in the areas of: 1) Public Water Systems; 2) Underground Injection Control; and 3) Groundwater and Source Water Protection in accordance with HAR Chapters 11-19, 11-20, 11-21, 11-23, 11-23A, and 11-25. They may be responsible for fulfilling additional requirements related the Safe Drinking Water program: https://health.hawaii.gov/sdwb/.
2. Standard comments for the Safe Drinking Water Branch can be found at: https://health.hawaii.gov/epo/landuse/.

Solid & Hazardous Waste Branch

1. Hazardous Waste Program - The state regulations for hazardous waste and used oil are in HAR Chapters 11-260.1 to 11-279.1. These rules apply to the identification, handling, transportation, storage, and disposal of regulated hazardous waste and used oil.
2. Solid Waste Programs - The laws and regulations are contained in HRS Chapters 339D, 342G, 342H and 342I, and HAR Chapters 11-58.1, and 11-282. Generators and handlers of solid waste shall ensure proper recycling or disposal at DOH-permitted solid waste management facilities. If possible, waste prevention, reuse and recycling are preferred options over disposal. The Office of Solid Waste Management also oversees the electronic device recycling and recovery law, the glass advanced disposal fee program, and the deposit beverage container program.
3.Underground Storage Tank Program – The state regulations for underground storage tanks are in HAR Chapter 11-280.1. These rules apply to the design, operation, closure, and release response requirements for underground storage tank systems, including unknown underground tanks identified during construction.
4.Standard comments for the Solid & Hazardous Waste Branch can be found at: https://health.hawaii.gov/epo/landuse/. Wastewater Branch For comments, please email the Wastewater Branch at doh.wwb@doh.hawaii.gov.

Sanitation / Local DOH Comments:
1.Noise may be generated during demolition and/or construction. The applicable maximum permissible sound levels, as stated in Title 11, HAR, Chapter 11-46, "Community Noise Control," shall not be exceeded unless a noise permit is obtained from the Department of Health.
2.According to HAR §11-26-35, Vector Control, No person, firm, or corporation shall demolish or clear any structure, place, or vacant lot without first ascertaining the presence or absence of rodents that may endanger public health by dispersal from such premises. Should any such inspection reveal the presence of rodents, the rodents shall be eradicated before demolishing or clearing the structure, site, or vacant lot. A demolition or land clearing permit is required prior to demolition or clearing.

Other
1.CDC - Healthy Places - Healthy Community Design Checklist Toolkit recommends that state and county planning departments, developers, planners, engineers, and other interested parties apply these principles when planning or reviewing new developments or redevelopment projects.
2.If new information is found or changes are made to your submittal, DOH reserves the right to implement appropriate environmental health restrictions as required. Should there be any questions on this matter, please contact the Department of Health Maui District Health Office at 808 984-8230 or email patricia.kitkowski@doh.hawaii.gov.

JOSH GREEN, M.D.
GOVERNOR OF HAWAI'I
KE KIA'ĀINA O KA MOKU'ĀINA 'O HAWAI'I

KENNETH S. FINK, MD, MGA, MPH
DIRECTOR OF HEALTH
KA LUNA HO'OKELE

Lorrin W. Pang, M.D., M.P.H.
District Health Officer

STATE OF HAWAI'I
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
Maui District Health Office
54 South High St. Rm. #300
Wailuku, HI 96793

September 19, 2025

Brailey K. Gonsalves
Staff Planner
County of Maui Dept. of Planning
2200 Main Street
Wailuku, Maui HI 96793
brailey.k.gonsalves@co.maui.hi.us

Dear Bailey Gonsalves:

Subject: **CUP200060002 HAWAIIAN CEMENT**

Thank you for the opportunity to comment on this project. The Department of Health, Environmental Health Services Division, Food Safety Branch has no comments to offer currently.

It is strongly recommended that the Standard Comments found at the Department's website: https://health.hawaii.gov/epo/landuse/ be reviewed and any comments specifically applicable to this project should be adhered to.

Should you have any questions, please contact me at patricia.kitkowski@doh.hawaii.gov or 808 984-8230.

Sincerely,

Patti Kitkowski
District Environmental Health Program Chief

c: EMD

EXHIBIT 20a

Applicant Response to Department of Health Agency Review Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Patti Kitkowski, Program Chief
State of Hawai'i, Department of Health
Environmental Health Services Division
54 South High Street, Room 300
Wailuku, Hawai'i 96793

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Ms. Kitkowski:

Thank you for your letters dated September 19, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we acknowledge that the State of Hawai'i, Department of Health (DOH), Environmental Health Services Division has no comments to offer at this time. It is noted that the applicable Department of Health standard comments have been addressed in our response to the State DOH office.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,



Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
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MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Patti Kitkowski, Program Chief
State of Hawai'i
Department of Health
P.O. Box 3378
Honolulu, Hawai'i 96801

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Ms. Kitkowski:

Thank you for your letters dated September 19, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we offer the following information in response to the applicable State of Hawai'i, Department of Health (DOH) standard comments.

Clean Air Branch:

Comment No. 1

If your proposed project requires an Air Pollution Control Permit, you must obtain one from the Clean Air Branch and comply with all applicable conditions and requirements.

Response: The proposed change in quarry location will require a modification to the Applicant's existing Air Pollution Control Permit to add the proposed supplemental quarry area to the Clean Air Branch (CAB) permit. The Applicant will not commence quarrying activities on the new site until CAB approval of the modification is granted, and will comply with all applicable conditions and requirements.

Comment No. 2

You must reasonably control the generation of all airborne, visible fugitive dust. Note that construction activities that occur near existing residences, businesses, public areas and major thoroughfares exacerbate potential dust concerns. It is recommended that a dust control management plan be developed which identifies and mitigates all activities that may generate airborne, visible fugitive dust. The plan, which does not require Department

of Health approval, should help you recognize and minimize potential airborne, visible fugitive dust problems.

Response: The proposed quarrying use has the potential to generate fugitive dust. However, Best Management Practices (BMPs) will be put in place to minimize the adverse effects the site activity may have on ambient air quality, including use of water wagons to prevent dust from becoming airborne. In addition, it is noted that quarry operations will be limited to one (1) 30-acre section of the site at any given time, and soil will be replaced and stabilized in areas where quarrying is complete to limit dust emissions.

Comment No. 3

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11- 60.1-33 on Fugitive Dust. In addition, for cases involving mixed land use, it is strongly recommended that buffer zones be established, wherever possible, in order to alleviate potential dust concerns.

Response: The Applicant will comply with all State regulations regarding fugitive dust. It is noted that the proposed new quarry site is surrounded to the south and east by the existing quarry site and other industrial uses, and to the the north and west by agricultural lands in various stages of active use. Buffer zones will be established as necessary between the quarry site and active agricultural use to prevent adverse effects to the latter.

Comment No. 4

You must provide reasonable measures to control airborne, visible fugitive dust from the road areas and during the various phases of construction. These measures include, but are not limited to, the following:

- *Planning the different phases of construction, focusing on minimizing the amount of airborne, visible fugitive dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;*

- *Providing an adequate water source at the site prior to start-up of construction activities;*

- *Landscaping and providing rapid covering of bare areas, including slopes, starting from the initial grading phase;*

- *Minimizing airborne, visible fugitive dust from shoulders and access roads;*

- *Providing reasonable dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and*

- *Controlling airborne, visible fugitive dust from debris being hauled away from the project site.*

Response: The proposed new quarry site is located over one (1) mile from Maui Veterans Highway, the nearest major roadway. As such, any impacts related to fugitive dust caused by the proposed relocation are unlike to affect road areas. Vehicular traffic to and from the site is not expected to change as a result of the current amendment requests, since the new quarry site is a replacement of the existing site. It is also noted that quarry operations will be limited to one (1) 30-acre section of the site at any given time, and soil will be replaced and stabilized in areas where quarrying is complete to limit dust emissions. In addition, the existing non-potable well on the site of the processing facility will be used for dust control as needed.

Clean Water Branch:

Comment No. 1

Any project and its potential impacts to State waters must meet the following criteria:

a. *Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.*

b. *Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.*

c. *Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).*

Response: The character of quarry operations is not anticipated to change as a result of the proposed relocation of the quarry site, and the quarrying use will continue to abide by the provisions of HAR 11-54. In particular, the proposed new quarry site is not located adjacent to any significant surface water resources; at a distance of over 1,000 feet at its closest point, Kolaloa gulch is the nearest stream identified in the U.S. Fish and Wildlife Service‘s National Wetlands Inventory. Potential impacts to water quality related to drainage runoff will be mitigated through construction of new retention ponds on the downhill side of the new site, which will be designed to contain the full increase in peak runoff caused by quarrying activity.

Comment No. 2

You may be required to obtain National Pollutant Discharge Elimination System (NPDES) permit coverage for point source water pollutant discharges into State surface waters (HAR, Chapter 11-55). Point source means any discernible, confined, and discrete conveyance from which pollutants are or may be discharged.

Response: The proposed new quarry site will require an NPDES permit. The Applicant will coordinate with the DOH to modify its existing NPDES permit to add the supplemental quarry area and comply with any applicable conditions required in the permit approval.

Comment No. 3

A Section 401 Water Quality Certification (WQC) may be required if your project/activity:

a. Requires a federal license or permit; and

b. May result in a discharge into waters of the United States (WOTUS).

Response: The proposed new quarry site is not expected to require a Section 401 Water Quality Certification as it does not require a federal approval and it is not located near any waters of the United States.

Comment No. 4

Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards (HAR Chapters 11-53, 11-54, and 11-55).

Response: The quarrying activity on the proposed new site will conform to the State's Water Quality Standards. As mentioned previously, drainage improvements will be established at the site to prevent adverse impacts to State waters. In addition, Best Management Practices (BMPs) will be instituted on the site to minimize effects on downstream properties. The Applicant will abide by all applicable conditions of the NPDES permit for the new site.

Comment No. 5

It is the State's position that all projects must reduce, reuse, and recycle to protect, restore, and sustain water quality and beneficial uses of State waters. Project planning should:

a. Treat storm water as a resource to be protected by integrating it into project planning and permitting. Storm water has long been recognized as a source of irrigation that will not deplete potable water resources. What is often overlooked is that storm water recharges ground water supplies and feeds streams and estuaries; to ensure that these water cycles are not disrupted, storm water cannot be relegated as a waste product of impervious surfaces. Any project planning must recognize storm water as an asset that sustains and protects natural ecosystems and traditional beneficial uses of State waters, like community beautification, beach going, swimming, and fishing. The approaches necessary to do so, including low impact development methods or ecological bio-engineering of drainage ways must be identified in the planning stages to allow designers opportunity to include those approaches up front, prior to seeking zoning, construction, or building permits.

b. Clearly articulate the State's position on water quality and the beneficial uses of State waters. The plan should include statements regarding the implementation of methods to conserve natural resources (e.g. minimizing potable water for irrigation, gray water re-use options, energy conservation through smart design) and improve water quality.

c. *Consider storm water Best Management Practice (BMP) approaches that minimize the use of potable water for irrigation through storm water storage and reuse, percolate storm water to recharge groundwater to revitalize natural hydrology, and treat storm water which is to be discharged.*

d. *Consider the use of green building practices, such as pervious pavement and landscaping with native vegetation, to improve water quality by reducing excessive runoff and the need for excessive fertilization, respectively.*

e. *Identify opportunities for retrofitting or bio-engineering existing storm water infrastructure to restore ecological function while maintaining, or even enhancing, hydraulic capacity. Consideration should be given to areas prone to flooding, or where the infrastructure is aged and will need to be rehabilitated.*

Response: The Applicant recognizes the importance of preserving water quality and beneficial uses of State waters.

a. The Applicant appreciates the importance of maintaining the natural hydrologic cycle. Increased stormwater runoff as a result of quarrying activities on the new site will be contained in newly constructed retention ponds that will hold stormwater until it is able to percolate into the ground.

b. Potable water will not be used on the new quarry site or the existing processing facility for irrigation, dust control, or other service uses. The existing non-potable well on the property will supply water for these purposes instead. In addition, the location of the project site is ideal for minimizing impacts to State waters, being located inland from the shoreline and away from bodies of fresh water.

c. As mentioned previously, stormwater runoff will be captured in retention basins, which will allow it to percolate in the ground onsite rather than continuing to downstream properties. In addition, mining activities will be limited to 30 acres of the new quarry site at any given time in order to limit stormwater runoff. Areas in which quarrying has been completed will be stabilized to return them to their initial hydrologic capacity. Furthermore, the depression caused by removal of underlying stone may increase the hydrologic capacity of mined areas.

d. The proposed quarry relocation does not entail any paving or other creation of impervious surface, beyond that created by removing soil from active mining areas. The additional runoff caused by removal of topsoil will be contained in appropriately sized retention basins.

e. It is noted that the proposed new quarry site is located entirely within Flood Zone X, the area of minimal flood risk. There is no existing drainage or stormwater infrastructure on the site, but the Application will construct new retention ponds for management of increased runoff caused by the quarrying use.

Hazard Evalualtion and Emergency Response Office:

Comment No. 1

If the site has a history of previous releases of hazardous substances, which includes oil or chemicals, we recommend that the applicant contact the HEER Office for guidance and direction prior to the approval of the land use change or permit approval.

Response: Based on review of the records contained in the iHEER database, there are no past recorded releases of hazardous substances located within the proposed new quarry area. There is one site (iHEER ID 459) recorded on the parcel identified by TMK No. (2)3-8-008:031, which contains the existing Hawaiian Cement processing facility. Site 459 is related to the Grace Pacific asphalt plant on the subject property, which undertook remedial action to address past contamination of the underlying soil. The remedial action plan was approved in 2013 by HEER.

Indoor and Radiological Health Branch:

Comment No. 1

Project activities shall comply with the Administrative Rules of the Department of Health:

- *Chapter 11-46 Community Noise Control.*

Response: The subject amendment applications to not propose any changes to quarry activities that take place on the site; only the location of mining will change. It is also noted that the proposed new quarry site is surrounded by agricultural and industrial land uses, and will therefore not cause any adverse impact to noise quality in populated or conservation areas. Quarrying and processing activities will continue to abide by HAR Chapter 11-46, Community Noise Control.

Safe Drinking Water Branch:

Comment No. 1

As the owner of a privately-owned well, you should not assume that water from your well is safe for consumption. It is your responsibility to make sure that your well water is safe to drink. The only way to do this is to have your well regularly tested for bacteriological and chemical contaminants:

Response: The County of Maui, Department of Water Supply does not service the subject properties. Instead, the existing Hawaiian Cement processing facility is equipped with a privately-owned well for use in concrete batching, dust control, and cleaning equipment. Drinking water for the site is delivered to the site by private bottled water vendors.

Solid and Hazardous Waste Branch:

Comment No. 1

Generators of solid waste are required to ensure that their wastes are properly delivered to permitted solid waste management facilities. Managers of construction and demolition projects should require their waste contractors to submit disposal receipts and invoices to ensure proper disposal of wastes.

Response: The subject amendment requests would not cause any change in solid waste practices for the quarry and processing operations. Hawaiian Cement will continue to responsibly dispose of any solid waste generated on the premises.

Wastewater Branch:

Comment No. 1

Per HAR, Ch. 11-62 section 11-62-05, all areas of the State are critical wastewater disposal areas. All wastewater systems must conform to applicable provisions of HAR, Ch. 11-62. We do reserve the right to review the detailed wastewater plans for conformance to applicable rules. Design plans should address any effect associated with the construction of and/or discharges from the wastewater systems to any public trust, Native Hawaiian resources or the exercise of traditional cultural practices.

Response: The County of Maui, Department of Environmental Management does not service the subject properties. Instead, wastewater services are provided via portable toilets, contracted by Hawaiian Cement through a private vendor.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,



Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
Kirk Tanaka, R.T. Tanaka Engineering, Inc.
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EXHIBIT 21

Department of Transportation Agency Review Comments

JOSH GREEN, M.D.
GOVERNOR
KE KIA'ĀINA



EDWIN H. SNIFFEN
DIRECTOR
KA LUNA HO'OKELE

Deputy Directors
Nā Hope Luna Ho'okele
DREANALEE K. KALILI
TAMMY L. LEE
CURT T. OTAGURO
ROBIN K. SHISHIDO

STATE OF HAWAI'I | KA MOKU'ĀINA 'O HAWAI'I
DEPARTMENT OF TRANSPORTATION | KA 'OIHANA ALAKAU
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

October 2, 2025

IN REPLY REFER TO

STP 00881.25
STP 00882.25
STP 8.3983

VIA EMAIL: Brailey.K.Gonsalves@co.maui.hi.us

Ms. Kate Blystone, Director
County of Maui
Planning Department
2200 Main Street
One Main Plaza, Suite 315
Wailuku, Hawaii 96793

Dear Ms. Blystone:

Subject: Amendment to State Special Permit (SP92-380) and County Special Use Permit (CUP 2006/0002)
Hawaiian Cement Puunene Quarry
Puunene, Maui, Hawaii
Tax Map Key: (2) 3-8-004: 001(portion)

Thank you for your email, dated September 4, 2025, requesting the Hawaii Department of Transportation's (HDOT) review and comments on the subject amendment. The HDOT understands the applicant is proposing to remove its current permitted quarry lands under its current County Use Permit and replace them with a new quarry site.

The HDOT has the following comments:

1. The proposed development is approximately 3.83 miles from the property boundary of Kahului Airport (OGG). All projects within 5 miles of Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits. The TAM can be viewed at the following link: http://files.hawaii.gov/dbedt/op/docs/TAM-FAA-DOT-Airports_08-01-2016.pdf.

2. Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on

the runway of each airport with its longest runway more than 3,200 feet. Construction equipment and staging area heights, including heights of temporary construction cranes, shall be included in the submittal. The form and submission criteria can be found at the following website: https://oeaaa.faa.gov/oeaaa/external/portal.jsp. Please provide a copy of the FAA response to the Part 77 analysis to the HDOT Airport Planning Section.

3. The proposed project shall not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. Please review the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants On or Near Airports, for guidance. If the project's landscaping creates a wildlife attractant, the developer shall immediately mitigate the hazard upon notification by the HDOT and/or FAA.

4. The proposed access will be on Maui Veterans Highway, State Route 311 (formerly known as Mokulele Road) via a private access road. A secondary access was mentioned but not yet identified.

5. Our records indicate that the HDOT letter HWY-PS 2.0800 (attached), dated June 25, 1996, was sent with comments for the Consolidation of Special Use Permits review (SP92-380 and SP90-376).

    a. There was a raised concern related to the required intersection improvements for a left-turn lane at the project access intersecting Maui Veterans Highway, identified in the project's Traffic Assessment.

    b. However, our past concern about the postponed implementation of the project's improvements is now moot, as intersection improvements, including signalization, turning lanes, and widening, have been completed by the HDOT over the years and confirmed by the Maui District Office.

6. The HDOT would like to reiterate our continued concern that the intersection of the site's main access with Maui Veterans Highway should be maintained regularly due to fallen loose aggregate and rock debris from routine truck hauling.

    The compliance report included in the application showed that a regular maintenance program for the access road was submitted to the HDOT in 1996 and approved by the Maui District Engineer. However, since the subject maintenance program is over 20+ years old, the HDOT recommends that the existing Condition No. 9 related to this requirement be revised to include the following in the event the Special Permits are approved:

a. An updated or a new (regular) maintenance program for the access road shall be submitted to the Highways, Maui District Office before new operation/occupancy of the expanded site, with a new submission once every 5 years thereafter.

7. The HDOT encourages strategies to reduce carbon emissions from the project, if any. Suggestions include:

    a. Incorporate elements that encourage and enhance the use of multiple types of transportation to reduce carbon emissions.

    b. Implement energy-efficient technologies and practices, such as light-emitting diode lighting.

    c. Use sustainable, recycled, or low-emission materials in construction and manufacturing.

Please submit any subsequent land use entitlement-related requests for review or correspondence to the HDOT Land Use Intake email address at DOT.LandUse@hawaii.gov.

If there are any questions, please contact Mr. Blayne Nikaido, Planner, Land Use Section of the HDOT Statewide Transportation Planning Office at (808) 831-7979 or via email at blayne.h.nikaido@hawaii.gov.

Sincerely,

EDWIN H. SNIFFEN
Director of Transportation

Attachment

[238 1996-102

DIR 0655

HWY-PS
2.0800

Mr. David W. Blane
Director
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Blane:

Subject: Consolidation of Special Use Permits SP 90/376 with SP 92/380 for Hawaiian Cement/Quarry Operation, Pulehunui, Wailuku, Maui; TMK: 3-8-4: por. 1 & 2

1. The applicant has not fully complied with the requirement to provide intersection improvements at the project access to Mokulele Highway.

2. Although the traffic assessment for this project identified that left-turn lanes on Mokulele Highway would be needed to maintain through capacity, the applicant has been postponing the implementation of the improvements.

3. The applicant should be required to coordinate with the Highways Division Maui District Engineer to provide the required roadway intersection improvements.

4. Plans for work done within Mokulele Highway rights-of-way must be submitted for our review and approval.

Very truly yours,

KAZU HAYASHIDA
Director of Transportation

EXHIBIT 21a

Applicant Response to Department of Transportation Agency Review Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Edwin H. Sniffen, Director
State of Hawai'i
Department of Transportation
869 Punchbowl Street
Honolulu, Hawai'i 96813

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380) (STP 00881.25) (STP 00882.25) (STP 8.3983)

Dear Mr. Sniffen:

Thank you for your letter dated October 2, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we offer the following information in response.

Comment No. 1

The proposed development is approximately 3.83 miles from the property boundary of Kahului Airport (OGG). All projects within 5 miles of Hawaii State airports are advised to read the Technical Assistance Memorandum (TAM) for guidance with development and activities that may require further review and permits.

Response: The TAM has been reviewed in relation to the proposed project. While the project will involve construction of new drainage retention basins, these basins are not exptected to attract wildlife that would affect aircraft operation. In addition, relocation to the proposed new quarry site will not entail construction of any roadways, structures higher than 200 feet above ground level, or structures that exceed the 100:1 slope imaginary surface extending from the boundary 20,000 feet from the nearest runway longer than 3,200 feet at Kahului Airport.

Comment No. 2

Federal Aviation Administration (FAA) regulation requires the submittal of FAA Form 7460-1 Notice of Proposed Construction or Alteration pursuant to the Code of Federal Regulations, Title 14, Part 77.9, if the construction or alteration is within 20,000 feet of a public use or military airport which exceeds a 100:1 surface from any point on the runway of each airport with its longest runway more than 3,200 feet.

Response: The proposed new quarry site is located approximately 20,000 feet from the property boundary of Kahului Airport. As mentioned above, relocation to the proposed new quarry site will not entail construction of any roadways, structures higher than 200 feet above ground level, or structures that exceed the 100:1 slope imaginary surface extending from the boundary 20,000 feet from the nearest runway longer than 3,200 feet at Kahului Airport. As such, Form 7460-1 is not anticipated to be required.

Comment No. 3

The proposed project shall not provide landscape and vegetation that will create a wildlife attractant, which can potentially become a hazard to aircraft operations. Please review the FAA Advisory Circular 150/5200-33C, Hazardous Wildlife Attractants on or Near Airports, for guidance. If the project's landscaping creates a wildlife attractant, the developer shall immediately mitigate the hazard upon notification by the HDOT and/or FAA.

Response: Relocation of the quarrying use to the proposed new quarry site would entail construction of new stormwater retention ponds in order to prevent adverse effects to downstream properties. However, it is recognized that drainage features, including retention ponds, can attrack wildlife that may have the potential to interfere with safe aircraft operation. As such, the Applicant will take into account the recommendations from FAA Advisory Circular 150/5200-33C regarding new stormwater management facilities, including designing the detention ponds at the lowest portion of the quarry floor. It is noted, however, that the proposed new quarry site is located outside of the 10,000-foot buffer recommended between airport boundaries and hazardous wildlife attractants. Given the distribution of wetlands in Central Maui, and the generally dry climate, it is unlikely the the proposed retention basins will cause a noticable increase in wildlife interference with airport operation.

Comment No. 4

The proposed access will be on Maui Veterans Highway, State Route 311 (formerly known as Mokulele Road) via a private access road. A secondary access was mentioned but not yet identified.

Response: The Applicant confirms that the proposed new quarry site will primarily be accessed via Maui Veterans Highway. The secondary access is present for emergencies or maintenance but is not anticipated to be used for regular quarry operations.

Comment No. 5

Our records indicate that the HDOT letter HWY-PS 2.0800 (attached), dated June 25, 1996, was sent with comments for the Consolidation of Special Use Permits review (SP92-380 and SP90-376).

a. *There was a raised concern related to the required intersection improvements for a left-turn lane at the project access intersecting Maui Veterans Highway, identified in the project's Traffic Assessment.*

b. *However, our past concern about the postponed implementation of the project's improvements is now moot, as intersection improvements, including signalization, turning lanes, and widening, have been completed by the HDOT over the years and confirmed by the Maui District Office.*

Response: The Applicant appreciates this update and confirmation regarding the adequacy of the planned access to the proposed new quarry site.

Comment No. 6

a. *The HDOT would like to reiterate our continued concern that the intersection of the site's main access with Maui Veterans Highway should be maintained regularly due to fallen loose aggregate and rock debris from routine truck hauling.*

Response: The proposed relocation of the quarry operations will not lead to a change in vehicular traffic to and from the site, including that related to delivery of aggregate and rock materials. We note the comment regarding the maintenance of the Maui Veterans Highway and Kama'aina Road intersection. It is noted that there are various users of the intersection, including the tenants within the new Pulehunui Industrial subdivision. Hawaiian Cement will inform its staff about the importance of keeping the intersection clear of debris.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,



Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
Kirk Tanaka, R.T. Tanaka Engineering
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EXHIBIT 22

Department of Agriculture and Biosecurity Comments

JOSH GREEN, M.D.
Governor

SYLVIA LUKE
Lt. Governor

SHARON HURD
Chairperson
Board of Agriculture & Biosecurity

DEAN M. MATSUKAWA
Deputy to the Chairperson

State of Hawai'i
DEPARTMENT OF AGRICULTURE & BIOSECURITY
KA 'OIHANA MAHI'AI A KIA'I MEAOLA
1428 South King Street
Honolulu, Hawai'i 96814-2512
Phone: (808) 973-9560 FAX: (808) 973-9613

October 29, 2025

Ms. Karlynn K. Fukuda
President
Munekiyo Hiraga
305 High Street, Suite 104
Wailuku, Hawaii 96793

Attn: Mr. Finn Gibson, Analyst

Subject: Submission of Supplemental Materials for State Special Permit Amendment Application for the Hawaiian Cement Puunene Quarry Site (SP 92-380 and CUP 2006/0002)
TMK: 3-8-004: 001, 3-8-006: 001, and 3-8-001: 031
Puunene, Maui, Hawaii
Area: 125 acres

Dear Ms. Fukuda:

The Department of Agriculture and Biosecurity (DAB) submits this letter in response to both the County Conditional Use Permit (CUP 2006/0002) and the State Special Permit (SP 92-380). The DAB's comments and recommendations are based on the "Project Assessment Report – Hawaiian Cement – Proposed Puunene Quarry – TMK No. (2) 3-8-004: 001 (por.) (CUP 2006/0002), dated June 2025.

Background:

The 125-acre project site is about 5 miles south southeast of Kahului Harbor. It adjoins to the south and west the existing 214-acre quarry site and processing facility that was initially established in 1992.

The DAB submitted comments (dated July 27, 2022) on the prior proposed amendment that sought to add 45.4 acres to the existing quarry and processing facility. Since then, the ownership of the existing quarry recently changed from Alexander and Baldwin to AB Maui Quarries.

As of January 2027, the project applicant, Hawaiian Cement, will lose access to the quarry area but retain the lease to the processing facility (the land under which is owned by the State) through 2038. Hawaiian Cement, in anticipation of losing access to the quarry site now seeks to purchase 125 acres of land owned by Mahi Pono Holdings, just north of the existing quarry site and establish a quarry. Thus far, about 55 acres of the project site has been purchased by Hawaiian Cement with the remaining 70 acres to be purchased upon approval of the current proposed State Special Permit and Conditional Use Permit.

Department of Agriculture and Biosecurity Comments:

As in the case of the prior State Special Permit amendment request, DAB is concerned about the proposed use of designated Important Agricultural Lands (IAL). We noted in our correspondence on the earlier proposed amendment that the then-proposed expansion of the quarry by 45 acres was "small in comparison to the thousands of acres of surrounding designated Important Agricultural Land". (DAB letter to Munekiyo Hiraga, dated July 10, 2023) However, we also noted in our letter that the license agreement at the time between Hawaiian Cement and Alexander and Baldwin required that the affected land under reclamation "return the quarried land to a semblance of its former state and make the otherwise substantial disturbance of the affected 45.4 acres of designated Important Agricultural Land, a temporary one." Further the 45.4-acre site was not in agricultural use at the time, and the closest Mahi Pono agricultural activities were about a mile north and east of the project site. The absence of productive agricultural activity and the lease requirement that the land area be reclaimed and restored to its prior condition somewhat mitigated the temporary loss of the 45.4-acre site as designated IAL.

The current 125-acre project site is designated IAL. The IAL designation occurred in June 2009 and is part of the 27,102 acres of Alexander and Baldwin/Hawaiian Commercial and Sugar agricultural lands designated by the Land Use Commission (Declaratory Ruling No 09-38). Mahi Pono's lands to the north and east of the project site are designated IAL along with lands to the west and north of the existing quarry and processing facilities (Project Assessment Report – Hawaiian Cement Proposed Puunene Quarry, June 2025, Figure 11, Important Agricultural Lands Map, page 21 or electronic document page 31).

The 125-acre project site is cultivated with Tahitian lime trees by Mahi Pono (Project Assessment Report, page 19 or electronic document page 29) and (Appendix A, Flora and Fauna Survey Report, electronic document page 60 of the Project Assessment Report). Appendix A also states that the area planted in lime trees is irrigated (Appendix A, electronic document page 61 of the Project Assessment Report). The DAB believes this is the first land use permit application involving designated IAL that is also in intensive agricultural production.

Mahi Pono's "Map of Farming Plans" (https://www.mahipono.com/facts-and-figures) as of September 1, 2025 shows citrus and coffee trees planted to the north of the existing quarries and project site and the processing facilities, and row crops planted to the east. Lands to the south of the quarry site are in cattle grazing and may be cropped in the future.

With respect to the restoration of the project site after cessation of quarrying, the letter from Munekiyo Hiraga (dated June 13, 2025) indicates the applicant will comply with the reclamation plan for the existing quarry area (Appendix C (2024 State Special Use Permit Annual Report); Exhibit E (County Special Use Permit Compliance Report, electronic document page 223 of the Project Assessment Report)), however DAB has not found an equivalent commitment to the 125-acre project site elsewhere in the application.

There are at least two statements made in the application that indicate that restoration of the 125-acre project site will be done as quarrying ceases for each "stage".

(Page 10 or electronic document page 19, second full paragraph)
"Further, the land will be available for agricultural use following the completion of the quarry operation, soil that was in place before mining occurred will be replaced over the quarry floor with a depth of at least 24 inches."

(Page 19 or electronic document page 29, last full paragraph)
"However, mining will be undertaken in stages, with only at most 30 of the 125 acres being actively used at any time, and the existing agricultural activity will be allowed to continue in non-quarry operation areas. Furthermore, soil will be returned to each 30-acre active site as mining is completed, making land available for agricultural use."

Also attached to Exhibit C (2024 State Special Use Permit Annual Report) is Exhibit C, Restoration Plan (Amended, electronic document page 269 of the Project Assessment Report) which appears not to apply to the 125-acre project site.

Department of Agriculture and Biosecurity – Recommendations:

The proposed 125-acre quarry site is designated as Important Agricultural Land and part of one of the largest contiguous IAL areas in the State. The project site has predominantly "A" and "B" overall productivity ratings according to the Land Study Bureau, is cultivated entirely in Tahitian lime trees and irrigated, and is part of the Mahi Pono's 13,000 planted acres of citrus, coffee, avocado, macadamia nut, ulu, and coconut trees.

To our knowledge, these are the first land use permit applications involving designated IAL that is also in intensive agricultural production. As such, DAB believes there should be a condition or equivalent stipulation of approval requiring the project site

be reclaimed and/or restored upon cessation of quarrying. This would encourage if not ensure that future land use permit applications affecting designated IAL that are in active agricultural production will have minimal or no impact on designated IAL and thereby comport with Section 205-43, HRS (Important agricultural lands; policies) that requires as follows:

"State and county agricultural policies, tax policies, land use plans, ordinances, and rules shall promote the long-term viability of agricultural use of important agricultural lands and shall be consistent with and implement the following policies:

(1) Promote the retention of important agricultural lands in blocks of contiguous, intact, and functional land units large enough to allow flexibility in agricultural production and management;
(2) Discourage the fragmentation of important agricultural lands and the conversion of these lands to nonagricultural uses;
(3) Direct nonagricultural uses and activities from important agricultural lands to other areas and ensure that uses on important agricultural lands are actually agricultural uses;
(4) Limit physical improvements on important agricultural lands to maintain affordability of these lands for agricultural purposes;
(5) Provide a basic level of infrastructure and services on important agricultural lands limited to the minimum necessary to support agricultural uses and activities;
(6) Facilitate the long-term dedication of important agricultural lands for future agricultural use through the use of incentives;
(7) Facilitate the access of farmers to important agricultural lands for long-term viable agricultural use; and
(8) Promote the maintenance of essential agricultural infrastructure systems, including irrigation systems."

(emphasis added)

The DAB offers a condition or equivalent stipulation of approval for both the application for Conditional Use Permit and Special Use Permit for the 125-acre project. It seeks to formalize the reclamation and/or restoration of quarried land for agricultural use in the manner described in the application. It draws from the aforementioned statements found in the Project Assessment Report (Page 10 or electronic document page 19, second full paragraph and page 19 or electronic document page 29, last full paragraph)) as well as Condition Number 8 (Exhibit E (County Special Use Permit Compliance Report, electronic document page 223 of the Project Assessment Report)).

"That the Applicant shall undertake quarrying of the 125-acre project site in stages and the existing agricultural activity will be allowed to continue in non-quarrying areas. The reclamation of each completed quarried stage shall include topsoil suited for agricultural cultivation of at least 24 inches depth and the reclaimed lands shall be made available for agricultural use."

This concludes the comments and recommendations of the Department of Agriculture and Biosecurity. Please direct your questions to Earl Yamamoto at (808) 973-9466 or email at earl.j.yamamoto@hawaii.gov.

Sincerely,

Sharon Hurd, Chairperson
Board of Agriculture and Biosecurity

c: Ms. Kate Blystone, Director
Department of Planning, County of Maui
Ms. Mary Alice Evans, Director, Office of Planning and Sustainable Development
(Attention: Aaron Setogawa)
Mr. Daniel Orodenker, Executive Officer, Land Use Commission

Hawaiian Cement State Special Permit – 125 acres designated IAL – October 2025

EXHIBIT 22a

Applicant Response to Department of Agriculture and Biosecurity Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Sharon Hurd, Chair
State of Hawai'i
Department of Agriculture and Biosecurity
1428 South King Street
Honolulu, Hawai'i 96814

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Ms. Hurd:

Thank you for your letter dated October 29, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we offer the following information in response.

Comment No. 1

The DAM offers a condition or equivalent stipulation of approval for both the application for Conditional Use Permit and Special Use Permit for the 125-acre project. It seeks to formalize the reclamation and/or restoration of quarried land for agricultural use in the manner described in the application.

"That the Applicant shall undertake quarrying of the 125-acre project site in states and the existing agricultural activity will be allowed to continue in non-quarrying areas. The reclamation of each completed quarried stage shall include topsoil suited for agricultural cultivation of at least 24 inches depth and the reclaimed lands shall be made available for agricultural use."

Response: The Applicant appreciates the importance of reserving Important Agricultural Lands for agricultural uses, and is amenable to adding a condition similar to the one provided by DAB. However, the Applicant would like to make the following clarifications regarding the language and consequences of the condition:

1. The Applicant understands "topsoil suited for agricultural cultivation" to mean soil of a similar quality and character to the upper layers of soil currently present in the proposed 125-acre quarry site. The high soil productivity ratings under the LSB and ALISH systems provide evidence as to the high quality of

these soils. The Applicant requests confirmation that this definition of "topsoil" is satisfactory to DAB.

2. Additionally, it is noted that soil quality is not the only factor involved in determining whether future agricultural use will be feasible on the 125-acre site after quarrying is complete. Indeed, the issue of water allocation to agricultural uses will likely pose significant difficulties to any future farming operation on the site, especially if the current drought and water use restrictions continue. However, it is noted that Mahi Pono has expressed interest in contiuing to grow on the site after mining is complete. See **Exhibit A**.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,

Finn Gibson
Analyst

Attachment

FG:de
cc: Brailey Gonsalves, Department of Planning (w/attachment)
Kurt Wollenhaupt, Department of Planning (w/attachment)
Danny Dias, Department of Planning (w/attachment)
Dave Gomes, Hawaiian Cement (w/attachment)
Keoni DeRego, Hawaiian Cement (w/attachment)
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EXHIBIT A.
Mahi Pono Use of Intent Letter
Dated: October 10, 2025

October 10, 2025

Hawaiian Cement
3000 Maui Veterans Highway
Puunene, HI 96784
Attn: David Gomes, President

RE: Potential to Cultivate Land North of Hawaiian Cement Quarry; TMK (2) 3-8-004-001, Condminium Unit #3 and #4

Aloha David,

Thank you for reaching out to gauge our interest in potentially farming the 125-acre area comprised of TMK (2) 3-8-004-001, Condominum Unit #3 and #4 (collectively, the "Site"), generally located to the immediate north of Hawaiian Cement's quarry operation. Although Mahi Pono recently sold Unit 3 to Hawaiian Cement – with Hawaiian Cement also holding an option to purchase Unit 4 – Mahi Pono remains interested in continuing to cultivate orchard crops at the Site. We are open to discussing a lease, license, or other arrangement that would facilitate Mahi Pono's use of the Site's in the future.

Please let me know if you have any questions, or if you would like to discuss further. I can best be reached by email at grant.nakama@mahipono.com.

Mahalo!

Grant Nakama
Senior Vice President of Operations

EXHIBIT 23

Office of Planning and Sustainable Development Comments

STATE OF HAWAI'I
OFFICE OF PLANNING
& SUSTAINABLE DEVELOPMENT

JOSH GREEN, M.D.
GOVERNOR

SYLVIA LUKE
LT. GOVERNOR

MARY ALICE EVANS
DIRECTOR

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

Telephone: (808) 587-2846
Fax: (808) 587-2824
Web: https://planning.hawaii.gov/

Coastal Zone Management Program

Environmental Review Program

Land Use Commission

Land Use Division

Special Plans Branch

State Transit-Oriented Development

Statewide Geographic Information System

Statewide Sustainability Branch

DTS 202509041617NA

October 27, 2025

Kate Blystone, Director
Planning Department
County of Maui
2200 Main Street, Suite 315
Wailuku, Hawaii 96793

Dear Ms. Blystone:

Subject: SUP 1910013/CUP 20060002
Applicant: Hawaiian Cement
Request: To Establish a New Supplemental Quarry Site
Tax Map Key: (2)3-8-004:001 (por.)
Puunene, Maui

Thank you for the opportunity to comment on the subject application.

Hawaiian Cement (Applicant) seeks to amend its current county and State special use permits to add a 125-acre Supplemental Quarry site (SQ Site) and remove remediated quarry areas upon the termination of the Applicant's lease in January 2027.

Background

In July 1992, the State Land Use Commission (LUC) approved a Special Permit (SP92-380) to allow Hawaiian Cement to develop a rock quarry and concrete aggregate operation on approximately 48 acres of land, Tax Map Key (TMK) (2)3-8-008:031 (por.) in the State Agricultural District. The site is owned by the State of Hawaii and leased to Hawaiian Cement through 2038. The Applicant extracts basalt rock material from the quarry site and transports it to its processing facility via a movable, overland conveyor belt system where the material is further processed into aggregate, cement and other products.

Since 1992 there have been three amendments to SP92-380 approved by the LUC that expanded the quarry area. The amendments are summarized below.

First Amendment (November 1996)

The quarry area was expanded by an additional 60 acres of land (Extraction Site 1) on an adjacent parcel, TMK (2)3-8-004:001 (por.). The processing facility remains on the original 48-acre site. The expansion acreage is part of approximately 350 acres of land in the State Agricultural District obtained by Hawaiian Cement for quarry purposes under a long-term lease from the then-landowner Alexander and Baldwin (A&B). Under the terms of the lease, Hawaiian Cement is required to remediate the land so it can be returned to agricultural use once quarry operations end.

Second Amendment (TMK (2)3-8-004:001 (por.); December 2006)

The quarry area was expanded by a total of 66.44 acres, divided into two distinct sections, Extraction Site 2 (24.476 acres) and Extraction Site 3 (44.28 acres). Extraction Site 3 is not currently being quarried and is separated from the other quarry areas by Kolaloa Gulch.

Third Amendment (TMK (2)3-8-004:001 (por.); December 2014)

The quarry area was expanded by a total of 51.665 acres, divided into two sections, Extraction Site 4 (9.697 acres) and Extraction Site 5 (41.968 acres.) The Applicant is currently quarrying Extraction Site 5.

In 2021, the Applicant filed for a fourth amendment to SP92-380 to further expand the quarry area within TMK (2)3-8-004:001 (por.), but before the LUC could review the filing, the lands leased by Hawaiian Cement from A&B were purchased by AB Maui Quarries LLC, and the new landowner declined to extend the lease beyond its current January 2027 termination date. Consequently, the Applicant withdrew its fourth amendment filing. After discussions with State and county agencies, it was determined that the Applicant could replace the 2021 fourth amendment filing with a filing to add the SQ Site and remove all prior approved quarry areas on TMK (2)3-8-004:001 by January 31, 2027, when the current lease expires.

Hawaiian Cement is currently quarrying Extraction Site 5. Quarry operations on Extraction Sites 1, 2 and 4 have been completed and the sites have been remediated for return to agricultural use pursuant to the terms of the current lease. Quarry operations on Extraction Sites 5 and 3 are expected to be completed and the land remediated for agricultural use by the end of the lease. The Applicant will then start quarry operations on the SQ Site.

Supplemental Quarry Site and Surrounding Lands

Hawaiian Cement has identified a 125-acre SQ Site in the State Agricultural District on a different portion of TMK (2)3-8-004:001 (por.) abutting the northeast corner of the current processing site. The SQ Site is owned by MP Central A, LLC, as a subsidiary of Mahi Pono Holdings, LLC. Hawaiian Cement has a purchase and sale agreement with MP Central A, LLC, and under the agreement Hawaiian Cement has purchased 55 acres of the site and will purchase the remaining 70 acres once the Special Permit amendment has been approved. Active quarry

areas will be limited to 30 acres at a time, and the Applicant will develop a transition plan with Mahi Pono to allow citrus production to continue in areas yet to be quarried.

Access to the SQ Site is expected to be via an internal roadway from the abutting processing site. The processing site is within two miles of the intersection of Maui Veterans Highway, a State roadway, and Kamaaina Road, a private road, and is accessed via Kamaaina Road.

The SQ Site contains soils rated predominantly "A" and "B" under the Land Study Bureau's (LSB) soil productivity system. The site is classified as "Prime" and "Other" on the Agricultural Lands of Importance to the State of Hawaii (ALISH) Map. In addition, the SQ Site is part of the 27,000 acres of A&B lands designated as Important Agricultural Lands (IAL) by the LUC in 2009 (DR09-38). Moreover, the SQ Site is under active citrus orchard production by Mahi Pono.

The SQ Site is zoned Agriculture under the county zoning and is designated as Agriculture in the Wailuku-Kahului Community Plan. It is outside of the Maui Island Plan Growth Boundary.

Surrounding land uses include agricultural lands to the east, south and north, as well as the Maui Humane Society, the Pulehunui Industrial Park, and the Maui Raceway Park to the west.

Potential Impacts

Archaeological and Cultural Resources

The Applicant initiated a Hawaii Revised Statutes (HRS) § 6E-42 consultation with the State Historic Preservation Division (SHPD). SHPD requested an Archaeological Inventory Survey (AIS) be conducted and approved the test strategy. The AIS field work has been completed and found no significant features. A draft AIS Report is being prepared for SHPD review and approval. The Applicant states that no quarry operations on the SQ Site will start until the HRS § 6E-42 consultation is completed.

A Cultural Impact Assessment (CIA) was conducted and a report finalized in June 2025. The scope of the CIA was the entire ahupuaa of Palehunui that contains the SQ Site. In addition to archival research, community outreach was conducted involving 43 individuals and organizations. The CIA concluded that the quarry use of the SQ Site will have no impact to customary and traditional Native Hawaiian cultural practices.

Biological Survey

A Flora and Fauna Survey was conducted in October 2024. The SQ Site is currently used for citrus production, so it is mainly occupied by lime trees, with little other types of vegetation. Three native plant species and one canoe plant were found but no protected species were

detected. The avian survey observed Nene overflying the SQ Site, but no other protected avian species were found. The mammalian survey found no protected species. Mitigation measures were recommended to prevent potential impacts to the Blackburn's Sphinx Moth, overflying seabirds, the Hawaiian Stilt, the Hawaiian Hoary Bat, and Nene if encountered.

Wetlands, Streams, and Coastal Resources

There are no wetlands or streams on the SQ Site. The site is in Flood Zone X and is not in the Special Management Area.

Infrastructure and Government Services

Non-potable water used for concrete batching, dust control, and cleaning equipment will be provided by the Applicant's own well located within the processing facility. Potable water for employees will be provided by a private bottled water vendor. Portable toilets will be serviced by a private vendor to provide wastewater disposal. The Applicant will implement drainage improvements and other Best Management Practices (BMPs) to prevent stormwater runoff from impacting downstream agricultural and industrial users. The SQ Site will replace existing quarry sites, and the extent and intensity of quarry operations will remain the same, so no additional traffic impacts are expected. County fire and police services are available if needed.

OPSD Comment

The Office of Planning and Sustainable Development (OPSD) finds that the proposed use for the SQ Site is consistent with the guidelines for determining if it may be permitted in the State Agricultural District as an "unusual and reasonable use" pursuant to Hawaii Administrative Rules (HAR) §15-15-95(c):

> *(1) The use shall not be contrary to the objectives sought to be accomplished by chapters 205 and 205A, HRS, and the rules of the commission;*
>
> The original intent of HRS Chapter 205 is "to preserve, protect, and encourage the development of the lands in the State for those uses to which they are best suited for the public welfare." (Act 187, SLH 1961) Consequently, the protection of agricultural land and its continued availability for agricultural use as a major objective of Chapter 205 must be balanced against other unusual uses that serve the public interest. The SQ Site contains a supply of stone resources expected to support 20 years of quarry operations, is on open level ground, abuts the current processing site, and is distant from population centers; therefore, it is well-suited for quarry use. In this case, OPSD finds that the need to provide an uninterrupted supply of aggregate and base course products to meet Maui Island's urgent construction demand outweighs the temporary halt to agricultural production until quarry operations cease and the land is restored for agricultural use.

The SQ Site is also not contrary to the objectives and policies of HRS Chapter 205A as the site is outside of the Special Management Area, not within a flood hazard zone, and the Applicant will implement drainage improvements and BMPs to ensure that stormwater runoff does not impact downstream properties.

(2) The proposed use would not adversely affect surrounding property;

Surrounding properties are occupied by the current Hawaiian Cement processing operation, current and remediated quarry sites, and agricultural land owned by MP Central A, LLC. Proposed drainage improvements and other BMPs will prevent adverse impacts from stormwater runoff to neighboring agricultural or industrial uses. Other BMPs will minimize adverse impacts on air quality and noise. Consequently, there would be no adverse impacts to surrounding properties.

(3) The proposed use would not unreasonably burden public agencies to provide roads and streets, sewers, water drainage and school improvements, police and fire protection;

The SQ Site will not require county water or wastewater service nor expand the service area for police or fire protection. Access to the new site will be via a new entrance from the existing processing facility and will be built and maintained by the Applicant. Drainage improvements to contain stormwater runoff will also be implemented and maintained by the Applicant. Since the SQ Site will replace existing quarry areas, no additional traffic impacts are expected to affect the signalized intersection of the State-owned Maui Veterans Highway and the county's Kamaaina Road. If the Applicant is unable to secure the new site, public agencies' ability to provide road, sewer, and drainage improvements may be hindered by a potential shortage of aggregate material needed for construction.

(4) Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established; and

The land where the existing quarry is located was sold to MP Central A, LLC, and the new owner will terminate Hawaiian Cement's lease for the site in January 2027. Consequently, Hawaiian Cement needs a new quarry site to provide an uninterrupted supply of aggregate. In addition, demand has increased since the Lahaina wildfires of August 2024 due to the urgent need for reconstruction of homes, commercial buildings, and infrastructure.

(5) The land upon which the proposed use is sought is unsuited for the uses permitted within the district.

The proposed Supplemental Quarry site is on land classified as "Prime" on the ALISH map, rated "A" and "B" under the LSB soil classification system, has been designated as Important Agricultural Land by the LUC, and is currently in active agricultural use by Mahi Pono—the proposed site is clearly suited for the agricultural uses permitted within the State Agricultural District. However, there are other factors to be considered:

- The 125-acre SQ Site is only 0.46% of the 27,102 acres of A&B lands designated as IAL by the LUC in 2009. The SQ Site is also only 0.3% of the 41,000 acres of agricultural land under production by Mahi Pono, and Mahi Pono has agreed to provide the land to Hawaiian Cement for the quarry use.
- The Applicant intends to remediate the land for future agricultural use once quarry operations are completed.
- The site abuts the Applicant's processing facility, consists of open, level land, and contains significant deposits of quality quarry materials vital to the construction industry.

While the proposed SQ Site is well suited for agricultural use, it is also particularly well suited for quarry use. Given that the site will be remediated for agricultural use once quarry operations cease, OPSD finds that the need to meet the increased demand for aggregate material due to Maui Island's urgent construction needs outweighs the temporary halt to agricultural use.

Thank you for the opportunity to comment on the special permit application. If you have any questions, please contact Aaron Setogawa at aaron.h.setogawa@hawaii.gov or (808) 587-2883. If you wish to respond to this comment letter, please include DTS202509041617NA in the subject line.

Mahalo,

Mary Alice Evans

Mary Alice Evans
Director

EXHIBIT 23a

Applicant Response to Office of Planning and Sustainable Development Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Mary Alice Evans, Director
State of Hawai'i
Office of Planning and Sustainable Development
235 South Beretania Street, 6th Floor
Honolulu, Hawai'i 96804

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Ms. Evans:

Thank you for your letter dated October 27, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we acknowledge and appreciate the analysis of the project with regard to the guidelines contained in Hawai'i Administrative Rules (HAR) Section 15-15-95 provided by the State of Hawai'i, Office of Planning and Sustainable Development (OPSD).

We would, however, like to add the following minor clarifications and corrections to OPSD's analysis to avoid misunderstandings about the project:

1. With regard to the Applicant's work on the existing quarry site, it is noted that the Applicant is currently quarrying in Extraction Site 3 as shown in **Figure 1** of the Amendment application. Extraction Site 5 has been completed and remediation efforts are scheduled to start by the end of 2025. However, this does not change the fact that all lands will be made suitable for agricultural use per the Applicant's agreement with the landowner.

2. With regard to OPSD's response to HAR 15-15-95(c)(4), it is noted that the land underlying the existing quarry site has been sold to AB Maui Quarries LLC, *not* MP Central A, LLC. MP Central A, LLC is the partial owner of the proposed supplemental quarry site, having sold 55 of the 125 acres to the Applicant.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,



Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\CSUP Cmt.Rsp Ltrs\NCTemplate.docx

EXHIBIT 24

Office of Hawaiian Affairs Agency Review Comments

From:	Kamakana Ferreira
To:	Brailey K. Gonsalves
Cc:	dave.gomes@hawaiiancement.com; mhmapps@munekiyohiraga.com
Subject:	CUP 2006/0002 Amendment Re: Hawaiian Cement Pu"unene Quarry Expansion
Date:	Friday, September 12, 2025 9:36:57 AM

You don't often get email from kamakanaf@oha.org. Learn why this is important

Aloha,

The Office of Hawaiian Affairs (OHA) has reviewed the application for a County Use Permit (CUP 2006/0002) amendment to remove the current permitted quarry lands from consideration under Hawaiian Cement LLCs existing CUP, and replace them with a new quarry site on a different portion of the same parcel at the Pu'unene Quarry on Maui, TMK (2) 3-8-004:001. While the applicant, Hawaiian Cement, initially put in a request for amendment back in 2021, changes in landownership resulted in a pause of the initial application. However, as the new landowner is honoring existing leases, Hawaiian Cement is continuing on with the proposed expansion.

Historically, Hawaiian Cement has consistently expanded quarry operation while also remediating areas back to agricultural use after quarry use is completed. This next expansion is expected to last for another 20 years. Whether Hawaiian Cement remains as the lessee is yet to be determined. Mahi Pono LLC currently uses the expansion area for farming related operations. Assuming the amendment is granted, Hawaiian Cement will work with Mahi Pono on a schedule for transition.

In review of the application, OHA offers the following comments on HRS 6E compliance, the cultural impact assessment (CIA), and biological resources:

In regards to HRS 6E compliance, OHA observes that consultation with the State Historic Preservation Division (SHPD) has already been initiated. Further, SHPD is requiring an archaeological inventory survey (AIS) for the project area. OHA fully supports the decision to require an AIS and requests an opportunity to review the draft AIS when it is completed. OHA further requests to be provided with any past and forthcoming SHPD letters for this project.

In regards to the CIA, OHA observes that while 43 outreach letters were sent out, no one replied to actually participate in an interview. It does appear that notices were sent out twice, once in December 2024, and then again in February 2025. OHA certainly appreciates the effort to send out a second letter of outreach. However, seeing as no one has come forward, perhaps it may be beneficial for the applicant or their contractor (CSH) to consider posting an ad in OHA's Ka Wai Ola monthly newspaper. OHA would also support an additional round of outreach if timing permits.

OHA would also like clarity on whether or not this project has a trigger for HRS 343? We ask this because CIAs are typically done as part of that process. The CIA itself prepared by CSH does in fact mention compliance with HRS 343. Irregardless of the HRS 343 trigger, a CIA is still valuable to complete in this case as it does aid the approving agency in their Ka Pa'akai compliance with Article XII Section 7 of the State of Hawaii Constitution.

In regards to biological resources, OHA observes that the application states that Nene has been observed in the project area. As such, best management practices (BMPs) are in place that would halt all human activity within 150 feet of a Nene nest. Further, a biologist will still need to be consulted during breeding season (September to April). While OHA does support these mitigation measures, we do advise that the applicant consult with the Division of Forestry and Wildlife (DOFAW) and the US Fish & Wildlife Service (FSW) to see if any further action is needed for state or federal level compliance with applicable laws as the Nene is listed as endangered by the State and threatened by the Federal government. Should DOFAW and FSW provide comments, OHA requests to be provided with a copy.

Mahalo for the opportunity to comment. We look forward to seeing our comments taken into consideration. Please let me know if you have any questions.

Mahalo,

Kamakana C. Ferreira
Compliance Archaeologist
Office of Hawaiian Affairs
560 N. Nimitz Hwy
Honolulu, Hi. 96817

(808)594-0227

EXHIBIT 24a

Applicant Response to Office of Hawaiian Affairs Agency Review Comments

MUNEKIYO HIRAGA
Planning. Project Management. Sustainable Solutions.

Karlynn K. Fukuda
PRESIDENT
Mark Alexander Roy AICP, LEED AP
VICE PRESIDENT
Tessa Munekiyo Ng AICP
VICE PRESIDENT

Michael T. Munekiyo AICP
FOUNDER

November 7, 2025

Kamakana C. Ferreira, Compliance Archaeologist
State of Hawai'i
Office of Hawaiian Affairs
560 N. Nimitz Highway
Honolulu, Hawai'i 96817

SUBJECT: Request to Amend County Special Use Permit and State Special Permit for Proposed Hawaiian Cement Pu'unēnē Quarry Relocation (TMK No. (2)3-8-004:001 (por.) and (2)3-8-008:031) (CUP 2006/0002) (SP 92-380)

Dear Mr. Ferreira:

Thank you for your letter dated September 12, 2025, providing comments on the County Special Use Permit and State Special Permit amendment requests related to the Hawaiian Cement Pu'unēnē Quarry relocation. On behalf of Hawaiian Cement (Applicant), we offer the following information in response.

Comment No. 1

In regards to HRS 6E compliance, OHA observes that consultation with the State Historic Preservation Division (SHPD) has already been initiated. Further, SHPD is requiring an archaeological inventory survey (AIS) for the project area. OHA fully supports the decision to require an AIS and requests an opportunity to review the draft AIS when it is completed. OHA further requests to be provided with any past and forthcoming SHPD letters for this project.

Response: The Applicant recognizes the importance of protecting historic and archaeological resources. The draft AIS has been completed and submitted to SHPD for review, and a copy is attached to this response per the OHA request. To date, a determination from SHPD regarding the proposed amendments and the review of the AIS is pending. Copies of SHPD correspondence on the proposed project will be forwarded to OHA as requested.

Comment No. 2

In regards to the CIA, OHA observes that while 43 outreach letters were sent out, no one replied to actually participate in an interview. It does appear that notices were sent out twice, once in December 2024, and then again in February 2025. OHA certainly appreciates the effort to send out a second letter of outreach. However, seeing as no one has come forward, perhaps it may be beneficial for the applicant or their contractor (CSH)

to consider posting an ad in OHA's Ka Wai Ola monthly newspaper. OHA would also support an additional round of outreach if timing permits.

Response: The Applicant supports dialog with Native Hawaiian Organizations and cultural practitioners. As suggested, a request for comment was posted in the November issue of Ka Wai Ola, and any comments received will be presented to the Maui Planning Commission (MPC) during the meeting scheduled for November 25, 2025. In addition, it is noted that the Applicant submitted consultation letters to Nā Kupuna o Lahaina and the local ʻAha Moku o Maui poʻo to solicit comments on the proposed project. OHA's request for an additional round of outreach to individuals is also acknowledged. However, due to the time constraints created by the upcoming MPC meeting date, another round of mailings is not practicable.

Comment No. 3

OHA would also like clarity on whether or not this project has a trigger for HRS 343? We ask this because CIAs are typically done as part of that process. The CIA itself prepared by CSH does in fact mention compliance with HRS 343. Irregardless of the HRS 343 trigger, a CIA is still valuable to complete in this case as it does aid the approving agency in their Ka Pa'akai compliance with Article XII Section 7 of the State of Hawaii Constitution.

Response: The subject project does not have a trigger for environmental review under HRS Chapter 343. The Cultural Impact Assessment (CIA) was prepared proactively by the Applicant in order to more fully understand potential impacts to cultural resources. Specific language related to the Ka Paʻakai Analysis framework will be included in the projectʻs record.

Comment No. 4

In regards to biological resources, OHA observes that the application states that Nene has been observed in the project area. As such, best management practices (BMPs) are in place that would halt all human activity within 150 feet of a Nene nest. Further, a biologist will still need to be consulted during breeding season (September to April). While OHA does support these mitigation measures, we do advise that the applicant consult with the Division of Forestry and Wildlife (DOFAW) and the US Fish & Wildlife Service (FSW) to see if any further action is needed for state or federal level compliance with applicable laws as the Nene is listed as endangered by the State and threatened by the Federal government. Should DOFAW and FSW provide comments, OHA requests to be provided with a copy.

Response: The Applicant is committed to protecting endangered and native species of flora and fauna, and will abide by the BMPs presented in the Flora and Fauna Survey Report and Project Assessment Report provided with the amendment applications. The applications were routed to Department of Land and Natural Resources and US Fish and Wildlife Services for their review and comment, but no comments were received.

We appreciate your review of the project. Should you have any questions or require additional information, please feel free to contact me at (808) 244-2015.

Very truly yours,

Finn Gibson
Analyst

FG:de
cc: Brailey Gonsalves, Department of Planning
Kurt Wollenhaupt, Department of Planning
Danny Dias, Department of Planning
Dave Gomes, Hawaiian Cement
Keoni DeRego, Hawaiian Cement
Trevor Yucha, Cultural Surveys Hawai‘i
William Folk, Cultural Surveys Hawai‘i
Susan Burr, AECOS, Inc.
K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\SSP1-PAR\Response Letter\OHA.docx

EXHIBIT 25

Important Agricultural Lands Map

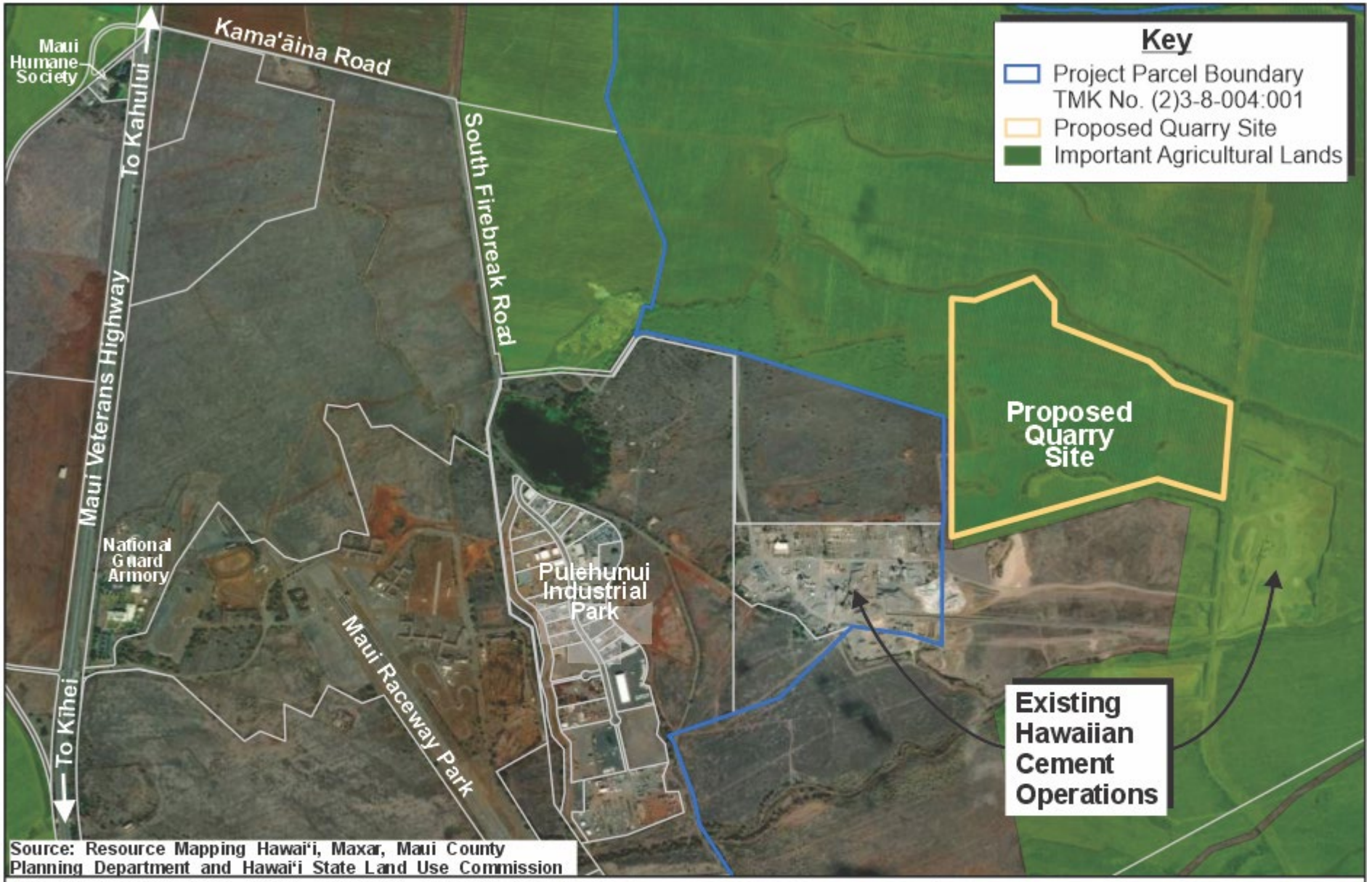


Figure 11

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry
Important Agricultural Lands Map

0 750 1,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCemt\PuuneneSupplQuarry\Apps\Figs\IAL

EXHIBIT 26

Land Study Bureau Map

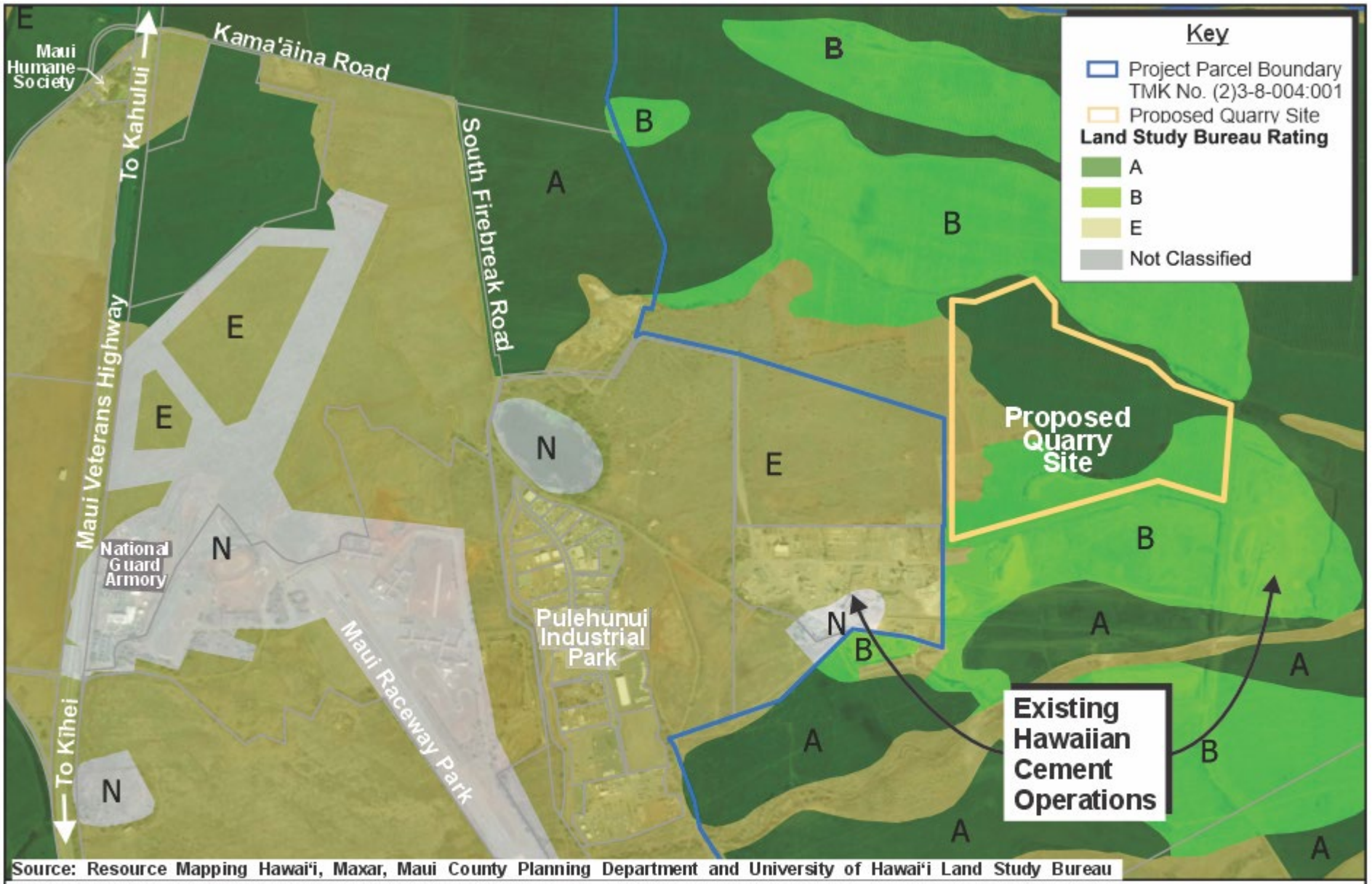

Key
Project Parcel Boundary
TMK No. (2)3-8-004:001
Proposed Quarry Site
Land Study Bureau Rating
A
B
E
Not Classified
Maui Humane Society
To Kahului
Kama'āina Road
South Firebreak Road
Maui Veterans Highway
National Guard Armory
Maui Raceway Park
Pulehunui Industrial Park
To Kīhei
Proposed Quarry Site
Existing Hawaiian Cement Operations
Source: Resource Mapping Hawai'i, Maxar, Maui County Planning Department and University of Hawai'i Land Study Bureau
Figure 12
Hawaiian Cement Proposed
Pu'unēnē Supplemental Quarry
Land Study Bureau Map
0 750 1,500
Feet
MUNEKIYO HIRAGA
Prepared for: Hawaiian Cement
K:\DATA\HawnCem\PuuneneSuppl\QuarryApps\Figs\LSB

EXHIBIT 27

Archaeological Inventory Survey

RICHARD T. BISSEN, JR.
Mayor

KATE L. K. BLYSTONE
Director

ANA LILLIS
Deputy Director



DEPARTMENT OF PLANNING
COUNTY OF MAUI
ONE MAIN PLAZA
2200 MAIN STREET, SUITE 315
WAILUKU, MAUI, HAWAIʻI 96793

September 17, 2025

Jessica L. Puff, Administrator
Department of Land and Natural Resources
State Historic Preservation Division
Kakuhihewa Bldg., Suite 555
601 Kamokila Boulevard
Kapolei, Hawaiʻi 96707

Dear Ms. Puff,

SUBJECT: REQUEST FOR STATE HISTORIC PRESERVATION DIVISION INITIAL HAWAIʻI REVISED STATUTES 6E-42 HISTORIC PRESERVATION REVIEW FOR THE HAWAIIAN CEMENT NEW MINING AREA PROJECT, PŪLEHUNUI AHUPUAʻA, PŪʻALI KOMOHANA MOKU, WAILUKU DISTRICT, MAUI, TMK: (2) 3-8-004:001 (POR.) AND (2) 3-8-008:031, (CUP20060002) (SP92-380)

The County of Maui Planning Department is submitting the subject project, located within agricultural land along the western side of Upper Kīhei Road, to the State Historic Preservation Division (SHPD) for review under Hawai'i Revised Statutes, Section 6E-42.

Scope of Work

Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Puʻunēnē Quarry within a portion of the existing permitted area of 167.7 acres. In consideration of an impending January 2027 lease termination of the current quarry area, Hawaiian Cement proposes to develop a new mining area on an adjacent portion of the property (TMK (2) 3-8-004:001), which has an ample supply of rock resources and will allow the facility to continue production. The entire 125-acre project area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock.

Summary of Identification Efforts

In consultation with the SHPD, Cultural Surveys Hawaiʻi, Inc. (CSH) completed an archaeological inventory survey (AIS) of the subject project area (Ueki et al. 2025). Prior to the AIS fieldwork, CSH and project proponents submitted project information and a proposed AIS fieldwork strategy to the SHPD. The AIS fieldwork strategy included the completion of a 100%

coverage pedestrian inspection and the investigation of 40 mechanically assisted test excavations arranged in a systematic gridded pattern distributed throughout the project area. The SHPD accepted the AIS testing strategy via Hawai‘i Cultural Resource Information System (HICRIS) comment on April 9, 2025. The AIS fieldwork was then completed by CSH in April 2025. No historic properties were identified within the project area during AIS fieldwork; therefore, the AIS was termed an archaeological assessment in accordance with Hawai‘i Administrative Rules, Section 13-284-5(5)(A). The study recommended no further work.

Evaluation of Project's Effects

No historic properties were identified during an AIS of the subject project area. Decades of commercial agricultural operations involving plowing and soil modification were conducted within the project area, which would have destroyed or severely impacted surface and subsurface historic properties. In review of the results of the AIS, the County of Maui Planning Department proposes a project effect determination of "no historic properties affected" for the Hawaiian Cement New Mining Area Project.

Request for Concurrence

The County of Maui Planning Department requests SHPD concurrence with a project effect determination of "no historic properties affected". Should you need further clarification, please contact Staff Planner Brailey Gonsalves at Brailey.K.Gonsalves@co.maui.hi.us or at (808) 270-6297. Thank you for your assistance and review of this project.

Sincerely,

BRAILEY K. GONSALVES
Staff Planner

Draft

Archaeological Assessment Report for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por.

Prepared for
Hawaiian Cement

Prepared by
Allyson L. Ueki, M.A.,
Jennifer J. Frey, B.A.,
Josephine M. Yucha, M.S.,
and
Hallett H. Hammatt, Ph.D.

Cultural Surveys Hawai‘i, Inc.
Wailuku, Hawai‘i
(Job Code: PULEHUNUI 21)

July 2025

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Wailuku, Hawai‘i 96793
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Management Summary

Reference	Archaeological Assessment Report for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por. (Ueki et al. 2025)
Date	July 2025
Project Numbers	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: PULEHUNUI 21 Hawai‘i Cultural Resource Information System (HICRIS): 2025PR00133
Investigation Permit Number	CSH completed the archaeological inventory survey (AIS) fieldwork under archaeological fieldwork permit number 25-04, issued by the Hawai‘i State Historic Preservation Division (SHPD) per Hawai‘i Administrative Rules (HAR) §13-13-282.
Agencies	SHPD
Land Jurisdiction	Private: At the time of this study, Hawaiian Cement has purchased 55 of the 125-acre project area and will purchase the remaining 70 acres from Mahi Pono Holdings, LLC upon issuance of the permit.
Project Funding	Hawaiian Cement
Project Location	The project area is within agricultural land (portions of Fields 815 and 818) along the western side of Upper Kīhei Road. It is on the western flank of Haleakalā and near the edge of the central isthmus of Maui. The southern and eastern sides and of the project area are bounded by the current Hawaiian Cement Quarry area, the southwestern corner is bounded by an active industrial area, and the northern and western sides are bounded by agricultural fields. The project area is depicted on portions of the 2017 Paia and 2017 Puu o Kali USGS 7.5-minute topographic quadrangles
Project Description	Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Pu‘unēnē Quarry within a portion of the existing permitted area of 167.7 acres. In consideration of an impending January 2027 lease termination of the current quarry area, Hawaiian Cement proposes to develop a new mining area on the adjacent property, which has an ample supply of rock resources and will allow the facility to continue production. The entire 125-acre project area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock.
Project Acreage	Approximately 125 acres (50.59 hectares)
Historic Preservation Regulatory Context	CSH submitted a proposed AIS fieldwork strategy to the SHPD for review. The SHPD accepted the AIS testing strategy via HICRIS comment on 9 April 2025. The accepted AIS fieldwork strategy

	included the completion of a 100% coverage pedestrian inspection and the investigation of 40 mechanically assisted test excavations arranged in a systematic gridded pattern distributed throughout the project area. This AIS investigation fulfills the requirements of HAR §13-13-276 and was conducted to identify, document, and assess significance of any historic properties. As there were no historic properties identified during the AIS, this study is termed an archaeological assessment (AA) in accordance with §13-284-5(5)(A). This document is intended to support the proposed project's historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-42 and HAR §13-13-284. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups.
Fieldwork Effort	The pedestrian survey was accomplished from 22 to 24 January 2025, and subsurface testing was conducted between 15 and 30 April 2025. Fieldwork was conducted by CSH archaeologists Elwyn Leibold, B.A., Jonas Madeus, B.A., Allyson Ueki, M.A., Josephine Yucha, M.S., and Trevor Yucha, B.S., under the general supervision of project manager Trevor Yucha, B.S., and principal investigators Josephine Yucha, M.S., and Hallett H. Hammatt, Ph.D. This work required approximately 43.25 person-days to complete. The AIS investigation was supported by archaeologists from Atlas Archaeology, LLC: M. Cody Sheets, B.A., operated the backhoe, and Blair M. Lopes assisted with backfilling.
Historic Properties Identified	No historic properties have been identified within the project area.
Effect Recommendation	As there were no historic properties identified in the project area and in accordance with HAR §13-284-7, the project-specific effect determination under Hawai‘i State historic preservation legislation is "no historic properties affected."
Mitigation Recommendations	No further work is recommended. The current AIS has confirmed that no historic properties are present. In the unlikely event that subsurface historic properties are identified during mining within the project area, CSH recommends that work be ceased in the immediate vicinity of the find, the find be protected from additional disturbance, and the SHPD be contacted immediately in order to provide additional guidance.

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Section 1 Introduction

1.1 Project Background

At the request of Hawaiian Cement, Cultural Surveys Hawai‘i, Inc. (CSH) conducted an archaeological inventory survey (AIS) for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por. As there were no historic properties identified during the AIS, this study is termed an archaeological assessment (AA) in accordance with §13-284-5(5)(A).

The project area is approximately 125 acres (50.59 hectares) within agricultural land (portions of Fields 815 and 818) along the western side of Upper Kīhei Road. It is on the western flank of Haleakalā and near the edge of the central isthmus of Maui. The southern and eastern sides and of the project area are bounded by the current Hawaiian Cement Quarry area, the southwestern corner is bounded by an active industrial area, and the northern and western sides are bounded by agricultural fields. The project area is depicted on a portions of the 2017 Paia and 2017 Puu o Kali U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (Figure 1), a tax map plat (Figure 2), and 2023 and 2025 aerial images (Figure 3 and Figure 4).

Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Pu‘unēnē Quarry within a portion of the existing permitted area of 167.7 acres. In consideration of an impending January 2027 lease termination of the current quarry area, Hawaiian Cement proposes to develop a new mining area on the adjacent property, which has an ample supply of rock resources and will allow the facility to continue production. The entire 125-acre project area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock. At the time of this study, Hawaiian Cement has purchased 55 of the 125-acre project area and will purchase the remaining 70 acres from Mahi Pono Holdings, LLC upon issuance of the permit.

1.2 Historic Preservation Regulatory Context and Document Purpose

This AIS investigation fulfills the requirements of Hawai‘i Administrative Rules (HAR) §13-13-276 and was conducted to identify, document, and make significance assessments of any historic properties. This document is intended to support the proposed project’s historic preservation review under Hawai‘i Revised Statutes (HRS) §6E-42 and HAR §13-13-284. It is also intended to support any project-related historic preservation consultation with stakeholders, such as state and county agencies and interested Native Hawaiian Organizations (NHOs) and community groups. As there were no historic properties identified during the AIS, this study is termed an AA in accordance with §13-284-5(5)(A).

CSH submitted a proposed AIS fieldwork strategy to the Hawai‘i State Historic Preservation Division (SHPD) for review. The SHPD accepted the AIS testing strategy via HICRIS comment on 9 April 2025 (Appendix A). The accepted AIS fieldwork strategy included the completion of a 100% coverage pedestrian inspection and the investigation of 40 mechanically assisted test excavations arranged in a systematic gridded pattern distributed throughout the project area.

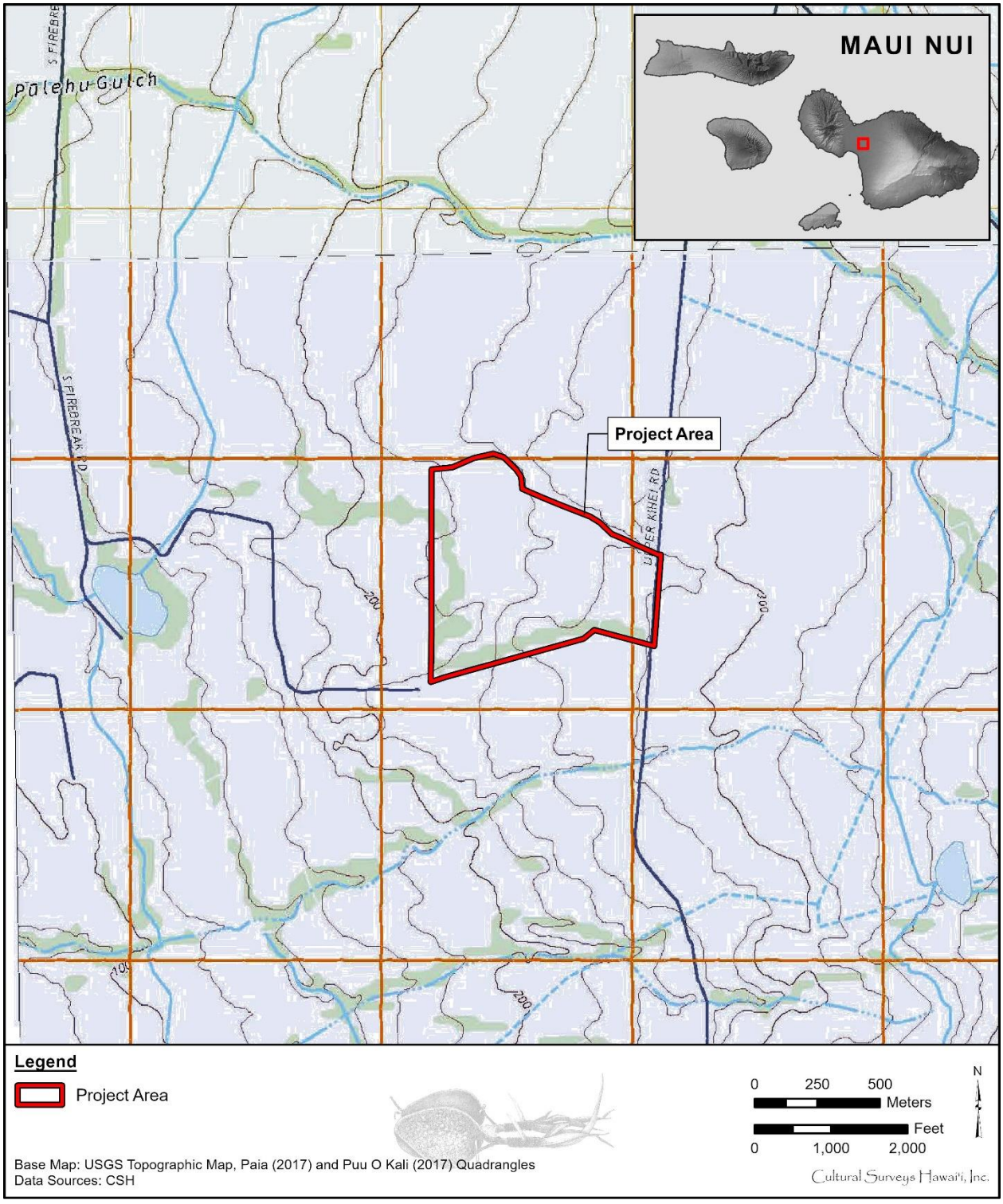


Figure 1. Portions of the 2017 Paia and 2017 Puu o Kali USGS 7.5-minute topographic quadrangles showing the location of the project area (U.S. Geological Survey 2017a, 2017b)

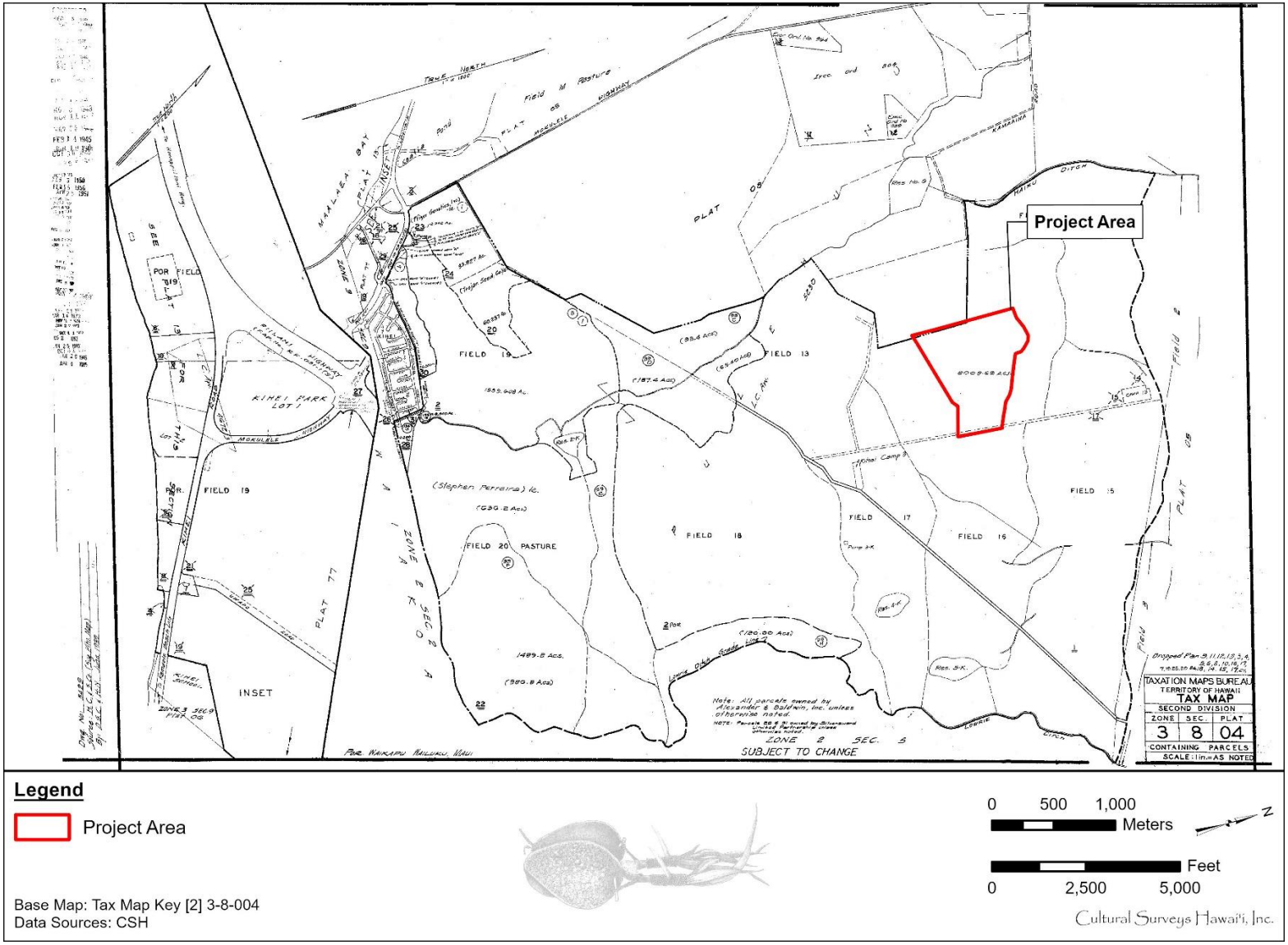


Figure 2. Tax Map Key (TMK) [2] 3-8-004 showing the project area (Hawaii TMK Service 2014)

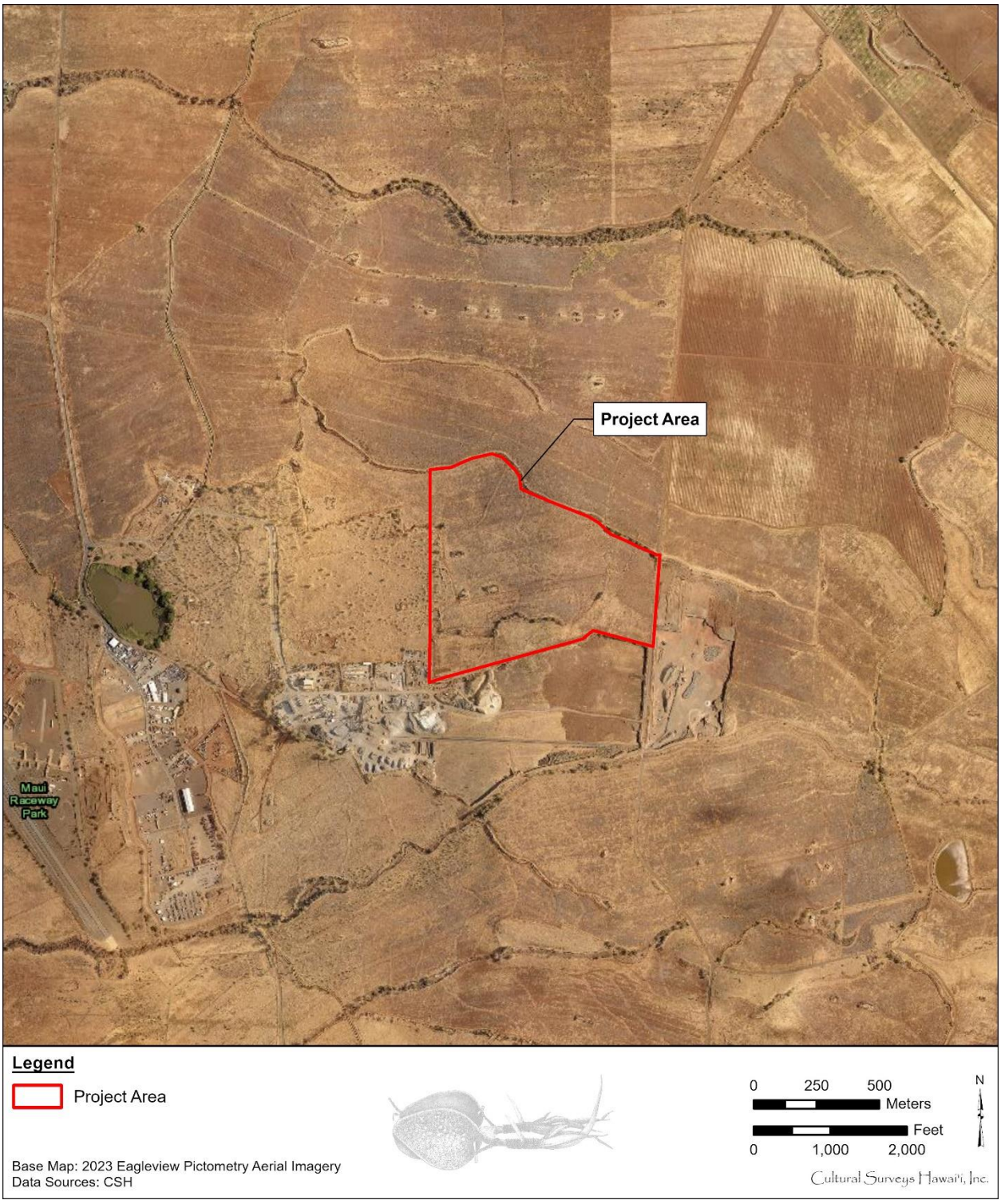


Figure 3. EagleView Technologies Inc. (2023) aerial image of the project area

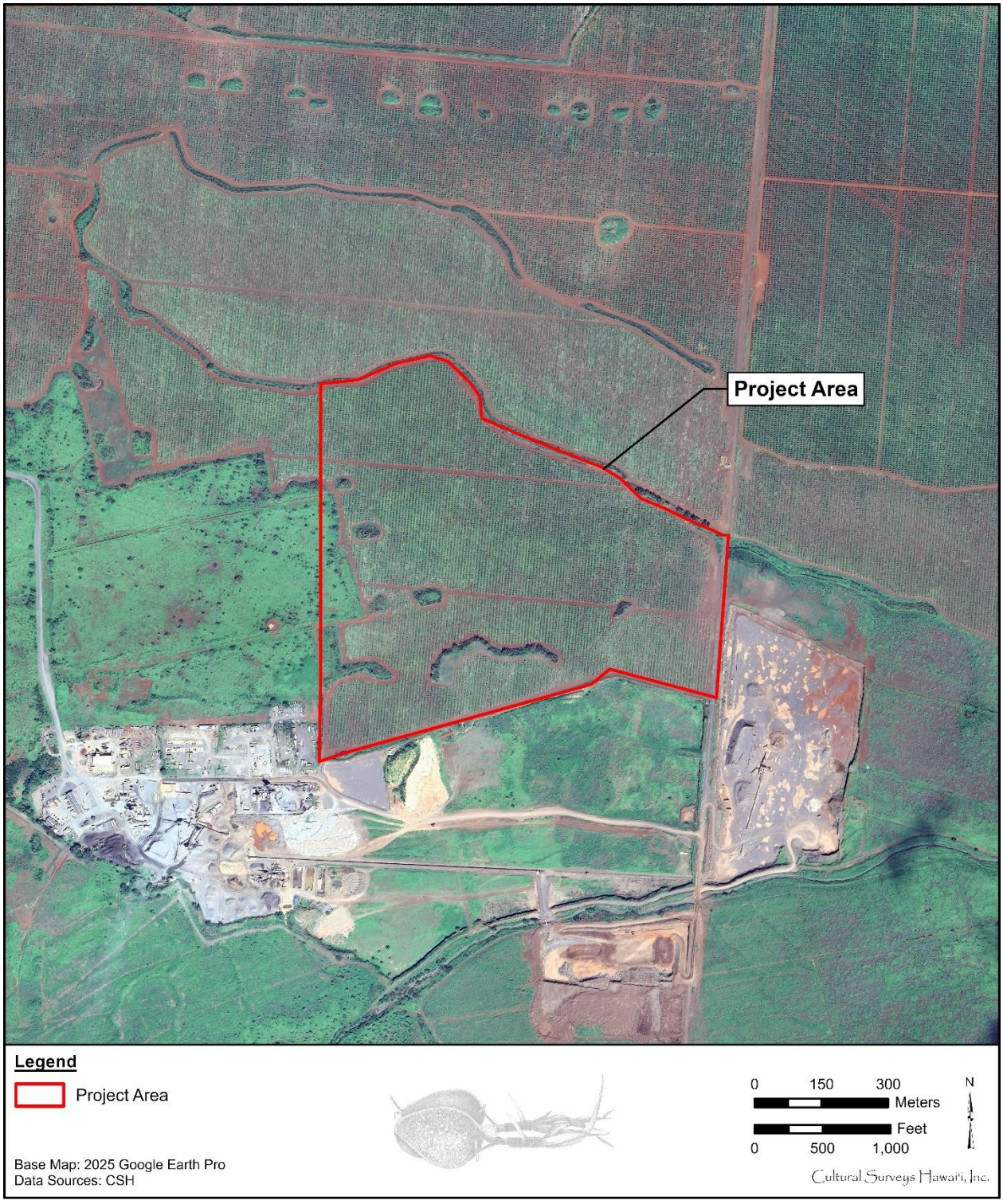


Figure 4. Google Earth Pro (2025) aerial image of the project area showing the current lemon orchard

1.3 Environmental Setting

1.3.1 Natural Environment

The current project area is located on the western flank of Haleakalā along the edge of the level central isthmus of Maui. The project area is approximately 4.53 km (2.81 mi) from the nearest shoreline at Mā‘alaea Bay, and the elevation is ranges from 64 to 86 m (210 to 282 ft) above mean sea level (AMSL). The topography of the project area is a gentle westward slope. The project area, and overall quarry site, is bisected by Kolaloa Gulch, a perennial tributary to Keālia Pond. Other nearby gulches include Pūlehu Gulch to the north of the project area and Keāhuaiwi Gulch to the south of the project area.

In 2014, the average monthly air temperature for the project area was between 21.43°C (70.58°F) in January and 25.50°C (77.90°F) in August, with an average annual air temperature of 23.51°C (74.31°F) (Giambelluca et al. 2014). The vicinity of the project area received a mean annual rainfall of 327.0 mm (12.87 inches) between 1978 and 2007, according to the University of Hawai‘i 2011 *Online Rainfall Atlas of Hawaii* (Giambelluca et al. 2013). The mean monthly rainfall varied between 1.4 mm (0.06 inch) in June and 82.4 mm (3.24 inches) in January. This pattern of rainfall and low annual precipitation rate once sustained a lowland, dry shrubland, and grassland native ecosystem (Pratt and Gon 1998).

Most of the project area consists of agricultural fields that were formerly cultivated with sugarcane (*Saccharum officinarum*). Under the ownership of Mahi Pono Central A, LLC, the land is within Fields 815 and 818 that are planted with rows of lemon (*Citrus*) trees. Other vegetation includes *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and grasses.

According to the U.S. Department of Agriculture (USDA) (2001) Soil Survey Geographic (SSURGO) database and soil survey data gathered by Foote et al. (1972), the project area’s soils consist of Pulehu silt loam, 0 to 3 percent slopes (PpA), Pulehu silt loam, 3 to 7 percent slopes (PpB), Pulehu cobbly silt loam, 3 to 7 percent slopes (PrB), Waiakoa very stony silty clay loam, 3 to 7 percent slopes (WgB), Waiakoa silty clay loam, 3 to 7 percent slopes (WeB), and Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2) (Figure 5).

Pulehu Series soils are described as follows:

> This series consists of well-drained soils on alluvial fans and stream terraces and in basins. These soils occur on the islands of Lanai, Maui, Molokai, and Oahu. They developed in alluvium washed from basic igneous rock. The soils are nearly level to moderately sloping. Elevations range from nearly sea level to 300 feet. The annual rainfall amounts to 10 to 35 inches. The mean annual soil temperature is 74° F. Pulehu sops are geographically associated with Ewa, Jaucas, Kealia, Lualualei, Waialua, and Mala soils.
>
> These soils are used for sugarcane, truck crops, pasture, homesites, and wildlife habitat. The natural vegetation consists of bermudagrass, bristly foxtail, fingergrass, kiawe, klu, lantana, koa haole, and sandbur. (Foote et al. 1972:115)

Pulehu silt loam, 0 to 3 percent slopes (PpA) is described as follows:

> This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam. This soil is used for sugarcane. Small acreages are used for homesites.

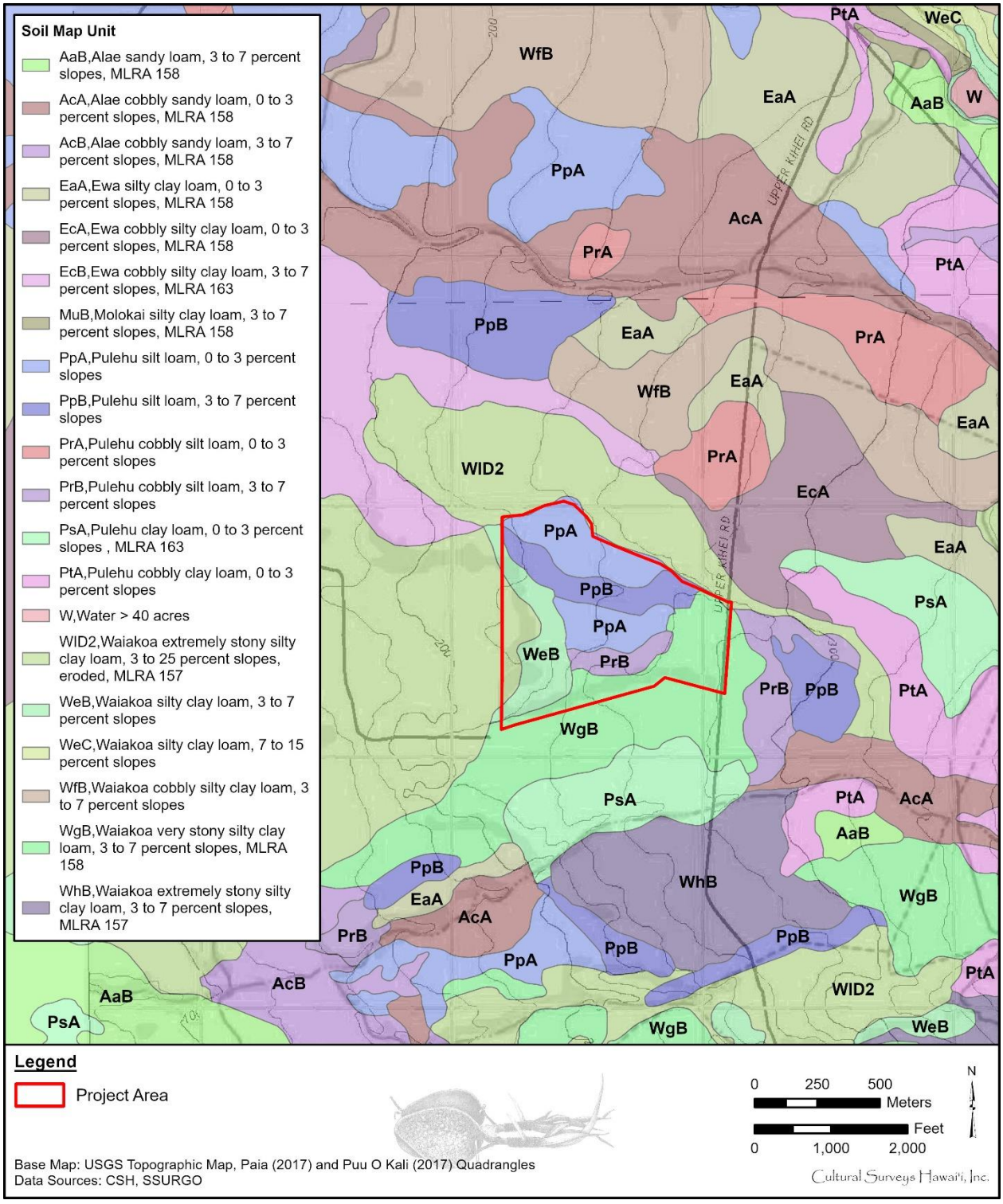


Figure 5. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture 2001)

(Capability classification I if irrigated, IVc if nonirrigated; sugarcane group 1; pasture group 2) (Foote et al. 1972:116)

Pulehu silt loam, 3 to 7 percent slopes (PpB) is described as follows:

This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam. Runoff is slow, and the erosion hazard is slight. Included in mapping were small areas underlain by coral sand at a depth of 20 to 36 inches.

This soil is used for sugarcane. (Capability classification IIe if irrigated, IVc if nonirrigated; sugarcane group 1; pasture group 2) (Foote et al. 1972:116).

Pulehu cobbly silt loam, 3 to 7 percent slopes (PrB) is described as follows:

This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam, and the surface layer is cobbly. Runoff is slow, and the erosion hazard is slight. Included in mapping were small areas underlain by coral sand at a depth of 20 to 36 inches.

This soil is used for sugarcane. Small areas are used for pasture. (Capability classification IIe if irrigated, IVs if nonirrigated; sugarcane group 1; pasture group 2) (Foote et al. 1972:116)

Waiakoa Series soils are described as:

This series consists of well-drained soils on uplands on the island of Maui. These soils developed in material weathered from basic igneous rock. The upper part of the profile is influenced by volcanic ash. These soils are gently sloping to moderately steep. Elevations range from 100 to 1,000 feet. The annual rainfall amounts to 12 to 20 inches; most of it occurs in winter. The mean annual soil temperature is 74° F. Waiakoa soils are geographically associated with Keahua and Keawakapu soils.

These soils are used for sugarcane, pasture, homesites, and wildlife habitat. The natural vegetation consists of buffelgrass, feather fingergrass, ilima, kiawe, uhaloa, and zinnia. (Foote et al. 1972:126)

Waiakoa very stony silty clay loam, 3 to 7 percent slopes (WgB) is described as follows:

This soil is on smooth, low uplands. Included in mapping were small areas of Keahua and Keawakapu soils. Also included were small, nearly level areas.

In a representative profile the surface layer is dark reddish-brown silty clay loam about 2 inches thick. The subsoil, about 23 inches thick, is dark reddish-brown and very dark grayish-brown silty clay loam that has prismatic structure or is massive. The substratum is very dark brown silty clay loam and hard, basic igneous rock. The soil is neutral in the surface layer and slightly acid to neutral in the subsoil.

Permeability is moderate. Runoff is slow, and the erosion hazard is slight. The available water capacity is about 1.5 inches per foot of soil. In places roots penetrate to bedrock. (Foote et al. 1972:126)

Waiakoa silty clay loam, 3 to 7 percent slopes (WeB) is described as follows:

> This soil has a profile like that of Waiakoa very stony silty clay loam, 3 to 7 percent slopes, except that it is nonstony. Included in mapping were small, nearly level areas.
>
> This soil is used for sugarcane. Small acreages are used for pasture and homesites. (Capability classification IIe if irrigated, VIs if nonirrigated; sugarcane group 1; pasture group 1) (Foote et al. 1972:127)

Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2) is described as follows:

> This soil is similar to Waiakoa very stony silty clay loam, 3 to 7 percent slopes, except that it is eroded and stones cover 3 to 15 percent of the surface. In most areas about 50 percent of the surface layer has been removed by erosion. Runoff is medium, and the erosion hazard is severe. Included in mapping were small, steep areas. Also included were a few cinder cones.
>
> This soil is used for pasture and wildlife habitat. (Capability classification VIIs, nonirrigated; pasture group 1) (Foote et al. 1972:127)

1.3.2 Built Environment

The current project area consists mostly of agricultural fields. The adjacent quarry site includes infrastructure and equipment that are used to quarry, transport, refine, and store quarry products. Infrastructure includes crushing equipment, conveyors, office and maintenance buildings, and storage buildings. The Puunene Armory and Maui Raceway Park are located west of the project area.

Section 2 Methods

2.1 Research Methods

Background research included a review of previous archaeological studies on file at the SHPD; review of documents at Hamilton Library of the University of Hawai‘i, the Hawai‘i State Archives, the Mission Houses Museum Library, the Hawai‘i Public Library, and the Bishop Museum Archives; study of historic photographs at the Hawai‘i State Archives and the Bishop Museum Archives; and study of historic maps at the Survey Office of the Department of Land and Natural Resources (DLNR). Historic maps and photographs from the CSH library were also consulted. In addition, Māhele records were examined from the Waihona ‘Aina (2000) database. This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected types and locations of historic properties in the project area.

2.2 Field Methods

CSH completed the fieldwork component of this AIS under archaeological permit number 25-04, issued by the SHPD pursuant to HAR §13-13-282. The fieldwork was conducted according to a proposed AIS fieldwork strategy letter (see Appendix A). In general, fieldwork included 100% pedestrian survey of the project area, subsurface testing, and GPS data collection. Some initial geotechnical drilling was conducted within the project area prior to CSH's involvement with the project. The locations and results of geotechnical boring were assessed prior to AIS fieldwork and compared to the stratigraphy observed during excavation.

The pedestrian survey was accomplished from 22 to 24 January 2025, and subsurface testing was conducted between 15 and 30 April 2025. Fieldwork was conducted by CSH archaeologists Elwyn Leibold, B.A., Jonas Madeus, B.A., Allyson Ueki, M.A., Josephine Yucha, M.S., and Trevor Yucha, B.S., under the general supervision of project manager Trevor Yucha, B.S., and principal investigators Josephine Yucha, M.S., and Hallett H. Hammatt, Ph.D. This work required approximately 43.25 person-days to complete. The AIS investigation was supported by archaeologists from Atlas Archaeology, LLC: M. Cody Sheets, B.A., operated the backhoe, and Blair M. Lopes assisted with backfilling.

2.2.1 Pedestrian Survey

A 100% coverage pedestrian survey of the project area was completed by three CSH archaeologists utilizing systematic sweeps spaced approximately 5.0 m apart. Ground visibility was generally fair to good due to the presence of Mahi Pono active farming covering most of the surface of the project area. No surface historic properties were encountered within the project area.

2.2.2 Subsurface Testing

The subsurface testing program was backhoe assisted and involved 40 test excavations (TE-1 through TE-40) that were plotted in a systematic gridded pattern distributed throughout the project area. Each linear trench measured approximately 5.0 m by 1.0 m (16.4 by 3.3 ft) and extended to culturally sterile soil or bedrock. A backhoe contractor from Atlas Archaeology, LLC slowly excavated each trench with a custom bladed bucket or a toothed bucket as necessary for rocky and

extremely compacted areas while the archaeologists safely monitored and managed the backfill pile. Following the documentation of each excavation, the backhoe was used to backfill the trench.

Following excavation, archaeologists used hand tools to scrape the sidewalls in order to smooth the surface to assess and document the stratigraphy. Documentation included descriptions and photographs of the observed stratigraphy and any potential findings. Descriptions and photographs were recorded using Apple Ipads equipped with standard digital form software and digital cameras.

A stratigraphic profile of each test excavation was drawn and photographed. The observed sediments were described using standard USDA soil description observations/terminology. Sediment descriptions included Munsell color; texture; consistency; structure; plasticity; cementation; origin of sediments; descriptions of any inclusions, such as cultural material and/or roots; lower boundary distinctiveness and topography; and other general observations. Any stratigraphic anomalies, potential features, and screened sediment sample locations were depicted on test excavation profile maps.

2.2.3 GPS Data Collection

Test excavations were recorded with a Trimble Geo XH mapping grade GPS unit with a TSCI Datalogger and real-time differential correction. This unit provides sub-meter horizontal accuracy in the field. GPS field data was postprocessed, yielding horizontal accuracy between 0.5 and 0.3 m. GPS location information was converted into GIS shape files using GPS Pathfinder Office Software, Version 5.9, and graphically displayed using ArcGIS Pro 3.5.1.

2.2.4 Field-Screened Sediment Samples

Sediment samples were collected and screened in the field to aid in the assessment of potential features, especially when charcoal flecking is present. The samples screened in the field utilized 1/8-inch wire mesh to remove the sedimentary matrix and assess the content. No cultural materials were identified within the screened sediment samples, and no substantial pieces of charcoal were available for collection.

No cultural materials or sediment samples were collected. As such, no laboratory methods were required.

Section 3 Background Research

The division of Maui's lands into political districts occurred during the rule of Kaka‘alaneo, under the direction of his *kahuna* (chief), Kalaiha‘ōhi‘a (Beckwith 1970:383). This division resulted in twelve districts, or *moku*, during traditional times: Kula, Honua‘ula, Kahikinui, Kaupō, Kīpahulu, Hāna, Ko‘olau, Hāmākualoa, Hāmākuapoko, Wailuku, Kā‘anapali, and Lāhainā. The current project area is located on the western flank of Haleakalā in the *moku* of Kula and *ahupua‘a* of Pūlehunui. Overall, Pūlehunui Ahupua‘a encompasses an area of 16,687.78 acres that begins at Kilohana Peak, on the summit ridge of Haleakalā, and ends at a mid-point on the west shore of the central plains at a shared boundary with Waikapū Ahupua‘a (McCully 1879).

3.1 Traditional and Historical Background

3.1.1 Mythological and Traditional Accounts

While the mythological and traditional accounts of the area are relatively scarce, an analysis of the *wahi pana* (place names/sacred sites) meanings for the region may yield some insight into the patterns of life in the area prior to Western Contact (Table 1). In *Native Planters in Old Hawaii,* Handy et al. (1991:23-24,42) summarize the relationship that traditional Hawaiians have had with the natural environment in the following passage:

> The sky, sea, and earth, and all in and on them are alive with meaning indelibly impressed upon every fiber of the unconscious as well as the conscious psyche. Hawaiian poetry and folklore reveal this intimate rapport with the elements (Handy et al. 1991:23-24)
>
> (T)he relationship which existed from very early times between the Hawaiian people … is abundantly exemplified in traditional mele (songs), in pule (prayer chants), and in genealogical records which associate the ancestors, primordial and more recent, with their individual homelands, celebrating always the outstanding qualities and features of those lands. (Handy et al. 1991:42)

The provided place names, together with the environmental data, suggest that the lands of coastal Pūlehunui were rich in marine resources. Previous research on pre-Contact occupation in Kula District (Kolb et al. 1997) has suggested that most permanent habitations were in the uplands with a smaller permanent population located along the coastline. While a reconstruction of the coastal archaeological landscape of Kula Moku underscores the importance of the uplands as a focus of agriculture and habitation, Hawaiian traditions and the presence of four fishponds are evidence that the coastal environs were also a focus of settlement and marine resource collection.

Lands surrounding the current project area were also a site of conflict between the Hawai‘i Island chief Kalani‘ōpu‘u and Maui Island chief Kahekili and is perhaps an explanation for the origins for such place names as "Waiakoa" and "Keāhuaiwi".

The earliest account concerning Kīhei and Hawaiian politics is given by Samuel Kamakau (1961:70) during the time of Alapa‘i and Kekaulike:

> Alapa‘i sailed from Kohala on Hawai‘i...But when he landed at Mokulau in Kaupō (Maui) and heard that Ke-kau-like was dying, he gave up all thought of war and

Table 1. Place names documented in the vicinity of the project area from Pukui et al. (1974) unless otherwise noted

Place Name	Meaning/Translation
Alakoa	*Lit.,* “soldier’s street” (p. 9)
Kalaepohaku	*Lit.,* “the stony promontory” (p. 72-73)
Kale‘ia	*Lit.,* “the abundance”, possibly in reference to the resources available from the fishponds and offshore fishing grounds (p. 76)
Kalepolepo	*Lit.,* “the dirt” (p. 77)
Ka‘ōpala	*Lit.,* “the rubbish”; dividing line between Pūlehu Nui and Waikapū Ahupua‘a (p. 86)
Keāhuaiwi	*Lit.,* “the bone pile”; the name of a gulch immediately adjacent to and north of Waiakoa Gulch (p. 101)
Keālia	*Lit.,* “salt encrustation”; a pond near Kīhei and major salt pan location (Sterling 1998:95)
Kīhei	*Lit.,* “cape or cloak”; sandy point and boundary marker between Pūlehu Nui and Waikapu (Sterling 1998:255); commonly used place name for the South Maui area
Kīheipūko‘a	*kīhei* literally translates as “cape or cloak” and *pūko‘a* literally translates as “coral head”; Kīheipūko‘a was a place near Keālia between Kalepolepo and Ma‘alaea (Sterling 1998:257)
Kohemālamalama	*Lit.,* “bright vagina”; also the ancient name for Kaho‘olawe
Kō‘ie‘ie	*Lit.,* “a plaything for floating in the rapids”, ancient name of Kalepolepo (Sterling 1998:252)
Kolaloa	*Lit.,* “much sexual excitement”, the name of the gulch that bisects the project area
Kula (*moku*)	*Lit.,* "plain"; always an arid region (Handy in Sterling 1998:242)
Pūlehu (gulch) Pūlehunui (*ahupua‘a*)	*Lit.,* “broiled”, possibly in reference to abundant sweet potato cultivation in the uplands (p. 193) “large *pūlehu*”
Waiakoa	*Lit.,* “water (used) by warrior”; the name of the gulch of the project area (p. 220)

> wished only to meet Ke-kau-like and his (half) sister Ke-ku‘i-apo-iwa-nui...He landed at Kīheipukoa with all his chiefs and fighting men...While he was at Kīhei, Alapa‘i heard that the ruling chief of Oahu was making war upon Molokai. Most of the chiefs of Molokai...were of Hawai‘i...Alapa‘i's sympathy was aroused, for these were his own brothers and children (relatives), and he made ready to go to their help on Molokai. (Kamakau 1961:70)

Other accounts involve the continuing conflict between Kahekili of Maui Island and Kalani‘ōpu‘u of Hawai‘i Island during the late 18th century. Following a losing battle at Kaupō in 1775, Kalani‘ōpu‘u dedicated several war *heiau* (sacred site) on Hawai‘i Island to aid in the defeat of Kahekili. Upon hearing this news Kahekili sent for the *kahuna* Kaleopu‘upu‘u who directed construction of the *heiau* of Kaluli and Pu‘uohala on the north side of Wailuku.

In 1776, the army of Kalani‘ōpu‘u landed at Keoneo‘o‘io, with their war canoes extending to Makena at Honua‘ula and proceeded to ravage the countryside. Kalani‘ōpu‘u landed with additional forces at Kīhepuko‘a at Kealia to Kapa‘ahu, 800 strong and eager to drink the waters of Wailuku:

> Across the plains of Pu‘u‘ainako (Can-trash-hill) and Kama‘oma‘o shone the feather cloaks of the soldiers … Ka-hekili was at Kalanihale just below Kihahale and above the plateau of Ka‘ilipoe at Pohakuaokahi … Kaleopu‘upu‘u [said] to Ka-hekili, “The fish have entered the sluice; draw in the net.” (Kamakau 1961:85)

The forces of Kahekili descended upon and destroyed the soldiers of Kalani‘ōpu‘u, slaying the Alapa (elite soldiers of Kalani‘ōpu‘u) on the sandhills at the southeast of Kalua. Only two men escaped to Kīheipuko‘a to tell Kalani‘ōpu‘u the news of their defeat. After a second day of warfare Kalani‘ōpu‘u sued for peace and was granted such by Kahekili and his messengers at Kīheipuko‘a (Kamakau 1961:88-89).

Coastal Pūlehunui also shows a few vestiges of the lifestyles and subsistence activities of the *maka‘āinana* (commoner) that lived there as well as the works of powerful *ali‘i*. Keālia Pond has been known as a source of high-quality salt from the pans in its immediate vicinity. In *Ancient Sites of Maui, Moloka‘i, and Lana‘i,* author Van James (2002:71) states, in reference to Keālia Pond:

> It is also the name and site of a former fishpond. Little is known about the ancient history of Keālia fishpond, but judging from its size, it must have been an important producer of fish stock, particularly *awa* (milkfish) and *‘ama‘ama* (mullet). Ditches and sluice gates were built at least 400 years ago to let these and other nearshore fish into the pond. A *ko‘a* (fishing shrine) or possible *heiau* platform stands near the site. (James 2002:71)

Given its location on the leeward shores of the central isthmus of Maui, and its regular access to the freshwater runoff emanating from Waikapū Stream to the north and Kolaloa Gulch to the southeast, the area had access to many resources (salt, fish, irrigation, etc.) valued and utilized by the population. This wetland environment also attracts many species of waterfowl in the winter months when water levels in the pond rise with seasonal flooding. These would have also served as a potential source of nourishment for subsistence communities in the region (James 2002:72).

Further testament of resource gathering in the area comes from neighboring Kō‘ie‘ie Fishpond (Figure 6) which can still be seen along the Kīhei coastline. This fishpond was once part of a broader distribution of these types of structures along the coast. To this effect James (2002:73-74) state:

> In ancient times at least three or four *kuapā* (walled) fishponds were built along the Kīhei ("cloak") coastline. With the exception of Ko‘ie‘ie pond, the names of the other ponds have been lost, and little is known about any of their histories. In such cases it was said that *Menehune* constructed them.
>
> It [Kō‘ie‘ie] is a small pond of three arces. At low tide, another fishpond ruin can be seen just south of Kō‘ie‘ie Fishpond, and still further south along the coast is yet another nameless ancient pond wall. (James 2002:73-74)

The associations of these fishponds to the *menehune*, placing their times of construction in deep antiquity, suggest that this site may have been in use in very early times. What is known regarding the fishponds here is that they had been rebuilt several times prior to, and during the first days of, Western Contact. According to James (2002:73-74):

> It is here at Kalepolepo that Kamehameha I is said to have beached his canoes for battle against Central Maui. The beaches were black with his fleet, and the Waikapū Stream that empties into nearby Keālia Pond was declared *kapu.* Later, Kamehameha, who noticed Kō‘ie‘ie to be in disrepair, had the fishpond rebuilt. It is recorded that chief ‘Umilīloa, in the mid-1500s, also had the pond walls rebuilt. (James 2002:73-74)

Given its history of rehabilitation from conquering Hawai‘i Island chiefs, it is believed that the fishpond at Kō‘ie‘ie was "a royal pond always stocked with the best fish" (James 2002:74). Further associations between Hawaiian royalty and Kō‘ie‘ie Fishpond are also exemplified by a story from the early historic period when Kihawahine, the family *‘aumakua* of the Kamehameha line of chiefs, appeared at Kō‘ie‘ie Fishpond in saffron-yellow robes following the death of one of Kamehameha's sons at Kalepolepo in 1815 (James 2002:74).

3.1.2 Early Historic Period

Kīhei was one of the locations visited by Captain George Vancouver. A monument at Mai Poina ‘Oe Ia‘u Beach Park in Kīhei commemorates Vancouver's onshore expedition in 1792, when he first met the ruling chief Kahekili. With its sheltered coastline and easy access to upcountry resources over a vast slope, Kīhei would continue to be a common stop for visiting ships.

During the early and middle 1800s, the Hawaiian demography was affected by two dramatic factors: radical depopulation resulting from Western disease; and nucleation around the developing port towns. The traditionally Hawaiian population was largely dispersed and, although there were royal centers and areas of more concentrated population, these areas never came close to rivaling the populations of the historic port towns that developed on Hawai‘i's shorelines during the 1800s.

In this regard, Kuykendall (1938) noted that in the period from 1830 to 1854:

> The commercial development during this period, by magnifying the importance of a few ports, gave momentum and direction to a townward drift of population; the



Figure 6. Ko‘ie‘ie Fishpond as viewed from the shore, near the former site of Kalepolepo (James 2002:73)

> population of the kingdom as a whole was steadily going down, but the population of Honolulu, Lahaina and Hilo was growing. (Kuykendall 1938:313)

Kuykendall's observation likely captures the demographic pattern at the Kalepolepo entrepot, a hub of early historic activity for Kīhei and eventually all of Kula Moku, located approximately one mile to the south of the current project area (Kolb et al. 1997:69). The development of Kalepolepo as an entrepot and a focus of Christian life in the 1840s and 1850s most likely increased the population in the immediate vicinity above the pre-Contact population figures, contrary to the island-wide trend of depopulation. That the population and areal extent of the Kalepolepo community reached its zenith during the mid-1800s, appears to be supported by Kolb et al. (1997:68):

> The ancient village of Kalepolepo was relatively small, and was built around an economy primarily based upon the exploitation of ocean resources--primarily the excellent fishing grounds as well as three large fishponds. However, as the number of visiting ships increased, Kalepolepo soon became an important provisioning area. By 1850 we know that the economic opportunities were attracting a number of European entrepreneurs. (Kolb et al. 1997:68)

In 1820, the whaling industry was introduced in Hawai‘i. Although the whaling trade centered on Lāhainā, mainly affecting the Kula/Kīhei area through agricultural demands, Clark (1980:47) notes that "From the 1840s to the 1860s a small whaling station was maintained at Kalepolepo [Kīhei]." The introduction of whaling to the Maui community brought with it an increased demand for foodstuffs and in particular the long-lasting Irish potato.

After 1830, dryland agriculture in the old Kula District expanded with a focus on Irish potato cultivation. The California Gold Rush of 1849 further intensified the demand as a California-Hawai‘i potato trade began to flourish. Kula became the area of highest potato production and was known as "the potato district" (the area between 2000 and 5000 ft elevation). During this time, sugar cultivation and ranching were established in the Kula region. According to Helen Wong Smith, sugar was present prior to 1846, with six sugar producers operating on the slopes of Haleakalā, and ranching occurred in the area prior to the 1840s (Brown and Haun 1989:C-7 and C-6). Much of the produce, sugar, and livestock moved down the Kalepolepo and Kekuawaha‘ula‘ula Trails to the landing at Kalepolepo, just south of the project area. (Donham 1992:5) notes that the inundation of land clearing and cultivation associated with the Gold Rush resulted in "deforestation [which] adversely affect[ed] the amount of rainfall in the district, and periods of drought became more common."

Around 1849, John Halstead built the Koa House at Kalepolepo in Kīhei. The building, part store and part residence, thrived on both the trade of the whaling industry and the then thriving potato industry. During the Gold Rush years, the store became "an emporium for Irish potatoes" and served as a gathering place for the whaling sailors (Burgett and Spear 1995:6). David Malo created a balance for the boisterous whaling crowd by constructing the Kilolani Church at Kalepolepo around 1852. Potato production thrived in Kula from 1830-1850 until successful potato cultivation and production in California and Oregon resulted in a decline in the Hawai‘i trade (Burgett and Spear 1995:6-7). Halstead ran his store until 1876, closing shop when the potato industry diminished (Janion 1977:25-31).

3.1.3 The Māhele and the Kuleana Act

The most significant change in land-use patterns and allocation came with the Māhele of 1848 and the privatization of land in Hawai‘i. This action hastened the shift of the Hawaiian economy from that of a subsistence-based economy to that of a market-based economy. During the Māhele, all of the lands in the Kingdom of Hawai‘i were divided between *mō‘ī* (king), *ali‘i* (chief), *konohiki* (overseer of an *ahupua‘a*), and *maka‘āinana* (tenants of the land) and passed into the Western land tenure model of private ownership. On 8 March 1848, Kauikeaouli (Kamehameha III) further divided his personal holdings into lands he would retain as private holdings and parcels he would give to the government. This act paved the way for government land sales to foreigners, and in 1850 the legislature granted resident aliens the right to acquire fee simple land rights (Moffat and Fitzpatrick 1995:41-51).

Native Hawaiians who desired to claim the lands on which they resided were required to present testimony before the Board of Commissioners to Quiet Land Titles. Upon acceptance of a claim the Board granted a Land Commission Award (LCA) to the individual. The awardee was then required to pay in cash an amount equal to one-third of the total land value or to pay in unused land. Following this payment, a Royal Patent was issued that gave full title of ownership to the tenant. But by 1850, the government of Hawaii was offering land for sale to both Native Hawaiians and foreigners. Such lands were referred to as Royal Patent Grants or as Grants.

A total of 13 land commission claims were made in Pūlehunui, and nine were awarded (LCAs 0327B, 9671, 9019, 4672, 9672, 9673, 8866, 4567, and 5230). Only one of these awards, LCA 5230, is immediately surrounding and inclusive of the current project area (Figure 7 and Figure 8). Supporting testimony given to the land commissioners indicate that the 1668.78 acres of LCA 5230 were awarded to Keaweamahi by the King in 1843 and never disputed. The testimony given by Kaauwai and Kaiakekaua additionally maintained that there were a great many natives that lived within the *ahupua‘a* of Pūlehunui. The majority of the lands awarded were *kula* used for potato (both sweet potato and Irish potato) cultivation and were primarily located along the upper elevations of Kula Moku (Waihona ‘Aina 2000).

In 1879, following the initial division of lands during the Māhele, the western boundary of Pūlehunui was disputed by the owners of adjacent lands in Waikapū. The western boundary of Pūlehunui that was specified by the Commissioner of Boundaries and surveyed included approximately 2,000 feet along the coastline from a sand spit known as Kīhei to a point of rocks called Kalaepōhaku. The eastern boundary line that was being claimed for Waikapū, however, would cut Pūlehunui off from the ocean, this being the more specific issue in the boundary dispute. Testimony was given by *kama‘aina* (Native Hawaiian residents) of Pūlehunui and/or lands next to it regarding their familiarity with the boundaries of Pūlehunui Ahupua‘a. All witnesses, with the exception of one, consistently stated the line between Pūlehunui and ‘Ōma‘opio was along a ravine or *kahawai*. The line carried along this *kahawai* and continued to follow the same natural boundary to Ka‘opala at the bottom of the East Maui slope. Ka‘opala meets the bottom of the West Maui slope and creates a depression, following the natural depression or shallow *kahawai* to the sea. The court agreed that the boundary likely followed this natural line and concurred with the findings of the Commissioner of Boundaries. As a result, the original 2,000 ft of coastline from Kīhei to Kalaepohaku that was attributed to Pūlehunui Ahupua‘a was upheld (McCully J Court Opinion, in Sterling 1998:254-257).

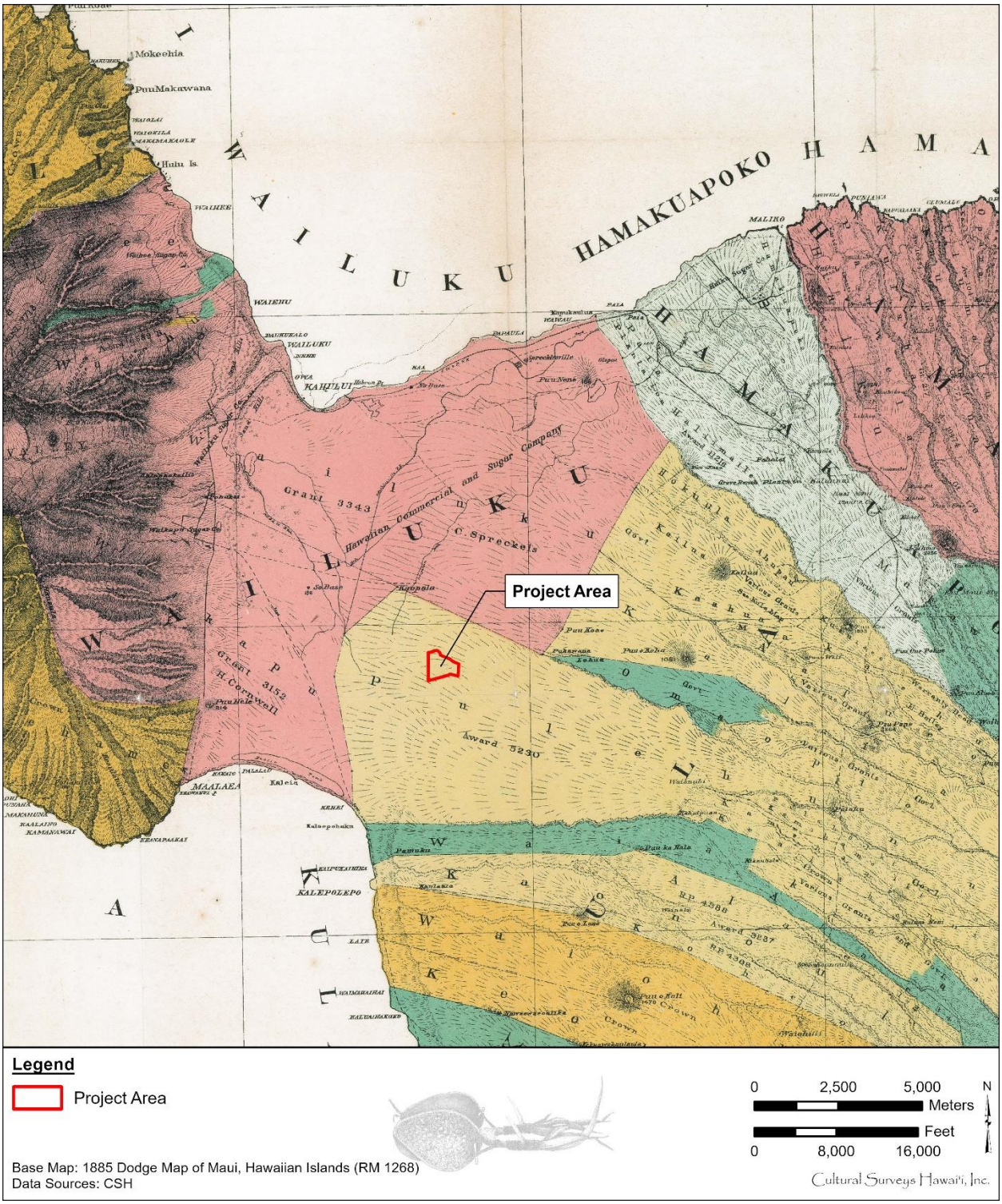


Figure 7. Portion of the Dodge (1885) map of Maui (RM 1268) showing the location of the project area within Award 5230

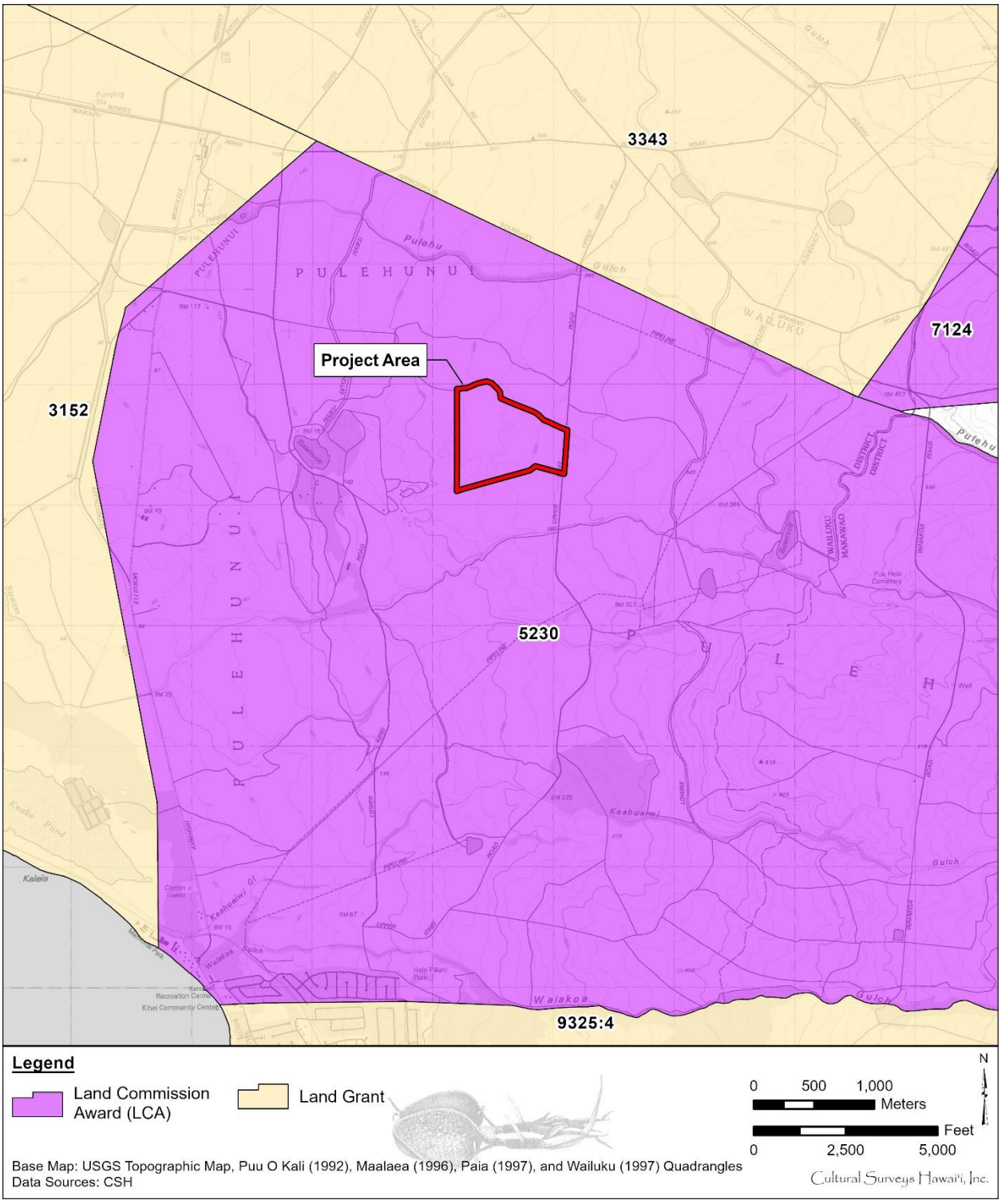


Figure 8. Land Commission Awards and Land Grants recorded in the vicinity of the project area (U.S. Geological Survey 1992, 1996, 1997a, 1997c)

3.1.4 Late 1800s through Early 1900s

By the time John Halstead closed shop in 1876, the boom years of Kalepolepo had passed. By 1880 the government survey of the Kula area showed the demarcation of only a few LCAs and those who had received awards had replaced them with grants. Lower Kula consisted primarily of pastureland for ranching (Wong Smith in Donham 1992:B-6). Kennedy (1992:9) noted that at this time *kiawe* (*Prosopis pallida*) was imported to feed cattle and provide wood.

Regarding the settlement at Kalepolepo and the impact of the changes associated with the change to ranching on the general area known as Kīhei, Clark (1980:48) commented:

> Halstead finally closed his store in 1876, as demands for his goods had steadily decreased, and moved to Ulupalakua . . . By this time the once thriving Hawaiian village at Kalepolepo had been almost totally abandoned as well. The slopes of Haleakala had gradually become denuded of their forests and torrential rains had caused heavy soil runoffs into the Kalepolepo shoreline. Cattle had trampled down the brush and grassy fields, causing sand dunes to drift and fill up the pond. Clouds of dust filled the air instead of cooling winds. Except for a handful of fishing families, Kalepolepo [and likely the Kīhei area in general] was deserted (Clark 1980:48).

The shift in the economics of coastal Pūlehunui to ranching was also noted by E.S. Craighill Handy. He noted that large sections of "Crown Lands" which had not been claimed as *kuleana* [family homestead property] during the Māhele (1848 and later) were given by the Kingdom to various Pūlehunui ranchers. The *kiawe* tree was imported and cultivated around 1840 as a source of cattle feed, and the low plains of Pulehunui were soon covered in *kiawe* forests (Handy and Handy 1972:510-511). In this manner, upland agricultural pursuits gradually gave way to ranching activities as the demand for locally produced agriculture dropped with the closure of the nearby entrepot at Kalepolepo.

Sugar would soon fill the void, and in late 1898 the Kīhei Plantation Company, Ltd (KPC) was organized with a capitalization of 60,000 shares at $50 par value. Water was the most critical component in the decision to locate sugar cultivation along the leeward shores of Maui's arid coastline. The discovery of an ample supply of irrigation water early in 1898 led to the drilling of a large, successful well, but the supply of water was limited (Stearns and Macdonald 1942). Over the next four years, two ditches were developed to supplement the water needs of the 4,873 acres of sugar under cultivation at Kīhei (Gilmore 1936).

The history of the KPC begins with the annexation of the Hawaiian Islands by the United States in 1898. Sugar prices were rising due to the outbreak of war between the United States and Spain over the colonies in Cuba, Puerto Rico and the Philippines. Henry P. Baldwin, of the Maui plantation of HC&S, entered into a partnership with O‘ahu businessman Benjamin F. Dillingham to convert Lorrin A. Thurston's landholdings in Kīhei into a sugar enterprise (Dean 1950:62).

Up to that time, sugar cultivation within the central isthmus of Maui was centered around the main towns of Wailuku and Kahului. Water tunneled from springs in the West Maui Mountains flowed through ditches in Wailuku to irrigate fields as far away as Mā‘alaea. Water from the windward rain belt of Kailua ran through a network of ditches from East Maui to Pā‘ia, to irrigate fields in Pu‘unēnē (Wilcox 1996).

The McCandless Brothers drilled a successful Maui-Type well (U.S. Geological Survey Well 14 / Hawaiian Commercial & Sugar Well K1) in 1899. It was located just inland from the coast in North Kīhei, between Keālia Pond and the Waiakoa Homestead Lands. This well was drilled vertically to approximately 60 ft through the Honomanū basalts, and tunneled laterally over 1,500 ft in order to skim 10 million gallons of fresh irrigation water per day from sources beneath the Kīhei plains (McCandless 1936).

The plantation company in Kīhei built bridges to span streams and gulches flowing through the company fields. The plantation had planned the construction of a mill in North Kīhei, and ordered a plant to be built. It was decided that the new HC&S mill under construction at Pu‘unēnē would have more than enough capacity to mill all the cane from the Kīhei fields. The order for the mill was transferred to the ‘Ōla‘a Sugar Company in Hawai‘i, in exchange for a supply of steel rails for new railway requirements at Pu‘unēnē. A large-scale Kona storm hit the plantation on 15 November 1900 and caused immense damage to both Kīhei and the HC&S fields in Pu‘unēnē. Bridges were knocked out, buildings were flattened, and washouts filled irrigation ditches with silt. Repairs were effected immediately, with the new HC&S mill at Pu‘unēnē commencing operations January 29, 1902 (Dean 1950).

The KPC had the McCandless Brothers drill two or three additional Maui-Type wells on the north side of reservoir K2 at the discharge end of the existing pipeline of Well 14. The plantation in Kīhei failed in 1908 before the well site was fully developed. It would have been named the HC&S K2 well, and would have included a large pumping station (Stearns and Macdonald 1942).

3.1.4.1 Railway Operations

The KPC planned to construct a railway to move their cane. The sugar agency of William Dimond & Company placed an order for a locomotive from the Baldwin Locomotive Works in Philadelphia. The order was placed April 1899, and the plantation locomotive “Haleakala” was built and sent on to Maui (Condé and Best 1973).

By March of 1900, the first annual report of the Kihei Sugar Company stated, “It was our intention to complete the main [rail]road only as far as Camp #2, or for about 2 miles, but as the development of Camp #3 required pushing on of the road one and a half miles further, this has been done, having been completed the 15th of February” (Condé and Best 1973:230). An additional six miles of track connected the Kīhei wharf to the various well pumping stations, and north to meet up with HC&S track (Condé and Best 1973). Establishing the railroad at Kīhei made it possible to harvest and transport over two thousand tons of sugar in a single year (Dean 1950) (Figure 9).

The laying of the railroad and the cultivation of the sugarcane was performed primarily by Japanese field labor. Kīhei’s plantation Camp #1 was set up inland of the Kīhei wharf and mooring pier. Two stables and a plantation store were located at Camp #1. Hospital services were provided by HC&S in Pu‘unēnē. Kihei Camp #3 was located 2 1/2 miles north of Kihei Camp 1 at Kolaloa Gulch, along the North Kīhei line of the HC&S railroad (Shoemaker 1907). A 1910 map of the HC&S planation in Pu‘unēnē depicts a portion of the field and rail network surrounding the project area (Figure 10). The “Upper Main R.R. Kihei” extended across Kolaloa Gulch between Increments 2 and 4 of the project area. A spur from this line extended through Increment 4 of the project area to the “K. No 4 Reservoir Ditch. Camp K-3, labeled as “Pump 3-K” is located adjacent to the project area along Makawao Road.

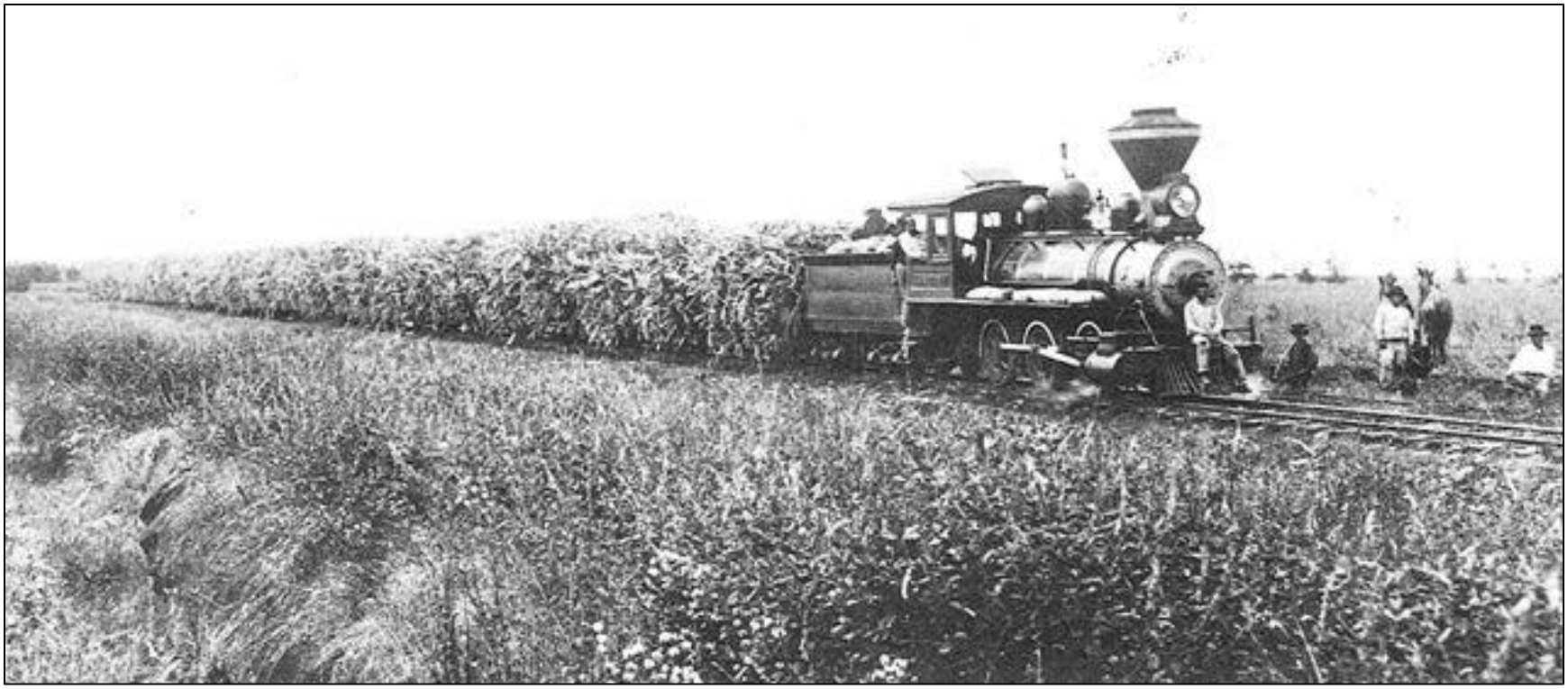


Figure 9. KPC locomotive “Haleakala” transporting cane from Kīhei fields to the mill at Pu‘unēnē, ca. 1905 (Condé and Best 1973)

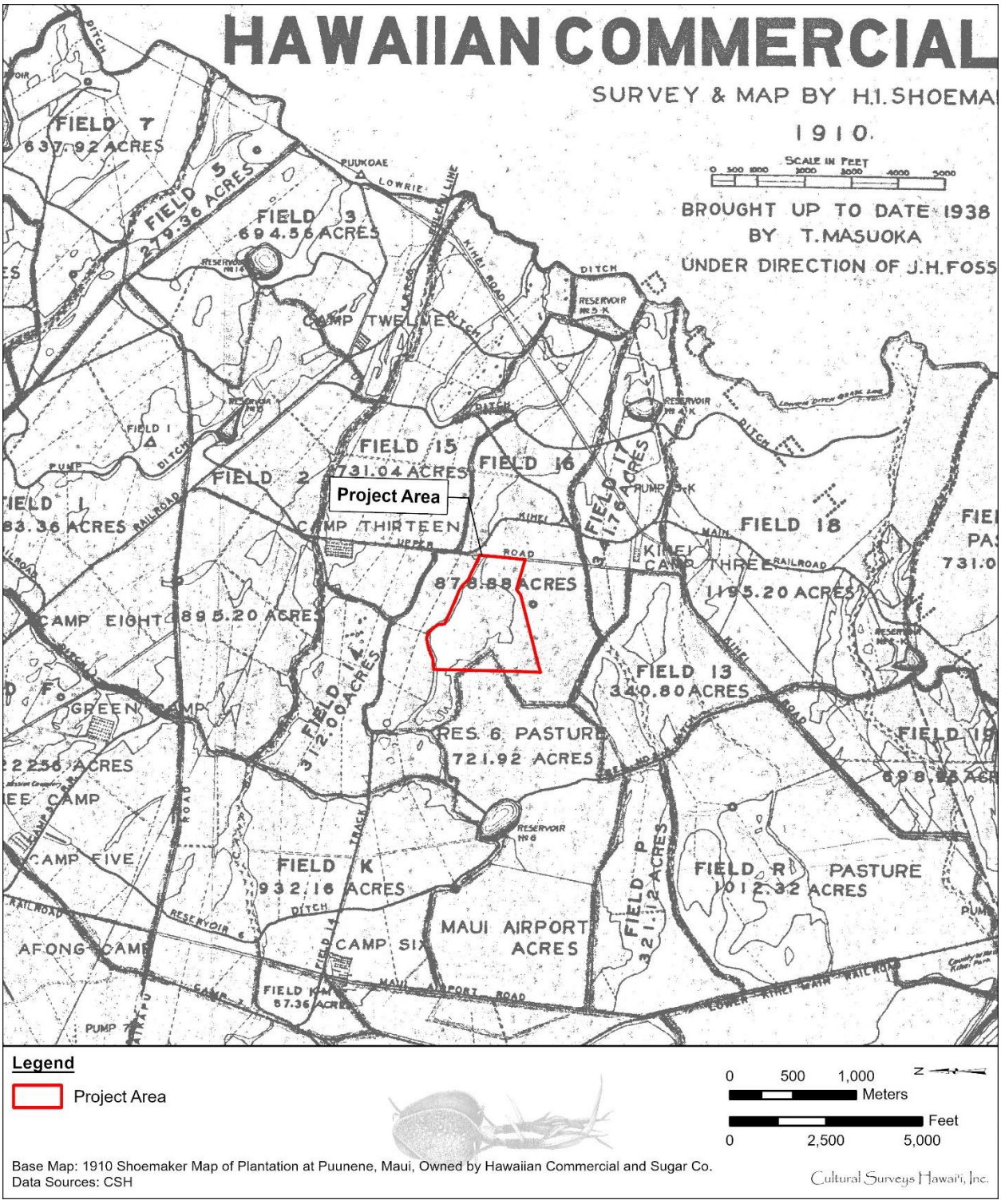


Figure 10. Portion of the Shoemaker (1910) map of the HC&S Plantation in Pu‘unēnē showing the current project area

When the plantation was forced to close in 1908 due to diminished returns and underdeveloped water sourcing, the entirety of the company's rolling stock was absorbed by a subsidiary of HC&S. This included a Baldwin 10-ton locomotive, two large flat cars, and approximately 235 cane cars. After this merger the rolling stock of the KPC was absorbed into the larger system that connected Kahului and Kihei to plantations further east of the central isthmus. After acquiring the locomotive, the name was changed from "Haleakala" to "Hawaiian Commercial & Sugar #4," becoming renamed again in 1910 as "Kihei" (Condé and Best 1973:230-231) (Figure 11).

3.1.4.2 Water Source Development

The Lowrie Ditch project, named for former HC&S manager William J. Lowrie, brought an additional source of water to the Kīhei plains. His plan was to begin the ditch at the Pāpa‘a‘ea Reservoir, at the 1,000-ft elevation, and maintain a four-foot drop per mile following the ditch's initial plunge from the Kailua reservoir. Steep mountain gulches were traversed using the force of the constant weight of water flowing in a series of siphons. The Halehaku Gulch, at 250 ft deep, and the Māliko Gulch, at over 350 ft deep, were both crossed by giant siphons fabricated of three-eighths-inch iron, and set in place by Japanese laborers. At a weir located above Pā‘ia, the allocation of water began. The first tenth of the water flow in the Lowrie Ditch was divided out to the Pā‘ia Plantation (an 11/20ths share) and the Haikū Plantation (a 9/20ths share). The distance traveled, from Kailua to the plantation's Kīhei boundary, was 21.9 miles (Thrum 1900).

More water was required from wells and the East Maui watershed. The manager for the KPC, W.F. Pogue, asked the management of HC&S for an even larger allocation of water for the Kīhei lands. In 1901, Samuel T. Alexander ordered the construction of a new ditch, tapping the water sources from Nāhiku to Honomanū. It was determined that the KPC would receive 2/9ths of the capacity from the enterprise (Dean 1950) (Figure 12).

The KPC failed to live up to the expectations of its promoters with an inadequate water supply as the key difficulty. With the waters of the Ko‘olau Ditch flowing to the Kīhei fields, production appeared to have hit its peak. Although 5,609 tons of sugar was delivered in 1903, high costs required a change of managers in Kīhei, and a reduction of the HC&S milling charge to $7 per ton. The incoming HC&S manager, Frank Fowler Baldwin, determined that the best course of action was to buy out the company for $375,000 (Condé and Best 1973).

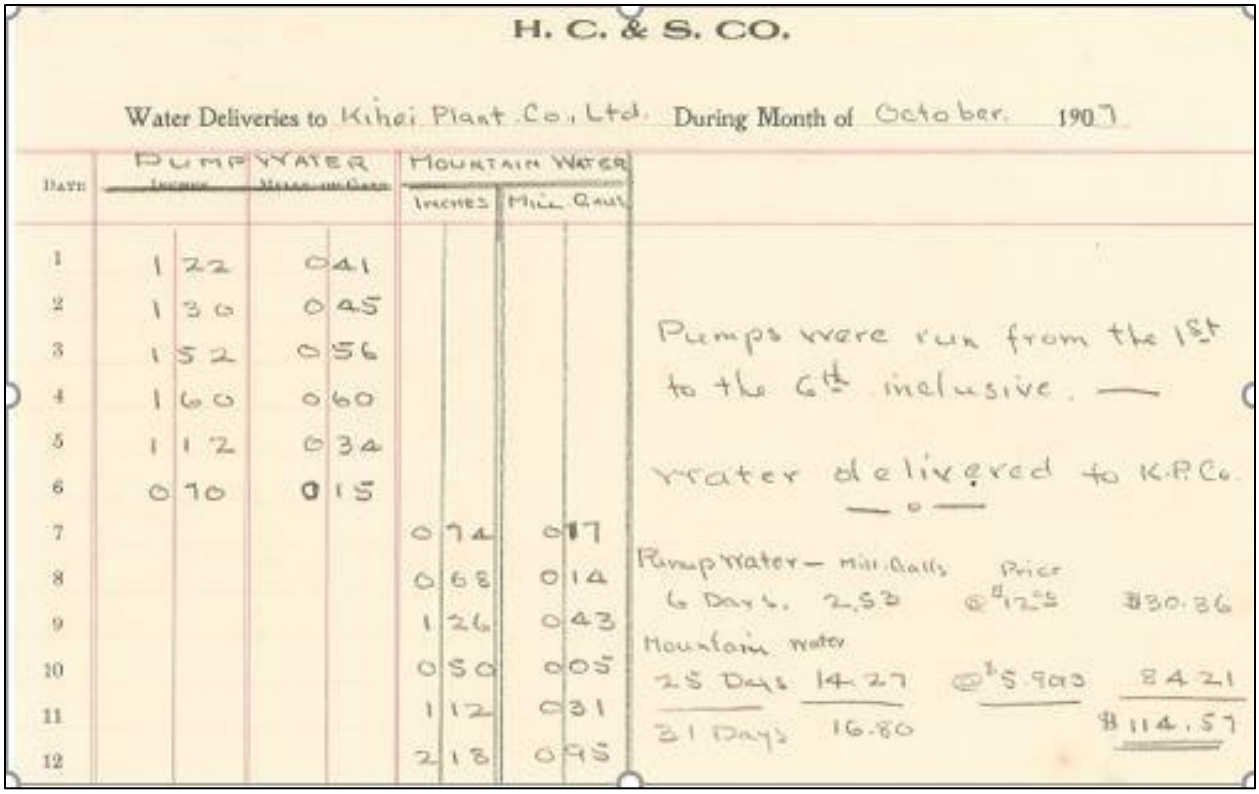
In 1908, the lands of the KPC were divided up between five new major business entities of HC&S; the Kailua Plantation Company (994 acres), the Kalialinui Plantation Company (923 acres), the Kula Plantation Company (996 acres), the Makawao Plantation Company (982 acres), and the Pulehu Plantation Company (978 acres) acquired the remaining acreage not included in the railroad right-of-way. Water rights reverted to HC&S, and were apportioned between the new plantations (Dean 1950). Sugar operations continued in North Kīhei until ca. 1968, when HC&S leased lands to a corn research farm.

3.1.5 Early 1900s to Mid-1900s

The post-WWI years saw HC&S add electricity to some villages. HC&S completed the Waikapū well [Well 7] in 1926 - one of the largest deep wells in the world. The additional capacity of 40 million gallons per day (mgd) was instrumental in planning for more sugar and industry within Maui's central plains. On 11 November 1929, Inter-Island Airways, Ltd. began flying regularly scheduled flights between the Hawaiian Islands. Amphibious eight-passenger Sikorsky



Figure 11. KPC locomotive servicing HC&S mill as “Hawaii Commercial & Sugar No. 4” (Condé and Best 1973:231)



H. C. & S. CO.

Water Deliveries to Kihei Plant Co., Ltd. During Month of October. 1907

Date	Pump Water Inches	Pump Water Mill. Gals.	Mountain Water Inches	Mountain Water Mill. Gals.
1	1 22	041		
2	1 30	045		
3	1 52	056		
4	1 60	060		
5	1 12	034		
6	0 70	015		
7			074	017
8			068	014
9			126	043
10			050	005
11			112	031
12			218	095

Pumps were run from the 1st to the 6th inclusive. —

Water delivered to K.P.Co.

— o —

Pump water — mill. Gallons Price

6 Days. 2.53 @ $12.25 $30.36

Mountain water

25 Days 14.27 @ $5.903 84.21

31 Days 16.80 $114.57

Figure 12. Portion of an accounting statement for water delivered to the KPC in 1907 (CSH archives)

S-38 aircraft landed at Mā‘alaea Bay, taxied up a concrete ramp, and delivered passengers to waiting automobiles for the trip to Wailuku and points beyond (Saito 2008). By 1936, the airline had purchased three new sixteen-passenger Sikorsky S-43 aircraft to supplement their four S-38s (Kennedy 1937).

Harold T. Stearns traversed the island of Maui between 1932 and 1942, conducting studies of the geology and ground-water resources. Between 1939 and 1940, Gordon A. Macdonald completed geologic maps for the study. Their combined work highlighted the then-recent explorations for water in Pūlehunui as a source of drinking water and for dust control during construction of the airport (Stearns and MacDonald 1942). They reported that the isthmus of Maui "was without trees and covered with drifting sand prior to the planting of cane. Old residents report that red dust storms were nearly a daily occurrence. It seems possible that very little water existed under the Maui isthmus, prior to irrigation. If so, the annual pumping of 45.500 million gallons (average over the past 10 years) represents mostly return flow from the 78.271 million gallons of surface water imported for irrigation. [This measurement establishes that] recovery from wells is about 58% of surface water deliveries."

3.1.5.1 Pre-WWII Aviation History

By 1937, the Civil Aviation Authority (C.A.A.) for the Territory of Hawai‘i recommended an airport for Pu‘unēnē to accommodate the continued growth of commercial service. The site was approved by the U.S. Army, Inter-Island Airways (later Hawaiian Airlines), HC&S, the Kahului Railroad Company, and the C.A.A. (Balch 1938). Three intersecting runways were designed alongside the existing government roadway and railway lines connecting Kīhei Village to the HC&S mill and village at Pu‘unēnē.

By 1938, it was clear that Japanese aggression against mainland China was jeopardizing the political stability of the Pacific region (Morison 1951). Pacific Naval Air Bases (P.N.A.B.) construction engineers were assigned to reinforce United States military outposts across the Pacific. In Hawai‘i, the construction of new civilian airports at Kane‘ohe (O‘ahu) and Pu‘unēnē (Maui) was undertaken by U.S. Engineer Department (U.S.E.D.) contractors. Prior to 1940, 13 separate defense-related construction projects were begun in the Hawaiian Islands, primarily at Pearl Harbor (Woodbury 1946).

The Hepburn Board, a commission of six officers and engineers reporting to the U.S. Navy, authorized the immediate military-backed expansion of an existing design for a civilian airfield at Pu‘unēnē. Quarters for a permanent utility squadron, as well as for rotating Carrier Air Service Units (CASU) crews, were hastily approved (Woodbury 1946). U.S.E.D. and P.N.A.B. construction crews began work on 17 June 1940, building quarters and messing facilities for 500 men. The Navy used barracks at the National Guard Camp in Paukūkalo while completing buildings at the Naval Air Station (NAS) Puunene (Shettle Jr. 1997). Two 50,000-gallon above-ground gasoline tanks were erected, and railroad spurs were laid to facilitate a direct supply line with the Kahului Harbor. As work progressed, a slew of change orders added bombproof revetments for aircraft storage, as well as bomb and ammunition magazines. By the time Pearl Harbor on O‘ahu was attacked, the NAS Puunene was an active training base (Department of the Navy 1947).

The location of Utility Squadron Three (VJ-3) at the Pu‘unēnē airfield was found to be ideal for operations involving the use of radio-controlled aircraft for anti-aircraft training. The development

of radio-controlled full-scale aircraft was code-named “Project Dog,” and began as a military program located on the east coast of the U.S. in the mid-1930s (Fahrney 1982). “Project Dog” was moved to San Diego in 1938 and finally to the U.S. Navy’s Maui airport at Pu‘unēnē early in 1940 in order to prove the practicality of radio-controlled assault drones. These were the earliest experiments leading toward the development of the guided missile.

Full-scale fortification of the Hawaiian Islands began in January 1940, immediately after President Franklin D. Roosevelt cancelled all trade agreements with Japan. On 7 May 1940, the U.S. Pacific Fleet was ordered out of the Port of Los Angeles to be based at Pearl Harbor in the Territory of Hawai‘i. This action was designed as a deterrent against further aggression by Japan in the Pacific region (Morison 1951).

Lieutenant Robert F. Jones commanded VJ-3 at NAS Puunene and advanced the syllabus of testing radio-controlled aircraft to the point where a radio-controlled aerial torpedo was thought to be possible. By April 1941, the U.S. Navy’s efforts to develop a practical way to control drone aircraft from greater distances was in full swing (Rogers II 2002). In the middle of this research program, Navy Fighting Squadron VF-2 arrived at the Pu‘unēnē aerodrome for training purposes in April 1941.

Flying F2A Brewster “Buffalo” fighter aircraft, the “Flying Chiefs” of VF-2 trained on Maui for approximately two months, returning to sea with the *U.S.S. Lexington* to take part in operations to ferry aircraft and supplies to Midway Island. The training regime of VF-2 included the use of “unrestricted air space for gunnery and tactics and many nearby bombing and strafing targets” (Lacouture 1989). The target range was located at lower ‘Ulupalakua and the aircraft used practice bombs filled with lime powder and beach sand to mark their accuracy.

In May 1941, the 1st Battalion of the U.S. Army’s 299th Infantry Regiment was assigned to establish defensive positions along the exposed coastal areas of Maui. Tents housing the administrative section for the U.S. Army’s 24th Infantry Division, and the Fourth Platoon Signal Company, Aircraft Warning Air Corps Detachment, were located within a 14-acre section at the Maui Airport at Pu‘unēnē (Allen 1950).

Plans were drawn up to expand the airfield to a size large enough to support both a U.S. Navy carrier air group and a U.S. Army Air Corps bombardment group. On average, pre-war U.S. Navy air groups consisted of 90 aircraft, made up of scout, dive-bomber, fighter, and torpedo divisions. A pre-WWII U.S. Army Air Corps bombardment group, consisting of three squadrons of medium or heavy bombers, would have numbered about 30 aircraft (Morison 1953).

3.1.5.2 World War II (1941-1945)

With the outbreak of war between Japan and the U.S., NAS Puunene became the command headquarters for both U.S. Navy and Army units on the island of Maui. Plantation heavy equipment and plantation operators worked side by side with U.S.E.D. personnel to accelerate construction of defensive positions and immediately lengthen runways at the base. The call for an immediate extension of the runways to military specifications involved extensive engineering to reroute miles of irrigation culverts for HC&S. The dispersion of facilities planned for NAS Puunene would come to utilize over 2,500 acres of land and involve housing for over 5,000 men (Cotten 1945).

The attack on Pearl Harbor, 7 December 1941, forced the “Project Dog” program at NAS Puunene to assign its research to safer bases on the mainland U.S. Wartime operations for VJ-3

would concentrate exclusively on providing radio-controlled aircraft as realistic targets for fleet anti-aircraft gunnery training exercises (Rogers II 2002). Under wartime conditions, responsibilities for VJ-3 included maintaining an intense schedule of weather flights, rescue flights, and anti-submarine reconnaissance flights in the waters surrounding Maui.

Early in 1942, the first Carrier Air Service Unit, CASU-4, was commissioned at NAS Puunene, and the utility squadron personnel of VJ-3 were reinforced by NAS Officers. In June 1942, VF-72 (U.S. Navy Fighting Squadron 72), the first of over 150 squadrons of U.S. Navy fighter, bomber, and scout aircraft, arrived for advanced training prior to moving into forward combat areas (Wilcox 2004). For four days in early June 1942, as the Battle of Midway raged 600 miles to the northwest, NAS Puunene personnel were ordered into shelters and revetments, expecting bombing raids by Japanese aircraft sweeping across the Hawaiian archipelago (Vint 2000). With the success of American naval forces at Midway, the threat of a Japanese invasion of the Hawaiian Islands was postponed, and U.S. efforts to outfit military bases in the Hawaiian Islands for wartime training were redoubled.

Anti-aircraft gun emplacements and protective aircraft revetments were given top construction priority by the P.N.A.B. supervisors. Heavy equipment and civilian operators from Wailuku Sugar Company and HC&S were employed at NAS Puunene, with their pay charged back to the U.S. government. Sugar milling at plantations across the Hawaiian Islands was confined to daylight hours until “blackout” procedures for night operations were approved (Allen 1950:289).

U.S.E.D. construction contractors were reinforced at NAS Puunene by additional P.N.A.B. personnel in July 1942. Domestic water pipelines were laid by HC&S to supply military camps being constructed at ten separate locations across the central Maui plains, including the Camp 6 location proximate to NAS Puunene. The main government road and the railroad lines that served the wharf at North Kīhei were rerouted, as NAS Puunene expanded. The U.S. Army National Guard 108th Regiment, 27th Infantry Division, took up defensive duties along Maui’s coastlines beginning March 1942 and occupied formal headquarters at NAS Puunene (Army 1948). On 16 November 1942, 400 men forming an advance echelon of the U.S. Navy’s 39th Construction Battalion arrived at NAS Puunene to begin construction of underground fuel bunkers, bombproof buildings, ammunition magazines, and an aviation ground school (Cressy 1944).

The establishment in 1943 of NAS Puunene as a “Top Gun” school for fighter-aircraft tactics was based on the Navy’s use of highly-decorated veteran fighter pilots, such as Commanders Edward “Butch” O’Hare, James “Jimmy” Flatley, and James “Jim” Thach to relay the latest intelligence from the front lines to new pilots rotating into combat (Feightner 1997). “Maui Group Local Naval Defense Forces”, based at NAS Puunene, controlled the training airspace over the Kaho‘olawe aerial bombing ranges and administered the training schedule (Lundstrom and Ewing 1990). U.S. Army National Guard Divisions were assigned to occupation, guard, and training stations in the Hawaiian Islands during World War II. Shoreline defenses held by the 27th Infantry Division on Maui were replaced by men of the 40th Infantry Division (U.S. Army 1947). As elements of both the 27th and 40th Divisions were combined and sent to the South Pacific for combat duty, they were replaced on Maui by regiments from the 33rd Infantry Division (Journal 1948). A resident of Maui during WWII said, “It was common to see groups of soldiers wearing their unit insignias all over Maui: the “Sunshine” [40th Division], and “Golden Cross” [33rd Division], and the last ones stationed here were the “Mohawks” [98th Division]”(Sanford 2004).

As of 6 March 1943, the 48th Construction Battalion (“SeaBees”) replaced the 39th C.B., and immediately began construction of a new sewer and water system for NAS Puunene (Turner 1945). Newsletters published by the 39th Seabees (*Shore Lines*) and the 48th Seabees (*Trade Wind*) were joined by an official NAS Puunene newspaper, “To All Hands” (later renamed *The Island Breeze*). The publisher of the “Maui News,” Maui’s leading civilian newspaper, printed a companion weekly named “The Valley Islander,” which incorporated military news from all of the services based on Maui, including the 4th Marine Division in Kokomo (Sanford 2008). All military news in these papers was censored, but personnel changes, “scuttlebutt” gossip columns, and sports highlights featuring teams organized within military leagues on Maui attracted an avid readership.

The 127th SeaBees relieved the 48th SeaBees in May 1944 and finished an extensive network of ammunition magazines located toward Kīhei of the main air base. The completion of expanded housing areas, a second CASU area, and additional “SeaBees” housing was accomplished before the end of 1944. Two Mobile Construction Battalion Units, CBMU 563 and CBMU 575, arrived to maintain the refrigeration and water purification systems.

On 1 July 1945, NAS Puunene personnel numbered 565 officers and 2,798 enlisted men, including seven Navy nurses, eight Women Accepted for Volunteer Emergency Service (WAVES) officers, and 92 WAVES enlisted personnel (Monthly Station Report of On-Board Personnel, NAS Puunene, “Confidential,” 1 July 1945). Total aircraft on board numbered 271 (Monthly Station Report of On-Board Aircraft, “Confidential,” 1 June 1945). The total number of structures built numbered over 300 (Cotten 1945).

Immediately following the August 1945 surrender of Japan to the military forces of the United States, facilities essential to the operation of NAS Kahului began to be removed from Pu‘unēnē. The bowling alley, bakery, and other specialized structures at NAS Puunene were relocated to NAS Kahului, only to be partially or entirely destroyed by a series of tidal waves that struck NAS Kahului facilities 1 April 1946 (Priestman 1946).

During 1946, Mauians were allowed to rent residential structures in Housing Area “A”, the area closest to the *pūnāwai* (Reservoir 6) known as “Airport Village”. The cost was reportedly $36.00 per month (Cabos 2000). By 1947, the HC&S Company began to reclaim over 100 acres of former cane land for sugar cultivation in Parcels 2-B, 2-C, 2-F and Parcel 7 (Figure 13). During 1947, the use of the airstrip at Pu‘unēnē by civilians led some Mauians to believe that the site might be further expanded as a general aviation facility (Belknap 1947). But by the end of 1948, the site of the former NAS Kahului had been chosen to replace the Pu‘unēnē site for all future civilian flight operations (Yoklavich et al. 1997).

By quitclaim deed dated 31 December 1948, the lands of the former air base were transferred from the United States back to the Territory of Hawai‘i. In 1950, the Maui News reported that plans to allow for subsistence farming and the raising of pigs on five to ten-acre plots on former NAS Puunene lands were proceeding (Maui News, 8-23-50 1:1) (Figure 14).

The remaining base facilities, most of which were wooden structures, had, by that time, been abandoned or demolished. In May 1951, the operations of Hawaiian Airlines and Trans-Pacific Airlines (later Aloha Airlines) were moved to the new civilian airport at Kahului, which utilized the runways of the former NAS Kahului. Thereafter, the airfield at Pu‘unēnē was placed on “caretaker status”, and sugar cultivation reclaimed much of the land area formerly dedicated to the aerodrome (Figure 15).

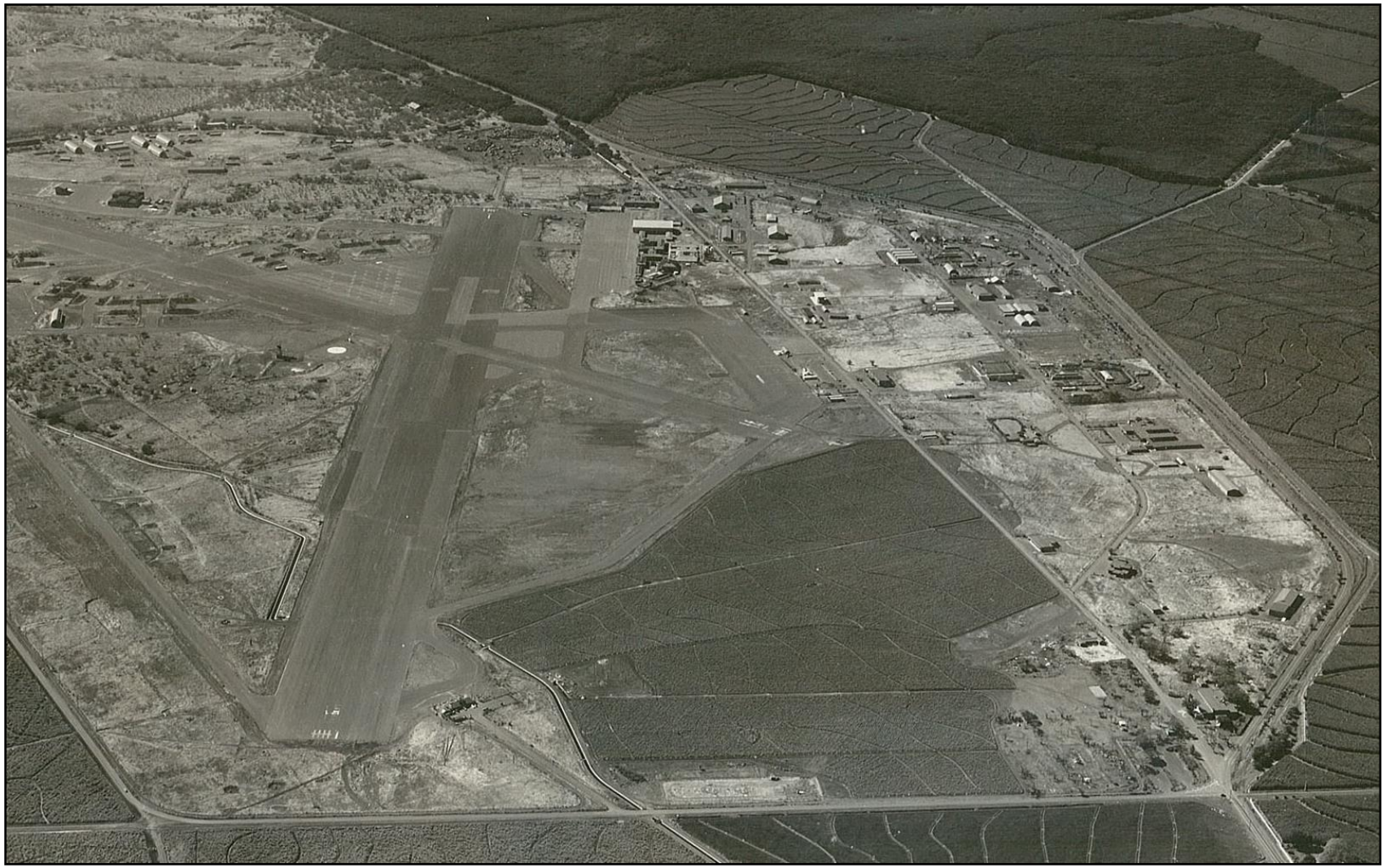


Figure 13. Aerial photo of NAS Puunene showing a return of some land to sugarcane cultivation; photo dated Feb. 12, 1947, and back stamped “U.S. Army Air Forces Photo Lab” (Command 1947)

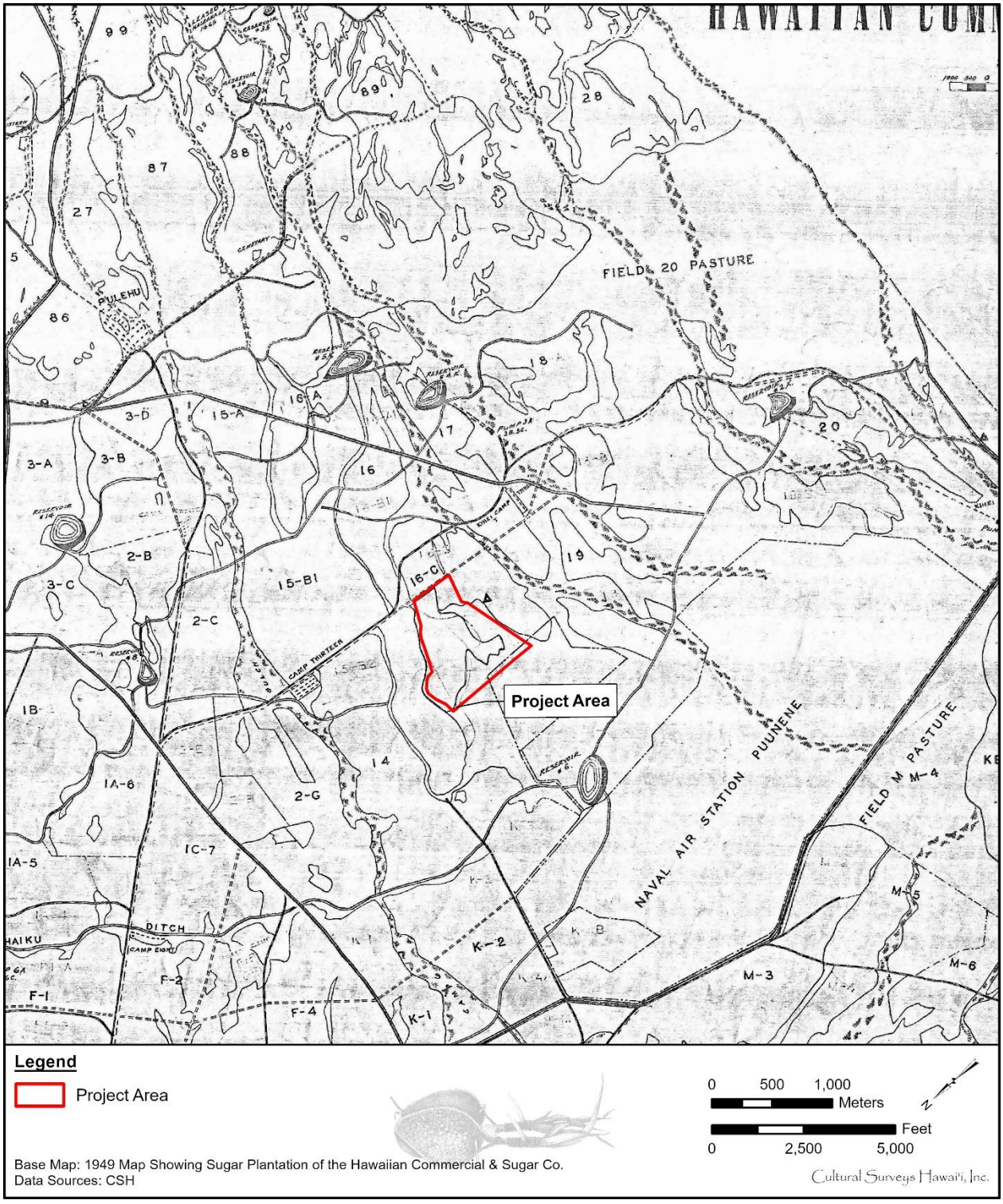


Figure 14. Portion of the Hawaiian Commercial & Sugar Co. (1949) sugar plantation map showing NAS Puunene located west of the current project area

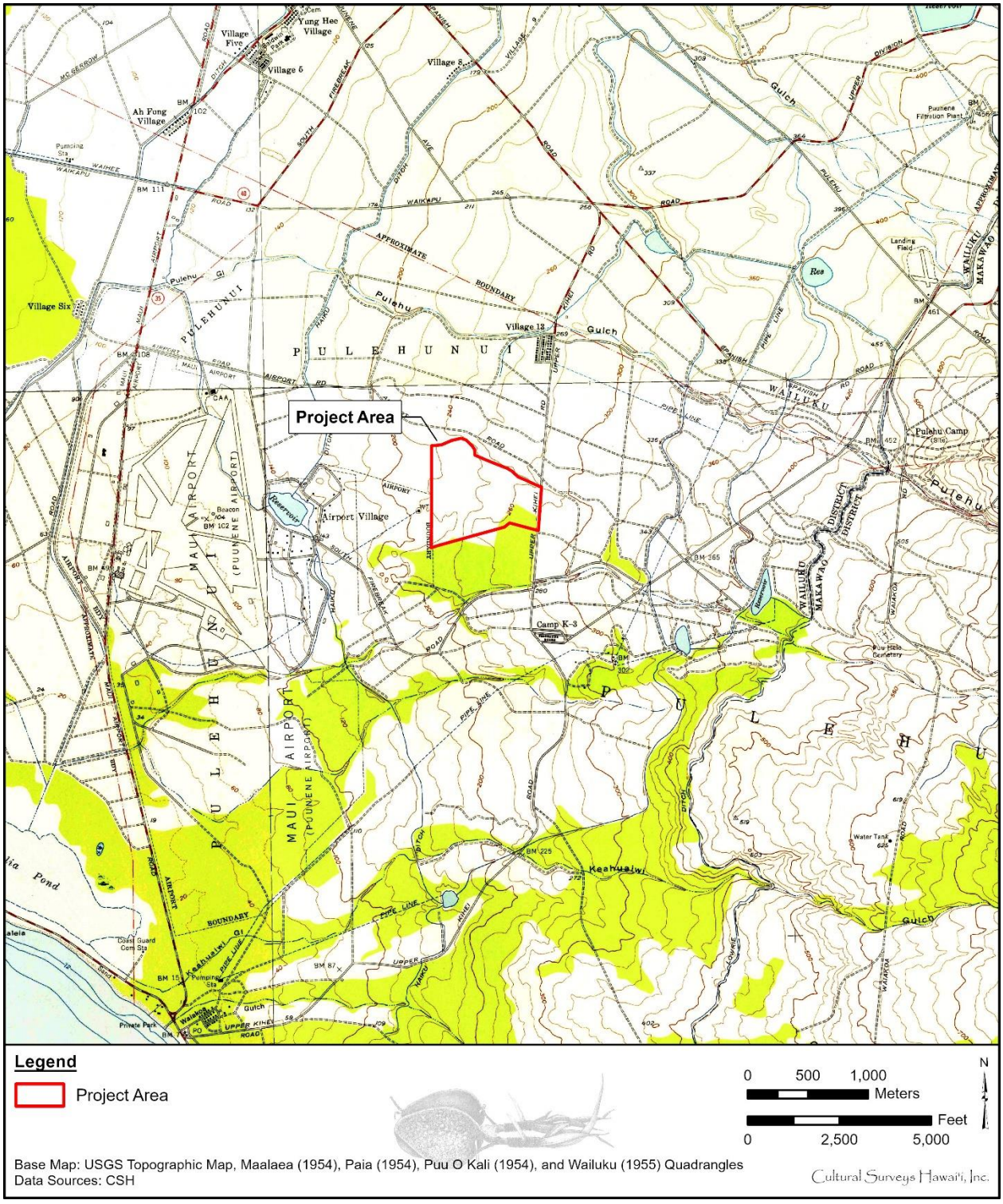


Figure 15. Portions of the 1954 Maalaea, 1954 Paia, 1954 Puu o Kali, and 1955 Wailuku USGS topographic quadrangles showing the project area east of the Maui Airport (former NAS Puunene) (U.S. Geological Survey 1954a, 1954b, 1954c, 1955)

3.1.6 Contemporary Land Use

Many changes occurred in Kīhei following the end of WWII in 1945. With the airfield abandoned, a *Maui News* article reported that Maui farmers had begun to raise alfalfa on some of the land at NAS Puunene (Young 1950). Shortly following statehood in 1959, the County of Maui established a network of Civil Defense fallout shelters across the county, as well as in the Pu‘unēnē airport area. Revetment and splinter shelters of the former air base were reorganized for civilian use and stocked with supplies of water, crackers and Geiger counters in the event of an atomic attack. In all, six separate shelters were established within the former boundaries of NAS Puunene with a combined capacity estimated to accommodate 1,213 people (Figure 16). Postwar aircraft enthusiasts used the abandoned Runways 1-19 and 14-32 for general aviation operations until the early 1960s when all general (civilian) flight operations were transferred to the Kahului Airport. A short portion of Runway 1-19 remained open to support the aerial chemical spraying operations of the HC&S Company. Sanctioned drag races began in 1963, when the Valley Isle Timing Association was organized to regulate drag racing on Runway 14-32, at the former airfield. The Hawai‘i Army National Guard developed a 30-acre parcel of property within the former air base for use as an armory, which included facilities for helicopter and military vehicle maintenance (Helber et al. 1995).

By the mid-1970s, sugar cultivation operations had demolished all but one of the main runways and had retaken most of the land area (over 1,400 acres) previously given up for the original pre-war Maui Airport. A 1976 aerial image depicts the expanse of sugarcane growth within and surrounding the vicinity of the project area (Figure 17). Since the 1970s, these fields within the project area were further expanded into offshoot portions of Kolaloa Gulch. Minimal development occurred in the vicinity of the project area (Figure 18). The project area continued to be used for commercial sugarcane growth until the closing of HC&S production in 2016.

The Hawaiian Cement Puunene Quarry started in the late-1970s with 28 acres. The quarry expanded in 1980 to 194 acres. The primary resource of the quarry is basalt that is crushed and used for road base course, concrete and pavement aggregate, railroad ballast, and many other purposes (Yanik 2018).

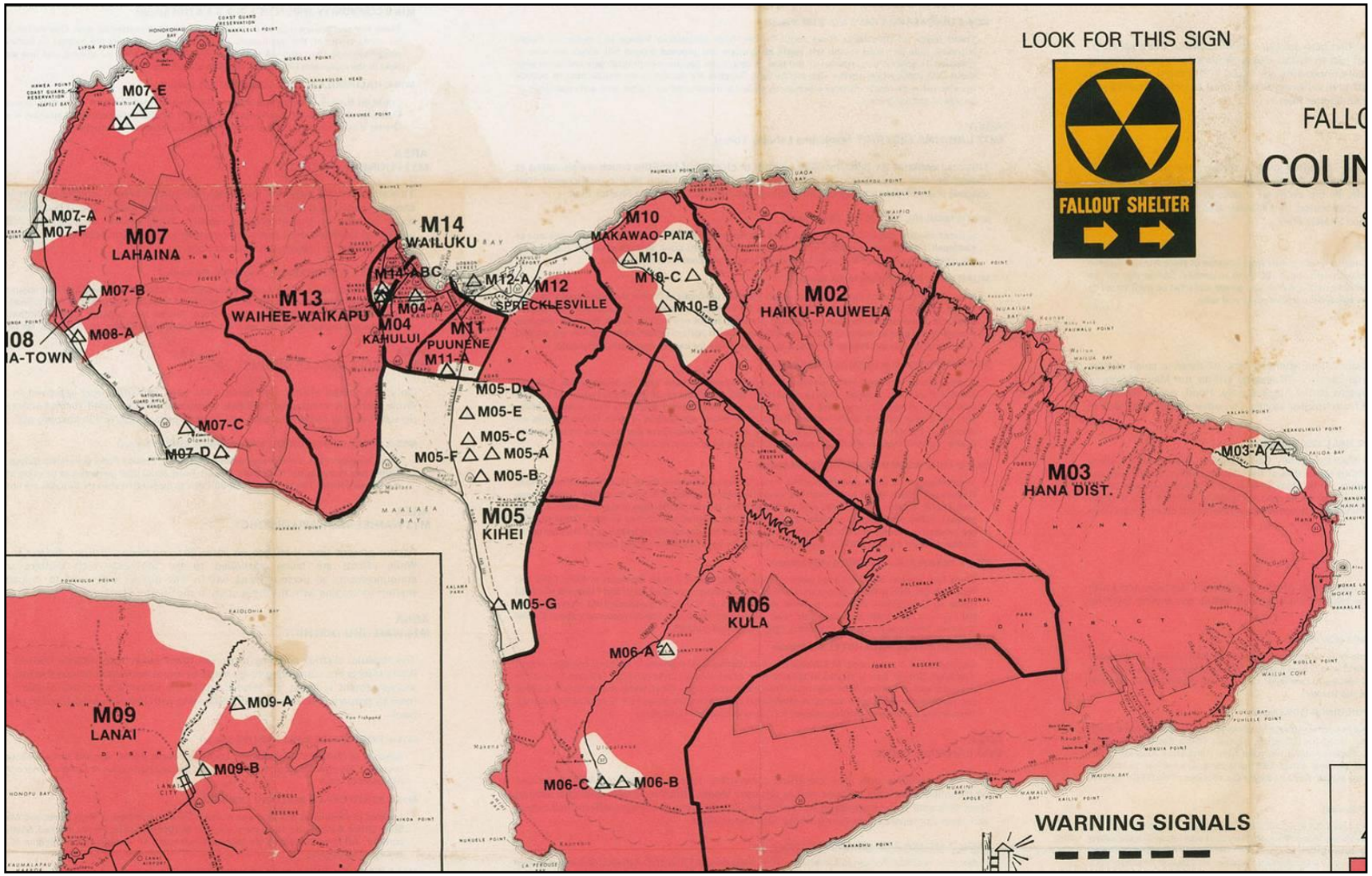


Figure 16. Maui Island map showing MO5 A through F, splinter shelters of the former NAS Puunene that were outfitted as fallout shelters in the 1960s (County of Maui n.d.)

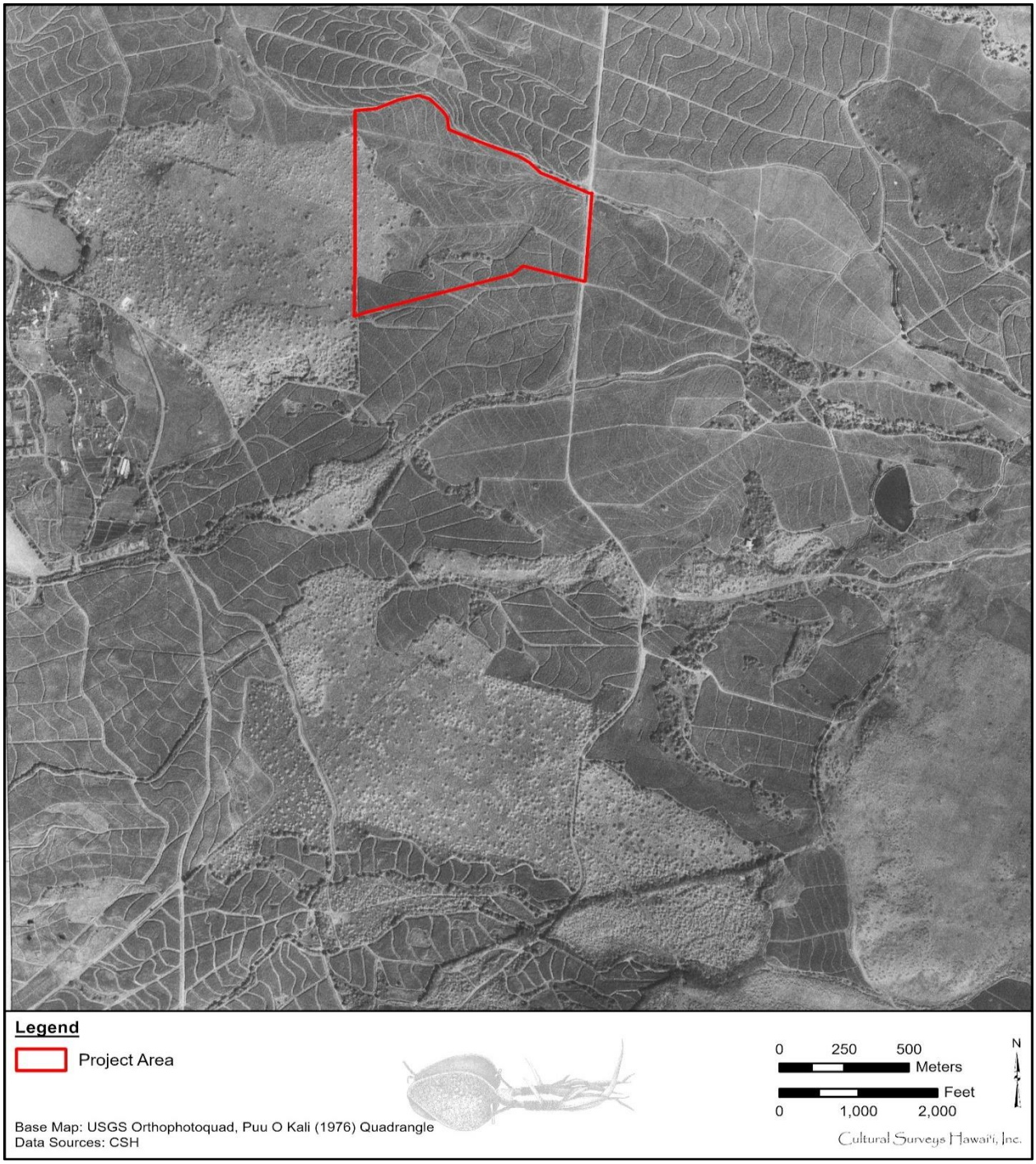


Figure 17. Portion of the 1976 Puu o Kali USGS orthophotoquad showing the expanse of commercial sugarcane fields within and surrounding the current project area (U.S. Geological Survey 1976)

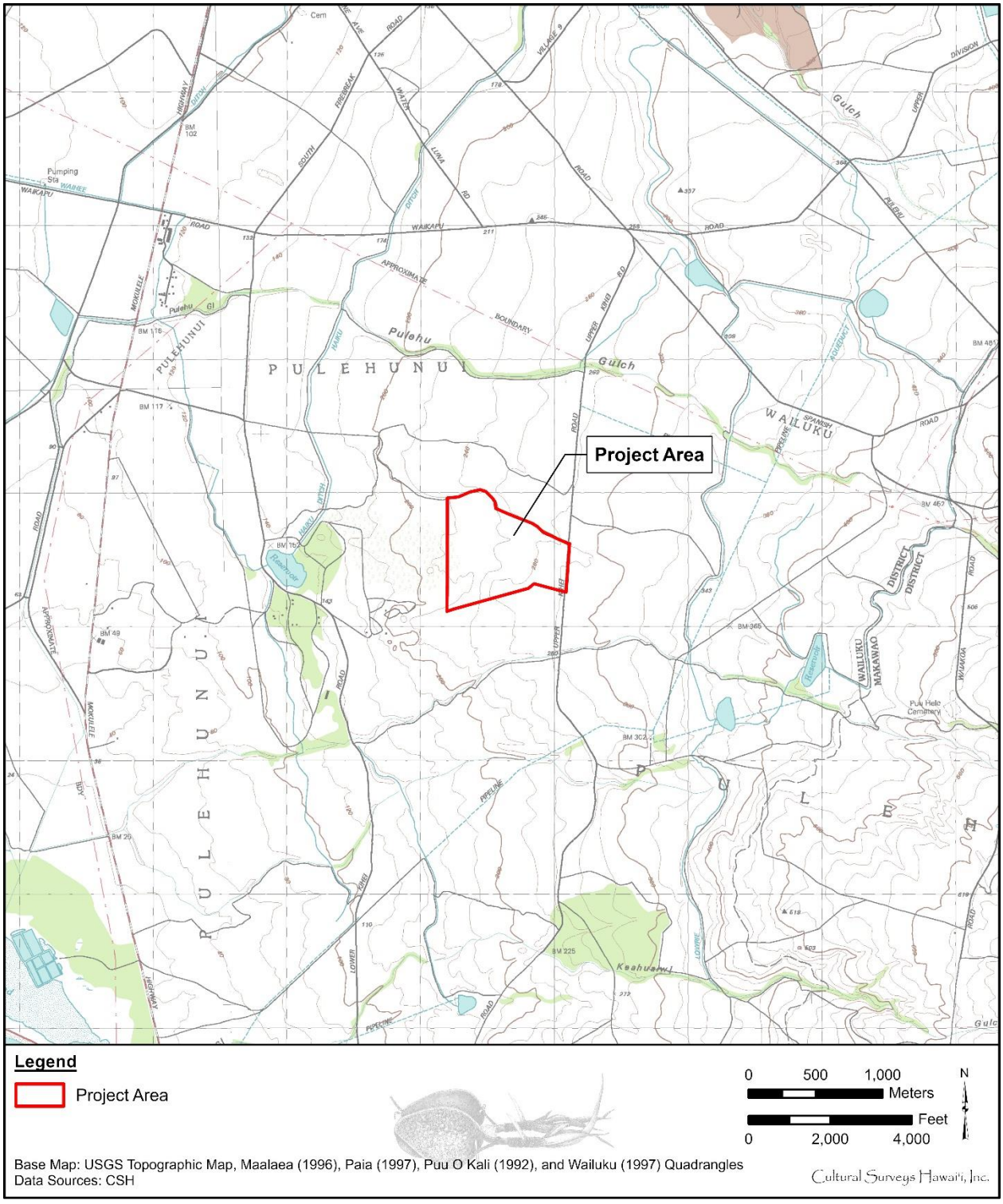


Figure 18. Portions of the 1992 Puu o Kali, 1996 Maalaea, 1997 Paia, and 1997 Wailuku USGS 7.5-minute topographic quadrangles showing the location of the project area (U.S. Geological Survey 1992, 1996, 1997a, 1997b)

3.2 Previous Archaeological Research

The earliest archaeological studies on the island of Maui were island-wide surveys conducted in the early 1900s (Stokes 1917; Walker 1931). These studies tended to focus on the generation of descriptive lists of large-scale architecture or traditional ceremonial *heiau* sites. No *heiau* or other archaeological sites were documented in the immediate vicinity of the current project area. Between 1931 and 1976, only sporadic archaeological studies were undertaken in the region and none in the vicinity of the project area. Following the passage of the National Historic Preservation Act in 1966 and HRS Chapter 6E, which established the Historic Preservation Program in 1976, archaeological studies occurred as a condition of development on a more frequent basis.

There have been six archaeological studies conducted in the vicinity of the current project, which include an archaeological reconnaissance survey and AIS investigations (Figure 19 and Table 2). These studies have identified NAS Puunene, consisting of 59 standing structures and 165 total features (SIHP # 50-50-09-04164), post-war ranching features (SIHP # 50-50-09-04801), the Kīhei Railroad bed (SIHP # 50-50-09-04802), the Haiku Ditch and reservoir (SIHP # 50-50-09-04803), and 90 other historic properties (SIHP #s 50-50-10-06693 through 10-06774) consisting of features associated with the sugar plantation, ranching, and/or WWII period (Figure 20). Note, the SIHP designations refer to the state of Hawai‘i (50), the island code for Maui (50), the USGS topographic quadrangle for either Maalaea (09) or Puu o Kali (10), and a unique five-digit number.

3.2.1 Kennedy (1990)

In 1990, Archaeological Consultants of Hawaii, Inc. (ACH) completed an archaeological walk-through reconnaissance survey of the proposed Hawaiian Cement Puunene Quarry site, TMKs: [2] 3-8-004:001 and 002 pors. (Kennedy 1990). The survey included an inspection of Kolaloa Gulch and the surrounding agricultural fields. The study documented that the entire property was covered in sugarcane with the exception of Kolaloa Gulch. No historic properties were identified, and no further work was recommended.

3.2.2 Tomonari-Tuggle et al. (2001)

From 8 October to 4 November 1999, International Archaeological Research Institute, Inc. (IARII) conducted an intensive AIS of approximately 1,875 acres of the former NAS Puunene, TMK: [2] 2-3-008:008 (Tomonari-Tuggle et al. 2001). The study area is directly west of the current project area and was used primarily for sugarcane cultivation following the closure of NAS Puunene in 1946. The identified historic properties were categorized into five functions and summarized as follows:

> Sites and features recorded include [1] all of the existing features of NAS Puunene; [2] remains of a cattle ranch dating from the late 1940s to the 1950s; [3] the area of pre-war plantation Camp Six with surface artifacts but no surviving features; [4] abandoned features of the HC&S sugar operations such as a 1930s cane road and irrigation canals of various periods, including a possible pre-1914 section of the Haiku Ditch, and [5] remains of the Puunene Mill to Kīhei railroad line. Evidence for early 1960s Civil Defense activity and late 1980s timber processing was also identified. No pre-contact or early post-contact Hawaiian sites were identified.

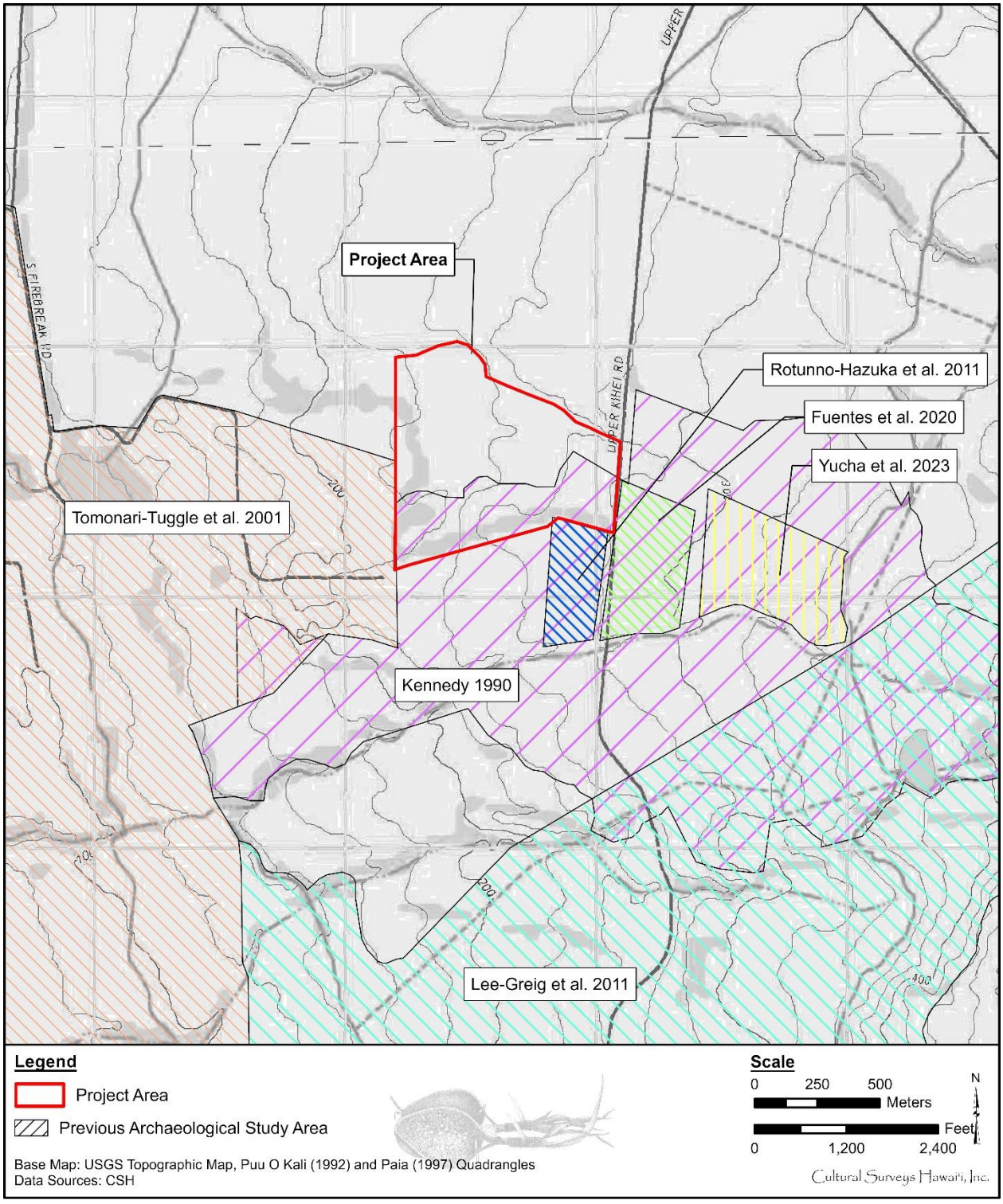


Figure 19. Portions of the 1992 Puu o Kali and 1997 Paia USGS topographic quadrangles depicting previous archaeological studies in the vicinity of the current project area (U.S. Geological Survey 1992, 1997a)

Table 2. Previous archaeological studies in the vicinity of the project area

Reference	Type of Study	Location	Results (SIHP # 50-50-)
Kennedy (1990)	Archaeological reconnaissance survey	Hawaiian Cement Puunene Quarry; TMKs: [2] 3-8-004:001 and 002 pors.	No historic properties identified
Tomonari-Tuggle et al. (2001)	AIS	Former NAS Puunene; TMK: [2] 2-3-008:008	Identified 165 individual features of NAS Puunene (SIHP # 09-04164), 7 plantation features (SIHP # 09-04800), 2 postwar ranching features (SIHP # 09-04801), a railroad feature (SIHP # 09-04802) and 5 plantation irrigation features (SIHP # 09-04803)
Lee-Greig et al. (2011)	AIS	Approximately 3165 acres located northeast and extending *mauka* from the present project area	Identified 90 historic properties, SIHP #s 10-06684 through 10-06774, consisting of features associated with the sugar plantation, ranching and/or WWII period
Rotunno-Hazuka et al. (2011)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 1; TMK: [2] 3-8-001 por.	No historic properties identified
Fuentes et al. (2020)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 3; TMK: [2] 3-8-001 por.	No historic properties identified
Yucha et al. (2023)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 4; TMK: [2] 3-8-004:001 por.	No historic properties identified

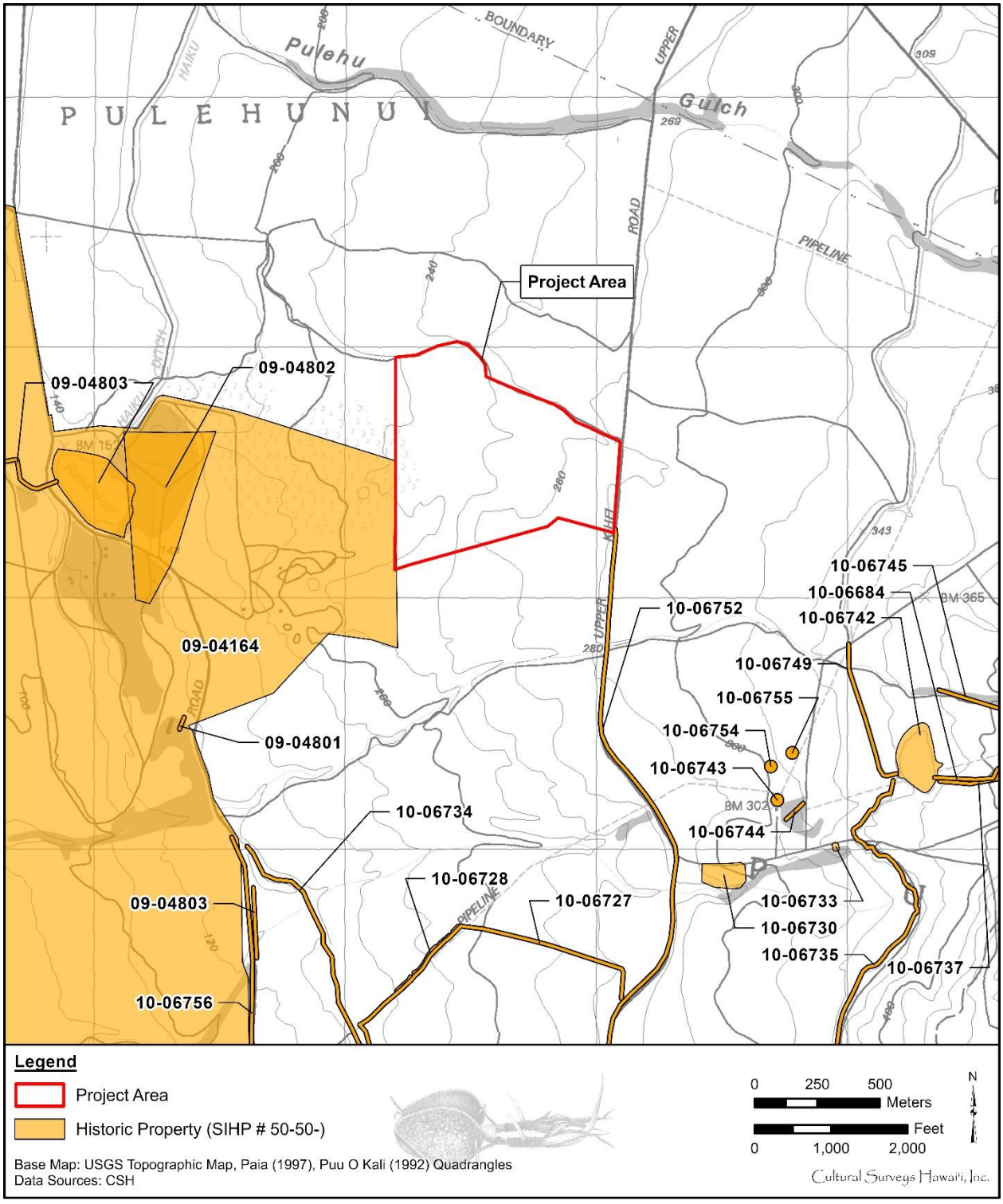


Figure 20. Portions of the 1992 Puu o Kali and 1997 Paia USGS topographic quadrangles depicting historic properties in the vicinity of the current project area (U.S. Geological Survey 1992, 1997a)

> No human remains were found, nor were any sites or locations identified that have the potential for containing human remains. (Tomonari-Tuggle et al. 2001:iii)

The NAS Puunene was previously identified as SIHP # 50-50-09-04164. The study documented 165 features associated with SIHP # 09-04164. Four historic properties were newly identified, SIHP #s 50-50-09-04800 through 09-04803. SIHP # 09-04800 is a complex of seven sugar plantation features. SIHP # 09-04801 is a complex of ranching features (fences, corrals, watering troughs) from post-WWII. SIHP # 09-04802 is the Kīhei railroad, and SIHP # 09-04803 consists of five features relating to the Haiku ditch and reservoir.

SIHP # 09-04164, was assessed as eligible to the National and State Registers of Historic Places and significant under Criteria A (be associated with events that have made an important contribution to the broad patterns of our history), C (embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value), and D (have yielded, or is likely to yield, information important for research on prehistory or history). SIHP #s 09-04800, 09-04802, and 09-04803 were assessed as eligible to the National Register of Historic Places (NRHP) under Criteria A and D. SIHP # 09-04801 was assessed as not eligible to the NRHP as it likely dated to the early 1950s and not yet over 50 years old.

3.2.3 Lee-Greig et al. (2011)

From October through December 2009 and in February 2010, CSH conducted an AIS of approximately 3,165 acres in Pūlehunui for a proposed agricultural subdivision (Lee-Greig et al. 2011). Ninety historic properties (SIHP #s 50-50-10-06684 through 10-06774) were documented, consisting of features associated with the sugar plantation, ranching and/or WWII period (Table 3).

3.2.4 Rotunno-Hazuka et al. (2011)

In 2010, Archaeological Services Hawai‘i (ASH) conducted an AIS for the 24.476 acres for expansion within Increment 1 of the Hawaiian Cement Quarry, TMK: [2] 3-8-001 por. (Rotunno-Hazuka et al. 2011). The study included the excavation of 20 backhoe-assisted test excavations that documented the agricultural plow zone developed over eroding and solid basalt bedrock. No historic properties were identified, and the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A). No further work was recommended.

3.2.5 Fuentes et al. (2020)

In 2014, ASH conducted an AIS of Increment 3 of the Hawaiian Cement Quarry, TMK: [2] 3-8-001 por. (Fuentes et al. 2020). The study included the excavation of 17 backhoe-assisted test excavations with no historic properties identified. Due to negative findings, the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A).

Table 3. Historic properties documented by Lee-Greig et al. (2011:64-68)

SIHP # 50-50-10-	Feature	Feature Type	Function	Probable Age	Condition
06684	None	Irrigation Pipe	Water Control	Historic Plantation	Fair to Poor
06689	None	Fence Line	Animal Husbandry	Historic Ranch	Good
06704	None	Fence Line	Animal Husbandry	Historic Ranch	Fair
06727	None	Fence Line	Indeterminate	Historic Ranch	Poor
06728	None	Irrigation Ditch	Water Control	Historic Plantation	Remnant
06729	None	C-Shape	Indeterminate	Possible Historic	Good
06730	Overall	Plantation Camp 3	Habitation	Historic Plantation	Good to Remnant
	A	Platform	Habitation	Historic Plantation	Good to Fair
	B	Wall	Indeterminate	Historic Plantation	Fair
	C	Wall	Indeterminate	Historic Plantation	Fair
	D	Depression	Indeterminate	Historic Plantation	Fair to Poor
	E	Mound	Indeterminate	Historic Plantation	Good
	F	Wall/ Depression	Indeterminate	Historic Plantation	Poor
	G	U-Shape	Indeterminate	Historic Plantation	Poor
	H	Depression/Hole	Habitation	Historic Plantation	Poor
	I	Terrace	Habitation	Historic Plantation	Remnant
06733	None	Reservoir	Agriculture	Historic Plantation	Good
06734	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06735	Overall	Irrigation Ditch and Component Gates	Water Control	Historic Plantation	Good to Fair
	A	Irrigation Ditch	Water Control	Historic Plantation	Good
	B	Irrigation Gates	Water Control	Historic Plantation	Fair
06737	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06742	None	Reservoir	Agriculture	Historic Plantation	Good
06743	None	Pump House	Agriculture	Historic Plantation	Remnant
06744	None	Fence Line	Animal Husbandry	Historic Ranch	Remnant

SIHP # 50-50-10-	Feature	Feature Type	Function	Probable Age	Condition
06745	None	Fence Line	Possible Boundary Marker	Historic Plantation	Poor
06748	None	Reservoir	Agriculture	Historic Plantation	Good
06749	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06752	None	Historic Road	Transportation	Historic Plantation	Good to Poor
06754	None	WWII-Era Bomb Shelter	WWII Military	WWII Military	Excellent
06755	None	Concrete Cistern	Water Control	Historic Plantation	Good
06756	None	Historic Road	Transportation	Historic Plantation	Good to Poor
06757	None	Historic Road	Transportation	Historic	Poor
06758	None	Irrigation Pipeline	Agriculture	Historic Plantation	Good to Fair
06759	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06760	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06761	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06762	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06763	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06764	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06765	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06766	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06767	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06768	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06769	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06770	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06771	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06773	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06774	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair

3.2.6 Yucha et al. (2023)

In December 2022, CSH conducted an AIS for the Hawaiian Cement Quarry Mining Site Increment 4 Expansion Project, TMK: [2] 3-8-004:001 por. (Yucha et al. 2023). The investigation included a 100% pedestrian inspection and the excavation of 20 backhoe-assisted test excavations. No historic properties were identified, and the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A). Overall, the stratigraphy throughout the majority of the project area included a modern agricultural plow zone surface (Ap horizon) overlying natural alluvial soil and chemically eroded bedrock.

Section 4 Results of Fieldwork

The pedestrian survey was accomplished from 22 to 24 January 2025, and subsurface testing was conducted between 15 and 30 April 2025. Fieldwork was conducted by CSH archaeologists Elwyn Leibold, B.A., Jonas Madeus, B.A., Allyson Ueki, M.A., Josephine Yucha, M.S., and Trevor Yucha, B.S., under the general supervision of project manager Trevor Yucha, B.S., and principal investigators Josephine Yucha, M.S., and Hallett H. Hammatt, Ph.D. This work required approximately 43.25 person-days to complete. The AIS investigation was supported by archaeologists from Atlas Archaeology, LLC: M. Cody Sheets, B.A., operated the backhoe, and Blair M. Lopes assisted with backfilling.

4.1 Pedestrian Inspection Results

A 100% coverage pedestrian survey of the project area was completed by three CSH archaeologists utilizing systematic sweeps spaced approximately 5.0 m apart. Ground visibility was generally fair to good due to the presence of Mahi Pono active farming covering most of the surface of the project area. No surface historic properties were encountered within the project area.

4.2 Subsurface Testing Results

The AIS consisted of 40 test excavations, designated TE-1 through TE-40, that were each approximately 5.0 m long and 1.0 m wide and arranged in a systematic gridded pattern distributed throughout the project area (Figure 21 through Figure 23). Overall, the testing coverage was consistent with the project's AIS fieldwork strategy (see Appendix A). However, during the AIS fieldwork, the locations and/or orientations of several trenches had to be shifted from the proposed locations to avoid the lemon trees, which were not present at the time of the AIS fieldwork strategy. Note that the orchard within the project area includes a field access road along the perimeter and two east-west access roads crossing the northern and southern halves of the fields. As shown in Figure 23, the roads have divided the project area into northern, central, and southern orchards, and these sections have been used to describe the test excavation locations.

In general, the stratigraphy observed throughout the project area included a modern agricultural plow zone surface (Ap horizon) overlying natural alluvial soil and the bedrock shelf (R horizon). Bedrock was encountered within most of the excavations along the eastern, southern, and western edges. Notably, bedrock was not reached within the central portion or most of the northern portion of the project area. The excavations that did not reach bedrock were between 0.97 and 1.80 mbs (3.1 and 5.9 ft below surface). TE-11, TE-14, TE-19, and TE-26 contained pockets of naturally deposited volcanic cinder mottled within the natural alluvial soil, while TE-15 contained a stratum of volcanic cinder. These excavations were near the northeastern boundary and in the western portion of the project area. The assessment of the Ap horizon is commonly supported by the presence of black plastic irrigation drip-tape and pieces of plastic from utility lines, therefore these items were not considered as "cultural material" and not further noted. The Ap horizon appeared to be truncated in areas, likely due to the change in cultivation.

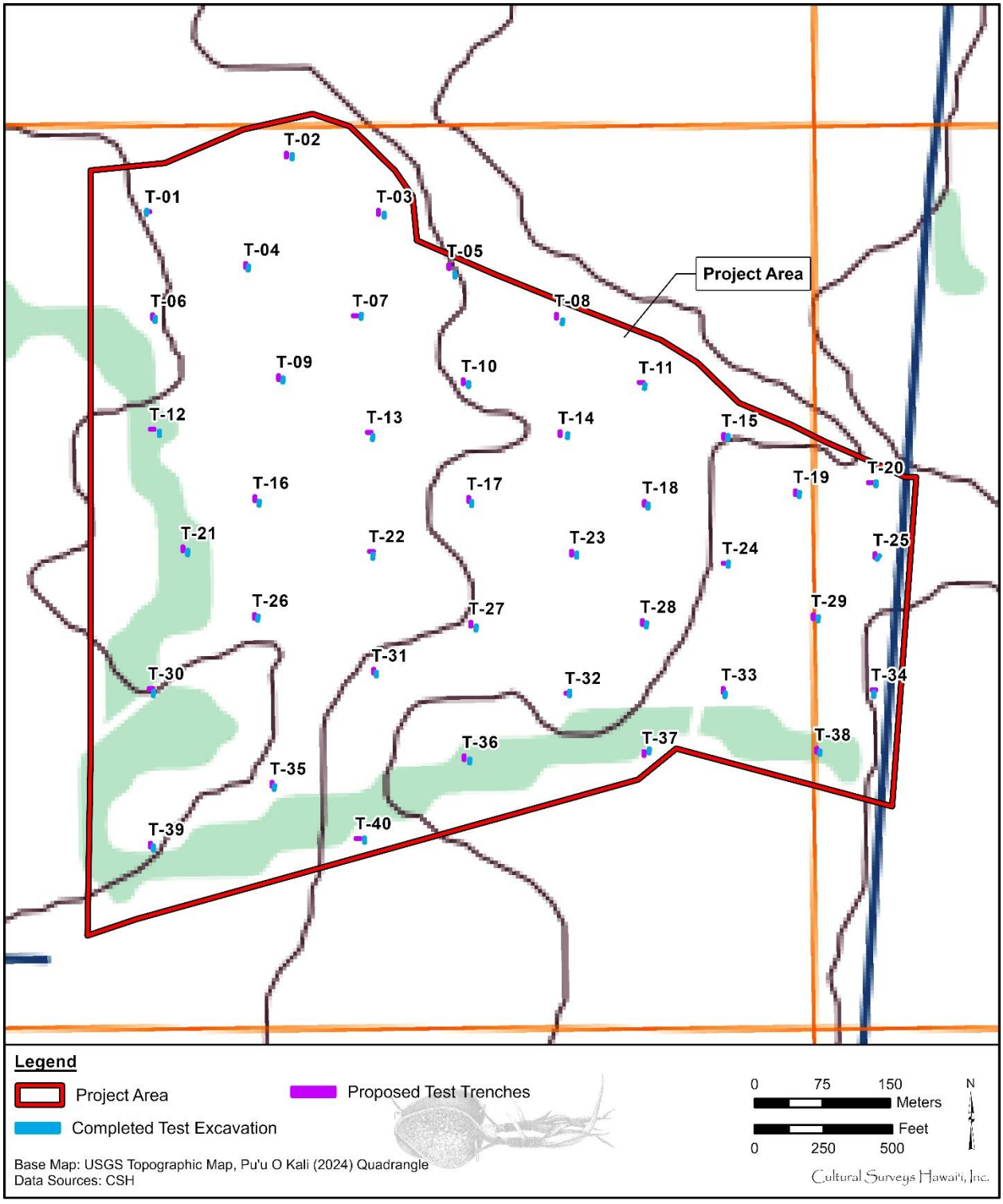


Figure 21. Portion of the 2024 Puu o Kali USGS 7.5-minute topographic quadrangle showing the proposed versus actual locations of the 40 test excavations (TE-1 through TE-40) (U.S. Geological Survey 2024)

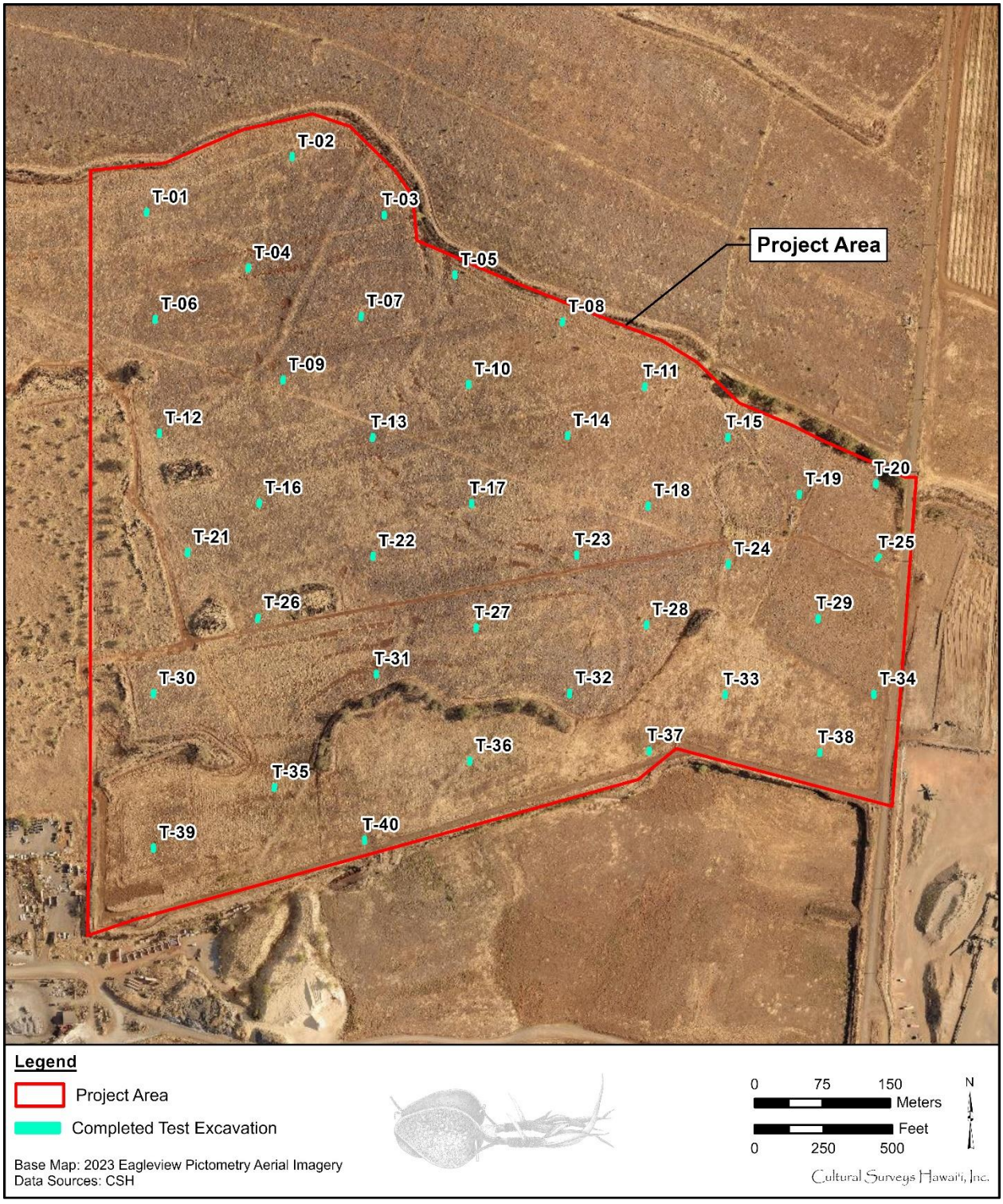


Figure 22. EagleView Technologies Inc. (2023) aerial image showing the locations of the 40 test excavations (TE-1 through TE-40)

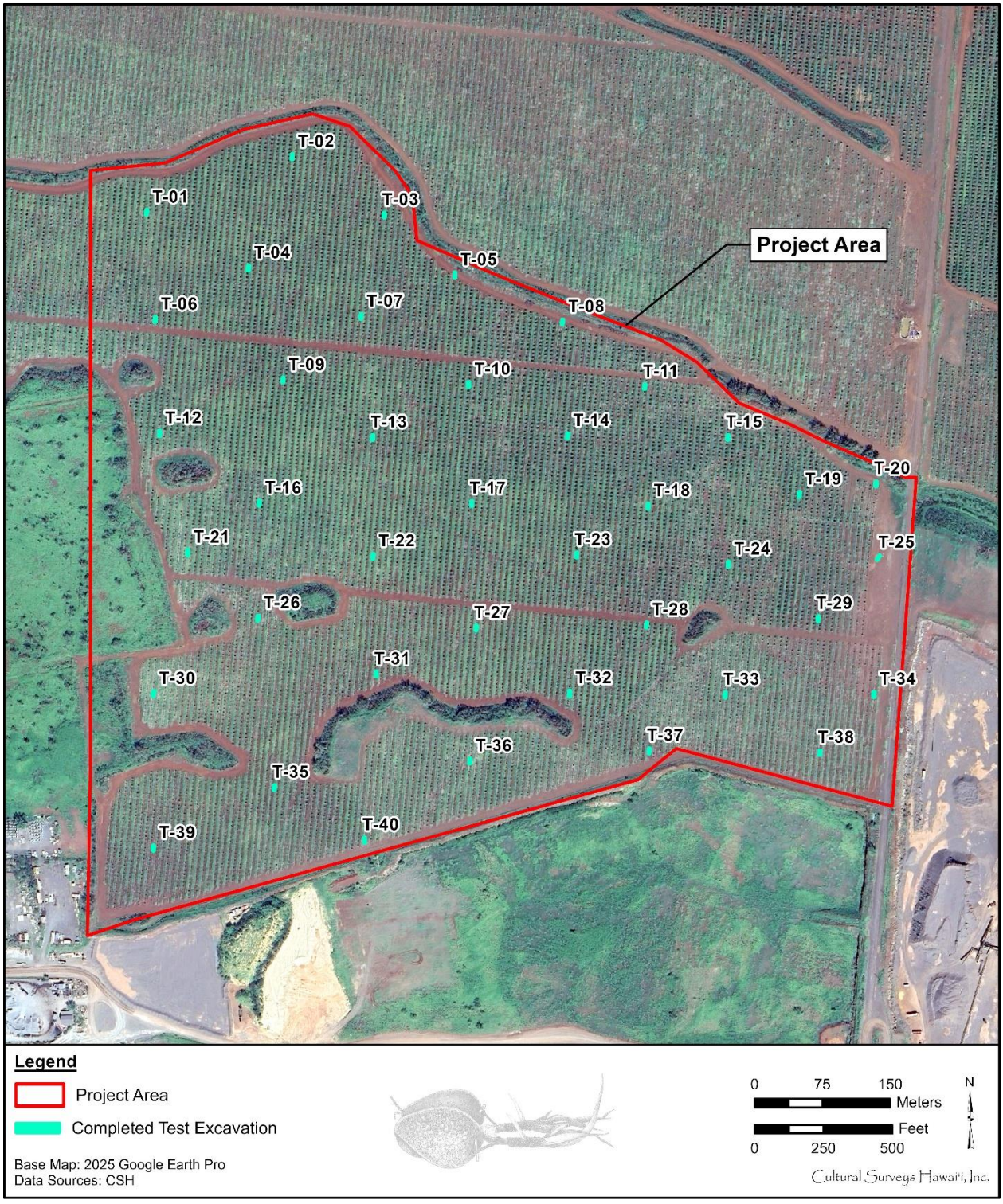


Figure 23. Google Earth Pro (2025) aerial image showing the locations of the 40 test excavations (TE-1 through TE-40) distributed within the northern, central, and southern sections of the lemon orchard

Archaeological subsurface testing has confirmed that there are no historic properties within the project area. In addition, no significant cultural materials were encountered. Charcoal flecking was observed in several locations (TE-3 and TE-4 in the northwest and TE-28 in the southeast) and attributed to decades of sugarcane burn events and subsequent plowing prior to the lemon orchard.

4.2.1 Test Excavation 1 (TE-1)

TE-1 was placed along a row of lemon trees near the northwestern corner of the project area (Figure 24). TE-1 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.26 mbs at the bedrock shelf. The stratigraphy of TE-1 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying red, natural stony silty clay mottled with very dark brown clay loam (Stratum II) overlying bedrock (Figure 25 through Figure 27 and Table 4). No cultural materials were observed.



Figure 24. TE-1, overview of the general location, view to south



Figure 25. TE-1, close-up of the east wall, view to east



Figure 26. TE-1, oblique view of the east wall, view to northeast

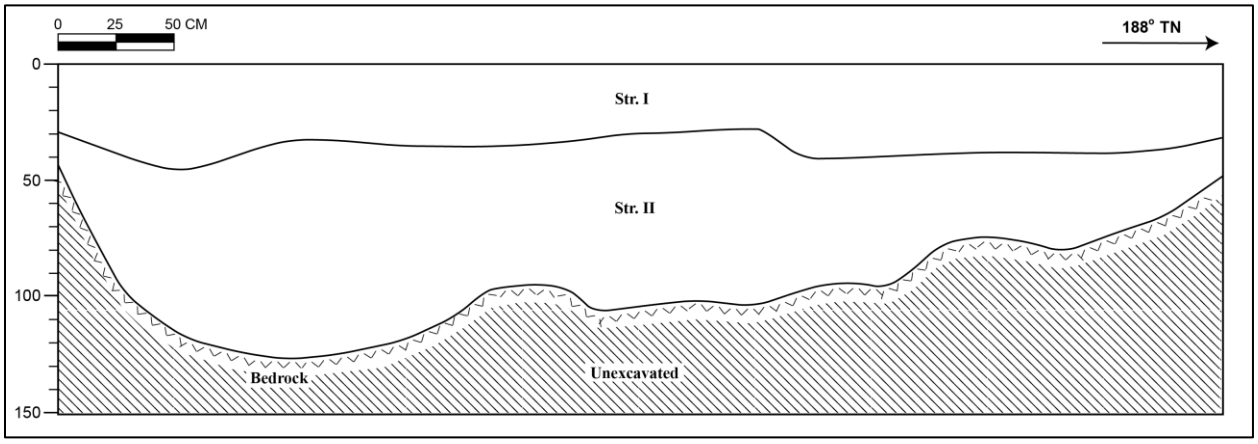


Figure 27. TE-1, stratigraphy of the east wall

Table 4. Strata observed at TE-1

Stratum	Depth (cmbs)	Description
I	0–45	Ap horizon; 2.5YR 2.5/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; clear, smooth lower boundary
II	26–126	Natural; 2.5YR 4/6, red; stony silty clay; moderate, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of 7.5YR 2.5/3, very dark brown, clay loam

4.2.2 Test Excavation 2 (TE-2)

TE-2 was placed along a row of lemon trees, near the access road along the northern edge of the field, in the northwestern portion of the project area (Figure 28). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.50 mbs within natural sterile sediment. The stratigraphy of TE-2 consisted of dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay (Stratum II) and dark reddish brown, natural silty clay (Figure 29 through Figure 31 and Table 5). No cultural materials were observed.



Figure 28. TE-2, overview of the general location, view to south



Figure 29. TE-2, close-up of the west wall, view to west



Figure 30. TE-2, oblique view of the west wall, view to northwest

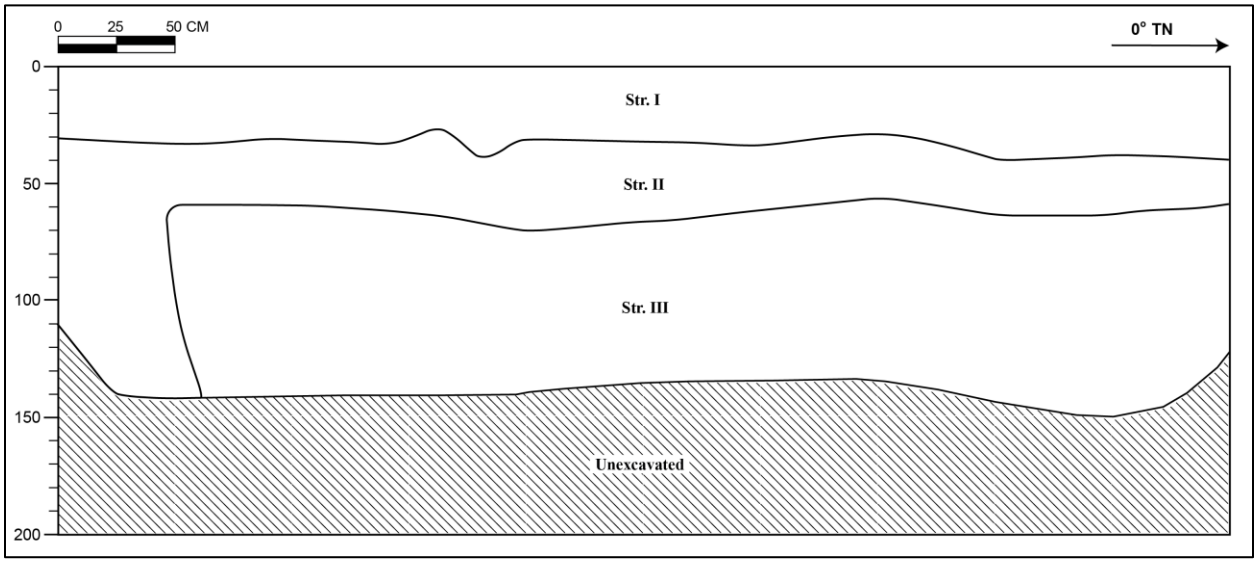


Figure 31. TE-2, stratigraphy of the west wall

Table 5. Strata observed at TE-2

Stratum	Depth (cmbs)	Description
I	0–40	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; clear, smooth lower boundary
II	28–143	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; clear, irregular lower boundary
III	58–150	Natural; 2.5YR 2.5/3, dark reddish brown; silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; very plastic; terrigenous origin; no roots; lower boundary not observed

4.2.3 Test Excavation 3 (TE-3)

TE-3 was placed along a row of lemon trees, near the access road along the northern edge of the field, in the northwestern portion of the project area (Figure 32). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.61 mbs. The stratigraphy of TE-3 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, clay loam fill (Stratum II) in the southern end of the trench and dark reddish brown, natural silty clay loam mottled with dark red silty clay (Stratum III) in the rest of the trench (Figure 33 through Figure 35 and Table 6). Sparse charcoal was observed in Stratum II. No cultural materials were observed.



Figure 32. TE-3, overview of the general location, view to north

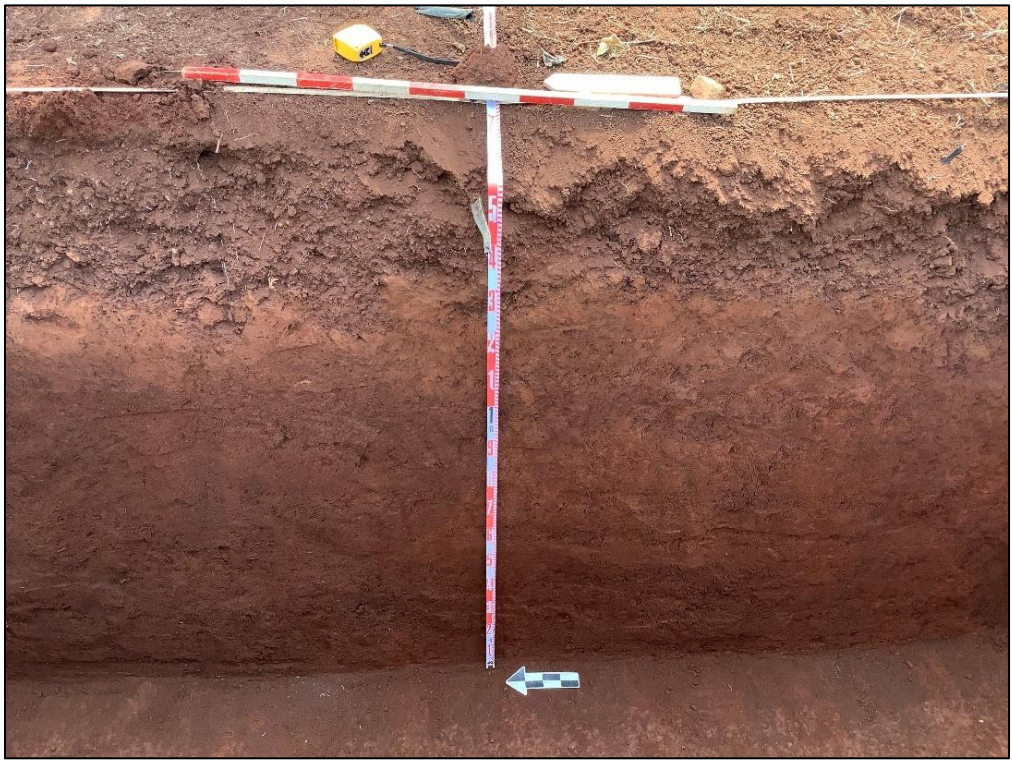


Figure 33. TE-3, close-up of the east wall, view to east



Figure 34. TE-3, overview of the east wall, view to southeast

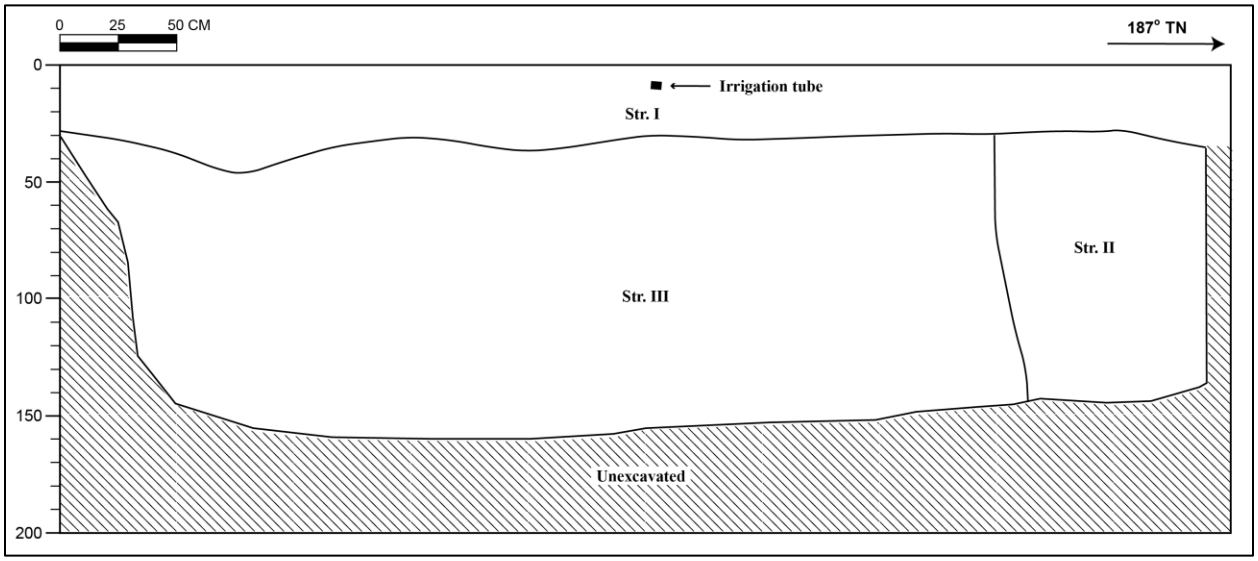


Figure 35. TE-3, stratigraphy of the east wall

Table 6. Strata observed at TE-3

Stratum	Depth (cmbs)	Description
I	0–47	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; weak, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; clear, wavy lower boundary; contained a very coarse mottling of 2.5YR 2.5/4, dark reddish brown silty clay
II	30–145	Fill; 5YR 3/4, dark reddish brown; clay loam; moderate, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained sparse charcoal
III	19–161	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained a very coarse mottling of 2.5YR 3/6, dark red silty clay

4.2.4 Test Excavation 4 (TE-4)

TE-4 was placed along a row of lemon trees, in the northern section of the orchard, in the northwestern portion of the project area (Figure 36). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.40 mbs within natural sterile sediment. The stratigraphy of TE-4 consisted of dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural clay loam (Stratum II) (Figure 37 through Figure 39 and Table 7). Concentrations of charcoal flecking were present within both strata, which is attributed to decades of sugarcane burn events and subsequent plowing prior to the lemon orchard.



Figure 36. TE-4, overview of the general location, view to north



Figure 37. TE-4, close-up of the west wall, view to west



Figure 38. TE-4, overview of the west wall, view to northeast

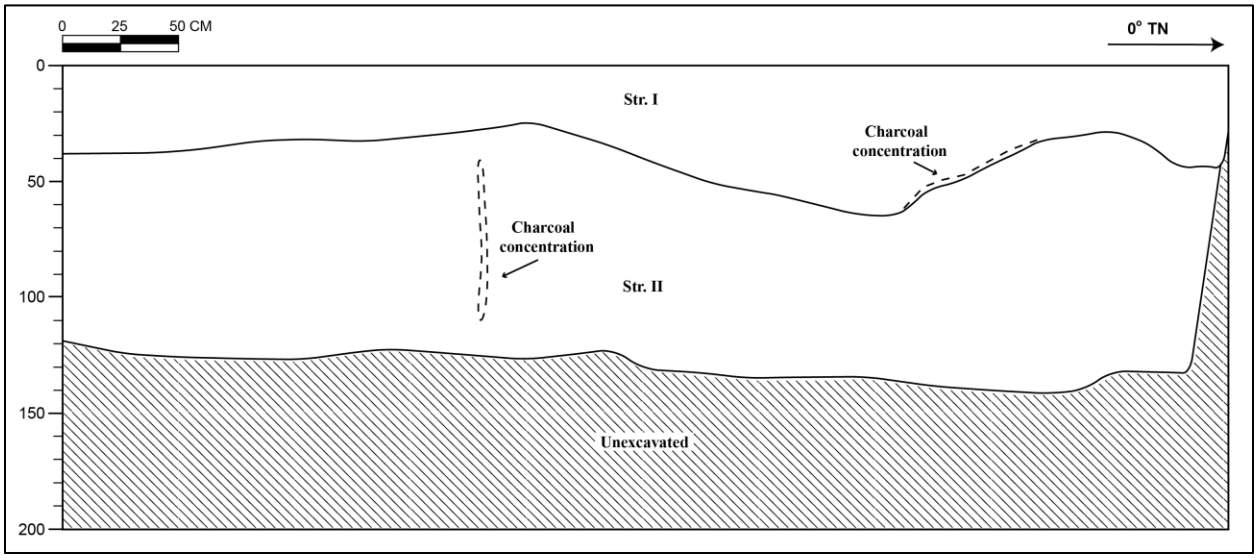


Figure 39. TE-4, stratigraphy of the west wall

Table 7. Strata observed at TE-4

Stratum	Depth (cmbs)	Description
I	0–65	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; gradual, wavy lower boundary; concentration of charcoal flecking observed near lower boundary
II	25–160	Natural; 2.5YR 2.5/4, dark reddish brown; clay loam; weak, fine granular structure; wet, sticky consistence; no cementation; very plastic; terrigenous origin; no roots; lower boundary not observed; linear vertical concentration of charcoal flecking observed

4.2.5 Test Excavation 5 (TE-5)

TE-5 was placed along a row of lemon trees, in the northern section of the orchard, and the northern portion of the project area (Figure 40). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.60 mbs. The stratigraphy of TE-5 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay mottled with very dark brown clay loam and dark brown gravelly sandy clay loam (Stratum II), and very dark brown, natural silty clay (Stratum III) (Figure 41 through Figure 43 and Table 8). No cultural materials were observed.



Figure 40. TE-5, overview of the general location, view to south



Figure 41. TE-5, close-up of the east wall, view to east



Figure 42. TE-5, oblique view of the east wall, view to northeast

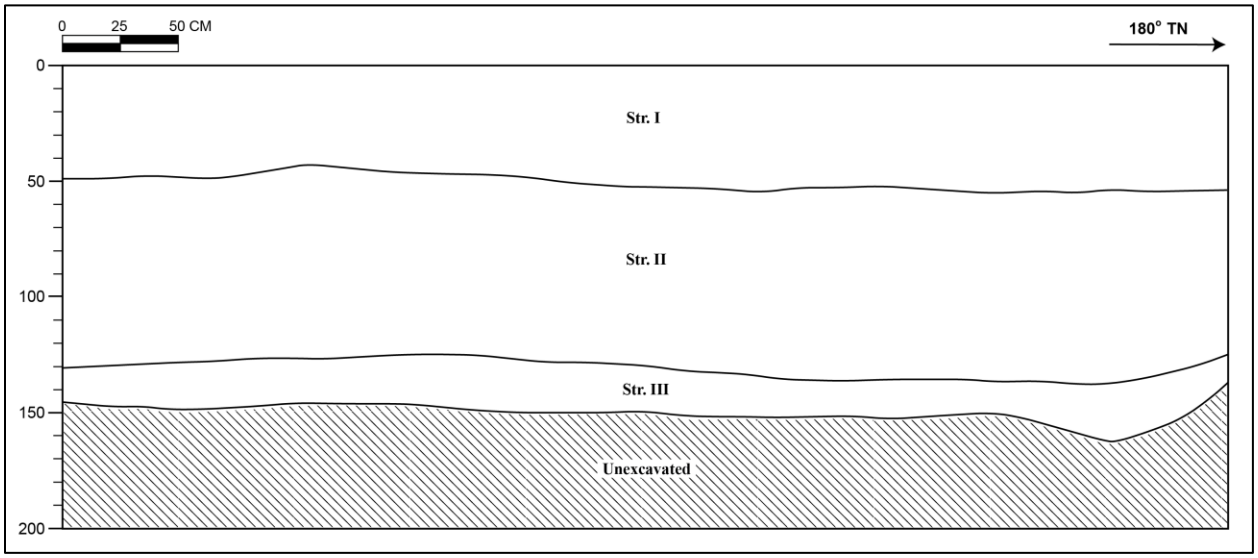


Figure 43. TE-5, stratigraphy of the east wall

Table 8. Strata observed at TE-5

Stratum	Depth (cmbs)	Description
I	0–53	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, wavy lower boundary; mottled with very coarse deposit of 2.5YR 2.5/3, dark reddish brown, silty clay loam
II	42–135	Natural; 5YR 3/4, dark reddish brown; silty clay; moderate, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; smooth, clear lower boundary; mottled with very coarse deposit of 7.5YR 3/3, dark brown, sandy clay loam and a very coarse deposit of 7.5YR 2.5/2, very dark brown, gravelly sandy clay loam
III	122–160	Natural; 7.5YR 2.5/3, very dark brown; silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.6 Test Excavation 6 (TE-6)

TE-6 was placed along a row of lemon trees, in the northern section of the orchard, and the northwestern portion of the project area (Figure 44). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.53 mbs. The stratigraphy of TE-6 consisted of a dark brown, loam Ap horizon (Stratum I) overlying dark red, natural stony silty clay mottled with dark yellowish brown silty clay loam (Stratum II), and dark reddish brown, natural stony sandy clay loam mottled with very dark brown sandy loam (Stratum III) (Figure 45 through Figure 47 and Table 9). No cultural materials were observed.



Figure 44. TE-6, overview of the general location, view to north



Figure 45. TE-6, close-up of the east wall, view to east



Figure 46. TE-6, oblique view of the east wall, view to southeast

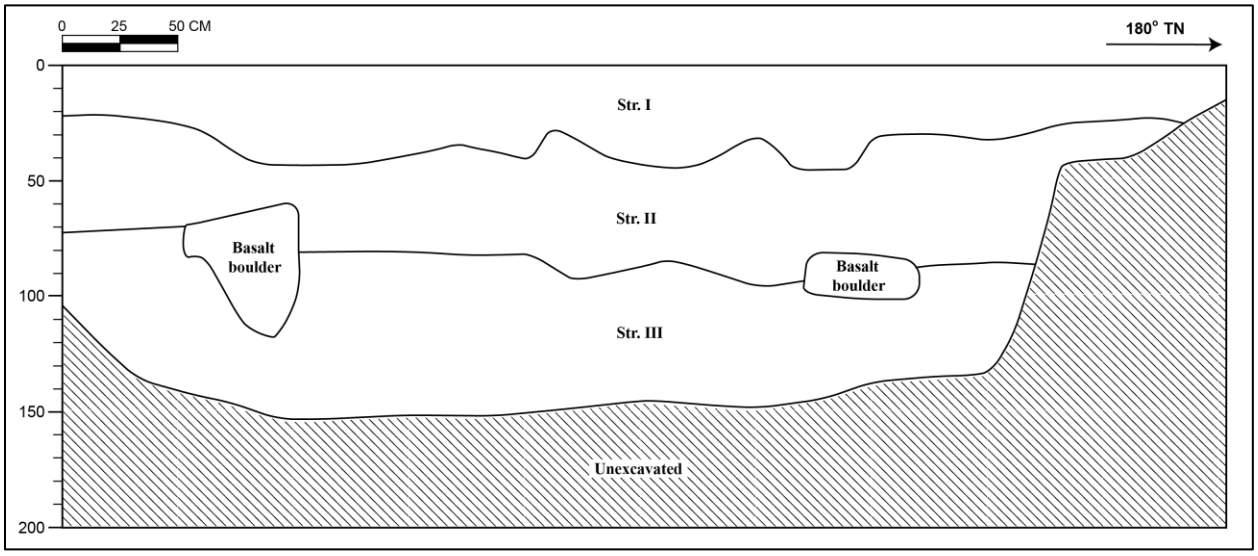


Figure 47. TE-6, stratigraphy of the east wall

Table 9. Strata observed at TE-6

Stratum	Depth (cmbs)	Description
I	0–45	Ap horizon; 7.5YR 3/4, dark brown; loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; common fine to coarse roots; clear, wavy lower boundary
II	22–95	Natural; 2.5YR 3/6, dark red; stony silty clay; weak, very fine granular structure; wet, slightly sticky consistence; no cementation; plastic; terrigenous origin; few fine roots; smooth, clear lower boundary; contained a very coarse mottling of 10YR 4/6, dark yellowish brown, silty clay loam
III	68–153	Natural; 5YR 3/4, dark reddish brown; stony sandy clay loam; moderate, medium granular structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; no roots; lower boundary not observed; contained very coarse mottles of 7.5YR 2.5/2, very dark brown; sandy loam

4.2.7 Test Excavation 7 (TE-7)

TE-7 was placed along a row of lemon trees, in the northern section of the orchard, and the northern portion of the project area (Figure 48). TE-7 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.60 mbs. The stratigraphy of TE-7 consisted of a dark reddish brown, silty clay loam Ap horizon mottled with dark red silty clay (Stratum I) overlying dark reddish brown, natural silty clay (Figure 49 and Figure 51 and Table 10). No cultural materials were observed.



Figure 48. TE-7, overview of the general location, view to south



Figure 49. TE-7, close-up of the west wall, view to west



Figure 50. TE-7, oblique view of the west wall, view to northwest

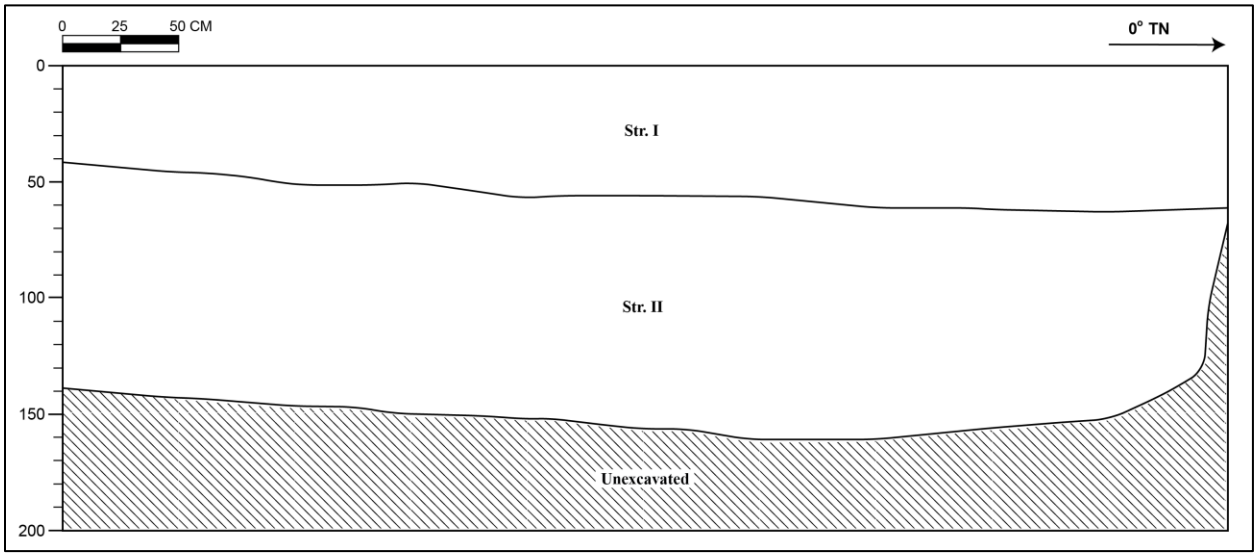


Figure 51. TE-7, stratigraphy of the west wall

Table 10. Strata observed at TE-7

Stratum	Depth (cmbs)	Description
I	0–63	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, smooth lower boundary; contained an extremely coarse mottling of 2.5YR 3/6, dark red, silty clay
II	40–160	Natural; 5YR 3/4, dark reddish brown; silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; few fine roots; lower boundary not observed

4.2.8 Test Excavation 8 (TE-8)

TE-8 was placed along a row of lemon trees, in the northern section of the orchard, and the northern portion of the project area (Figure 52). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.80 mbs. The stratigraphy of TE-8 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam mottled with very dark brown silty clay loam (Stratum II) (Figure 53 through Figure 55 and Table 11). No cultural materials were observed.



Figure 52. TE-8, overview of the general location, view to south



Figure 53. TE-8, close-up of the east wall, view to east



Figure 54. TE-8, oblique view of the east wall, view to northeast

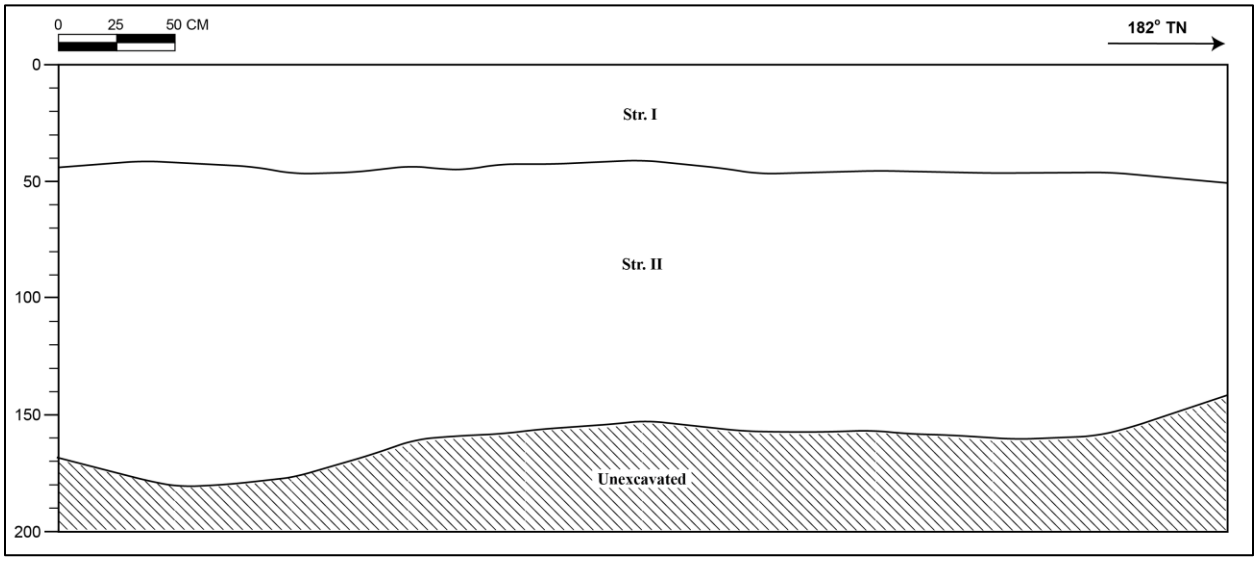


Figure 55. TE-8, stratigraphy of the east wall

Table 11. Strata observed at TE-8

Stratum	Depth (cmbs)	Description
I	0–49	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; clear, smooth lower boundary
II	40–180	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained a fine to coarse mottling of 7.5YR 2.5/3, very dark brown, silty clay loam

4.2.9 Test Excavation 9 (TE-9)

TE-9 was placed along a row of lemon trees, in the central section of the orchard, and the western portion of the project area (Figure 56). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.58 mbs. The stratigraphy of TE-9 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark red, natural silty clay mottled with very dark brown sandy clay loam and strong brown silt loam (Stratum II) (Figure 57 through Figure 59 and Table 12). No cultural materials were observed.



Figure 56. TE-9, overview of the general location, view to south

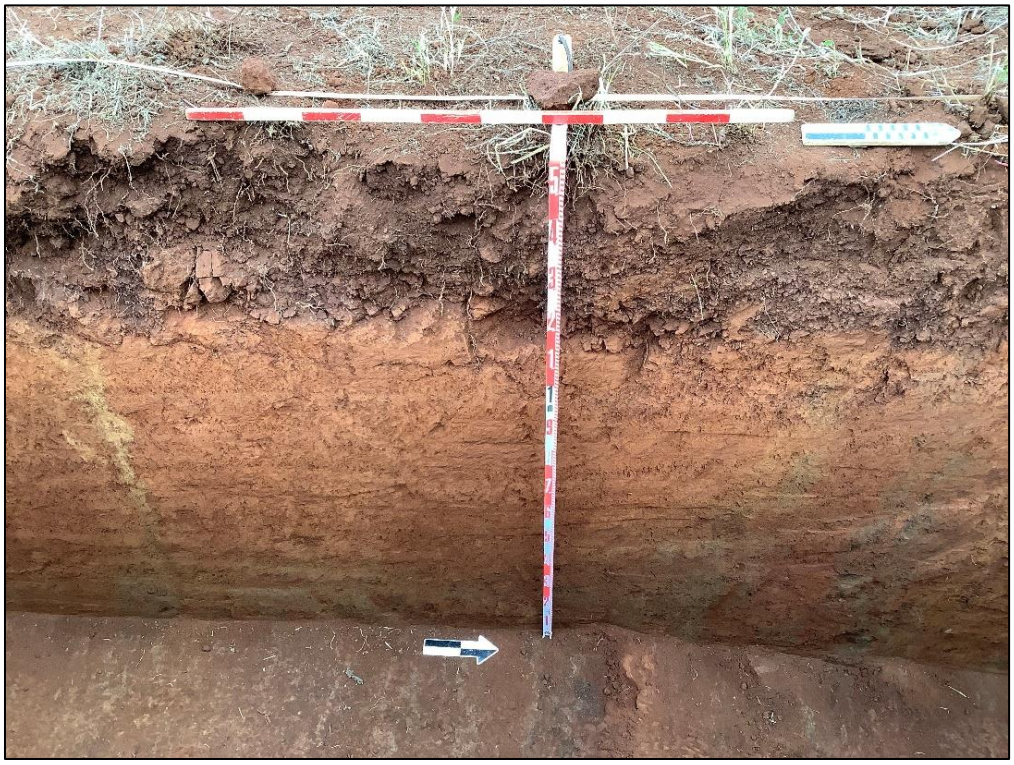


Figure 57. TE-9, close-up of the west wall, view to west



Figure 58. TE-9, oblique view of the west wall, view to southwest

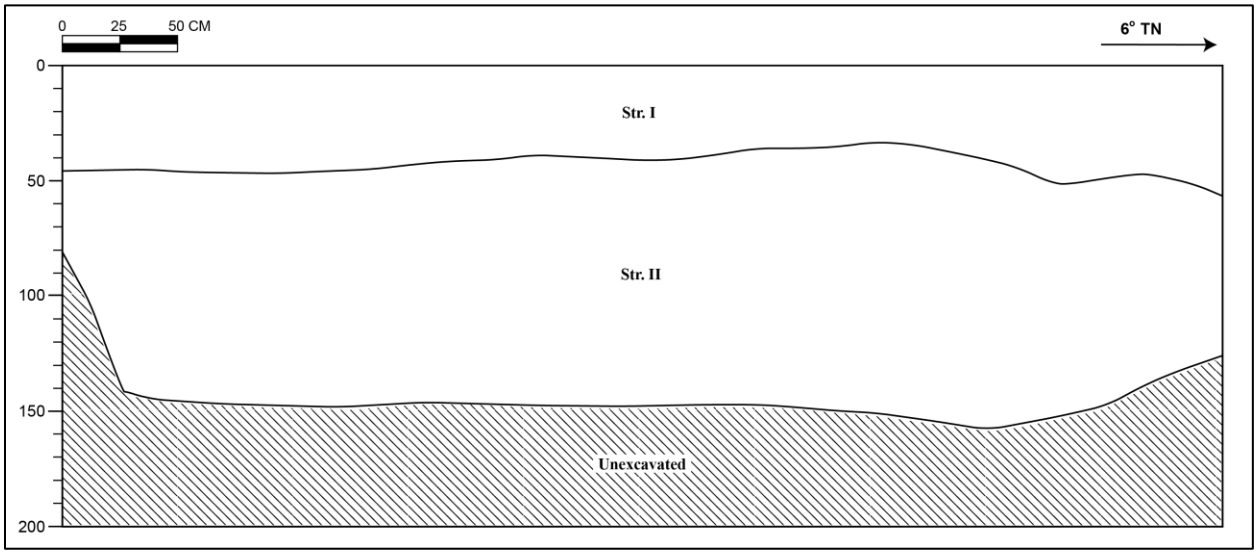


Figure 59. TE-9, stratigraphy of the west wall

Table 12. Strata observed at TE-9

Stratum	Depth (cmbs)	Description
I	0–58	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; clear, wavy lower boundary
II	34–158	Natural; 2.5YR 3/6, dark red; silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; few fine roots; lower boundary not observed; contained a very coarse mottling of 7.5YR 2.5/2, very dark brown, sandy clay loam and 7.5YR 4/6, strong brown, silt loam

4.2.10 Test Excavation 10 (TE-10)

TE-10 was placed along a row of lemon trees, in the central section of the orchard, and the central portion of the project area (Figure 60). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.52 mbs. The stratigraphy of TE-10 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay mottled with very dark brown silty clay (Stratum II), and a dark reddish brown, natural silty clay (Stratum III) (Figure 61 through Figure 63 and Table 13). No cultural materials were observed.



Figure 60. TE-10, overview of the general location, view to north



Figure 61. TE-10, close-up of the west wall, view to west



Figure 62. TE-10, oblique view of the west wall, view to southwest

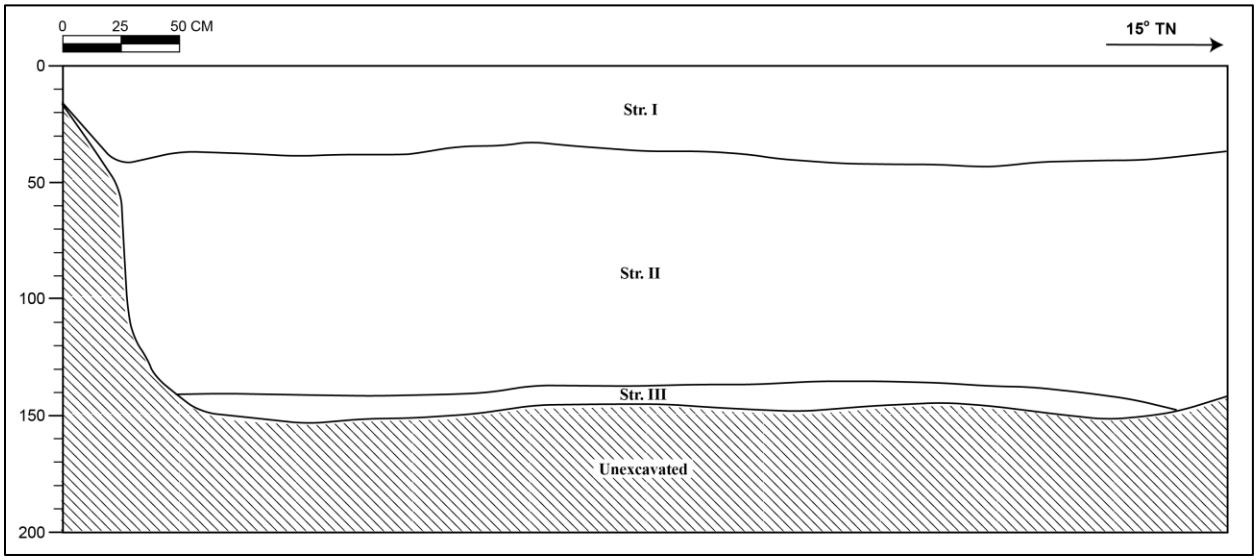


Figure 63. TE-10, stratigraphy of the west wall

Table 13. Strata observed at TE-10

Stratum	Depth (cmbs)	Description
I	0–43	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; gradual, smooth lower boundary
II	15–146	Natural; 2.5YR 3/4, dark reddish brown; silty clay; moderate, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; few fine roots; clear, smooth lower boundary; contained a very coarse mottling of 7.5YR 2.5/3, very dark brown, silty clay
III	134–152	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay; moderate, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.11 Test Excavation 11 (TE-11)

TE-11 was placed along a row of lemon trees, in the central portion of the orchard, and the northern portion of the project area (Figure 64). TE-11 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.66 mbs. The stratigraphy of TE-11 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam (Stratum II), and yellowish brown, natural silt loam mottled with volcanic cinder (Stratum III) (Figure 65 through Figure 67 and Table 14). No cultural materials were observed.



Figure 64. TE-11, overview of the general location, view to south



Figure 65. TE-11, close-up of the west wall, view to west



Figure 66. TE-11, oblique view of the west wall, view to northwest

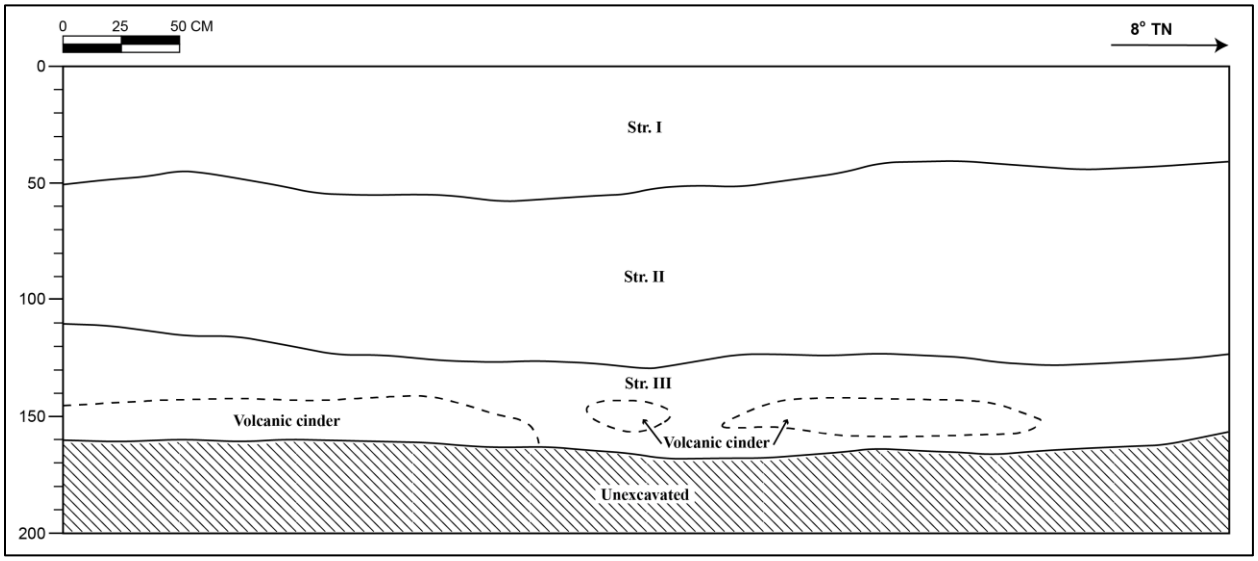


Figure 67. TE-11, stratigraphy of the west wall

Table 14. Strata observed at TE-11

Stratum	Depth (cmbs)	Description
I	0–58	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; abrupt, smooth lower boundary; contained a fine to coarse mottling of 5YR 3/2, dark reddish brown, silty clay loam
II	40–128	Natural; 5YR 3/4, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, loose consistence; no cementation; plastic; terrigenous origin; few fine roots; clear, smooth lower boundary
III	110–166	Natural; 10YR 3/6, dark yellowish brown; silt loam; weak, very fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; no roots; lower boundary not observed; contained a fine to coarse mottling of 5YR 2.5/1, black, volcanic cinder

4.2.12 Test Excavation 12 (TE-12)

TE-12 was placed along a row of lemon trees, in the central section of the orchard, and the western portion of the project area (Figure 68). TE-12 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.7 m long by 1.0 m wide with a maximum depth of 0.97 mbs at bedrock. The stratigraphy of TE-12 consisted of a very dark brown, gravelly loam Ap horizon (Stratum I) and dark reddish brown, natural extremely bouldery silty clay mottled with very dark brown sandy clay loam (Stratum II) overlying bedrock (Figure 69 through Figure 71 and Table 15). No cultural materials were observed.



Figure 68. TE-12, overview of the general location, view to north



Figure 69. TE-12, close-up of the west wall, view to west



Figure 70. TE-12, oblique view of the west wall, view to northwest

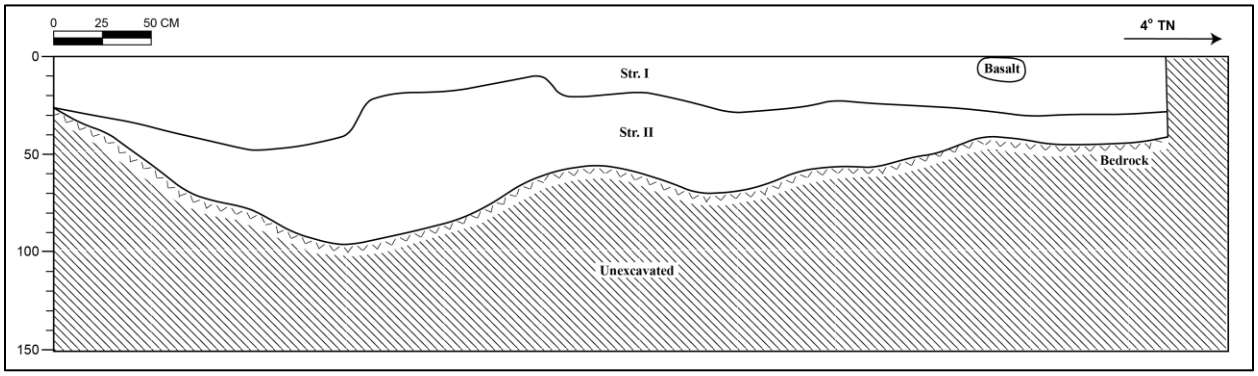


Figure 71. TE-12, stratigraphy of the west wall

Table 15. Strata observed at TE-12

Stratum	Depth (cmbs)	Description
I	0–50	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly loam; moderate, medium granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; clear, wavy lower boundary
II	13–97	Natural; 2.5YR 2.5/4, dark reddish brown; extremely bouldery silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; few fine to medium roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of 7.5YR 2.5/2, very dark brown, sandy clay loam

4.2.13 Test Excavation 13 (TE-13)

TE-13 was placed along a row of lemon trees, in the central section of the orchard, and the central portion of the project area (Figure 72). TE-13 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.58 mbs. The stratigraphy of TE-13 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural cobbly sandy clay loam mottled with brown sandy loam and dark reddish brown silty clay (Stratum II) (Figure 73 through Figure 75 and Table 16). No cultural materials were observed.



Figure 72. TE-13, overview of the general location, view to north



Figure 73. TE-13, close-up of the east wall, view to east



Figure 74. TE-13, oblique view of the east wall, view to southeast

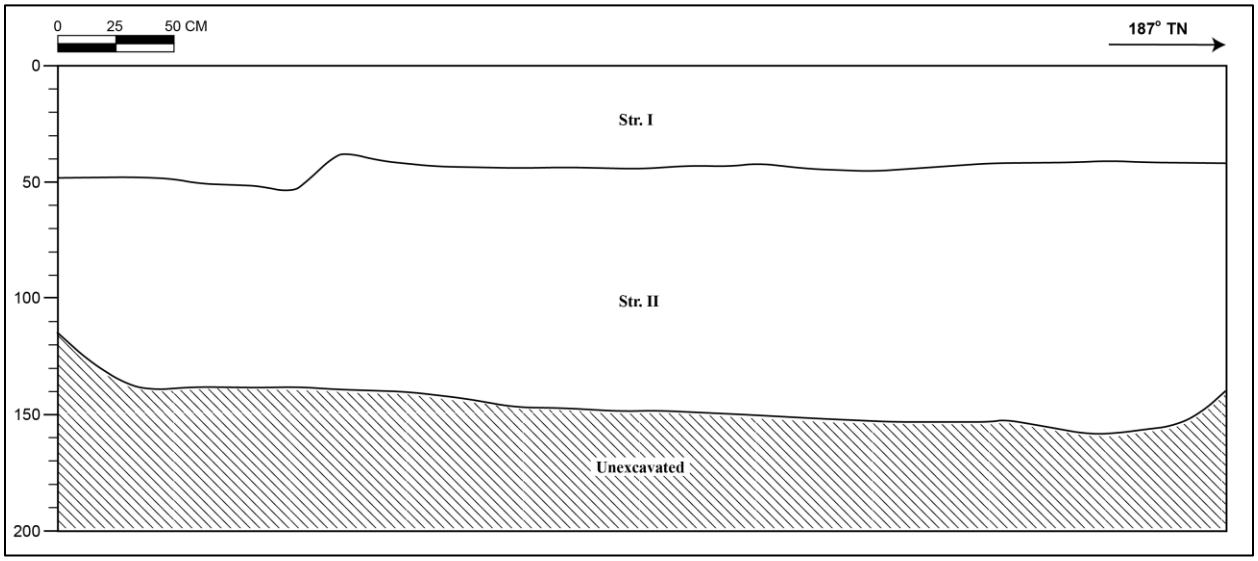


Figure 75. TE-13, stratigraphy of the east wall

Table 16. Strata observed at TE-13

Stratum	Depth (cmbs)	Description
I	0–54	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, wavy lower boundary
II	37–158	Natural; 2.5YR 2.5/3, dark reddish brown; cobbly sandy clay loam; weak, very fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; lower boundary not observed; contained a fine to coarse mottling of 10YR 4/3, brown, sandy loam and 2.5YR 2.5/4, dark reddish brown, silty clay

4.2.14 Test Excavation 14 (TE-14)

TE-14 was placed along a row of lemon trees, in the central portion of the orchard, and the central portion of the project area (Figure 76). The excavation was 5.00 m long by 1.05 m wide with a maximum depth of 1.64 mbs. The stratigraphy of TE-14 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam mottled with dark red silty clay loam and dark yellowish brown silt loam (Stratum II) (Figure 77 through Figure 80 and Table 17). No cultural materials were observed.



Figure 76. TE-14, overview of the general location, view to north



Figure 77. TE-14, close-up of the east wall, view to east



Figure 78. TE-14, oblique view of the east wall, view to southeast



Figure 79. TE-14, close-up of the east and south walls showing a silt loam inclusion, view to southeast

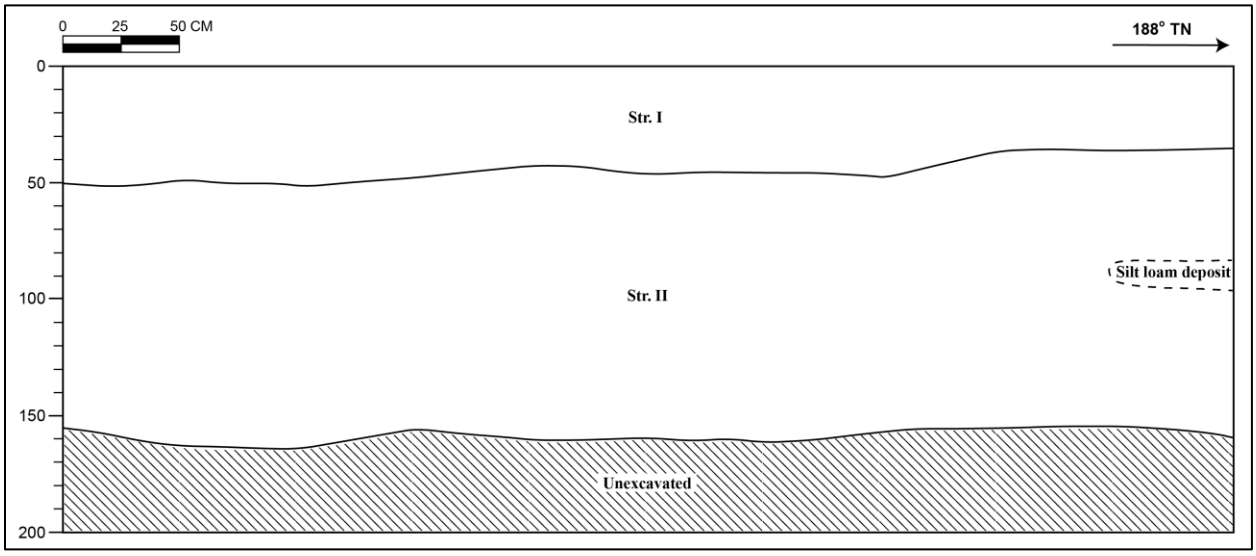


Figure 80. TE-14, stratigraphy of the east wall

Table 17. Strata observed at TE-14

Stratum	Depth (cmbs)	Description
I	0–51	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; weak, fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; many fine roots; clear, smooth lower boundary
II	34–164	Natural; 5YR 3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained pockets of volcanic cinder and very coarse mottles of 2.5YR 3/6, dark red, silty clay loam and 10YR 3/4, dark yellowish brown, silt loam

4.2.15 Test Excavation 15 (TE-15)

TE-15 was placed along a row of lemon trees, within the central section of the orchard, and the northeastern portion of the project area (Figure 81). The excavation was 4.30 m long by 1.05 m wide with a maximum depth of 2.16 mbs. The stratigraphy of TE-15 consisted of a dark reddish brown, gravelly silt loam Ap horizon mottled with dark reddish brown silt loam (Stratum I) overlying very dark brown, natural silty clay loam (Stratum II), natural volcanic cinder (Stratum III), and very dark brown, natural silt loam mottled with saprolites (Stratum IV) (Figure 82 through Figure 84 and Table 18). No cultural materials were observed.



Figure 81. TE-15, overview of the general location, view to north



Figure 82. TE-15, close-up of the west wall, view to west



Figure 83. TE-15, overview of the west wall, view to northwest

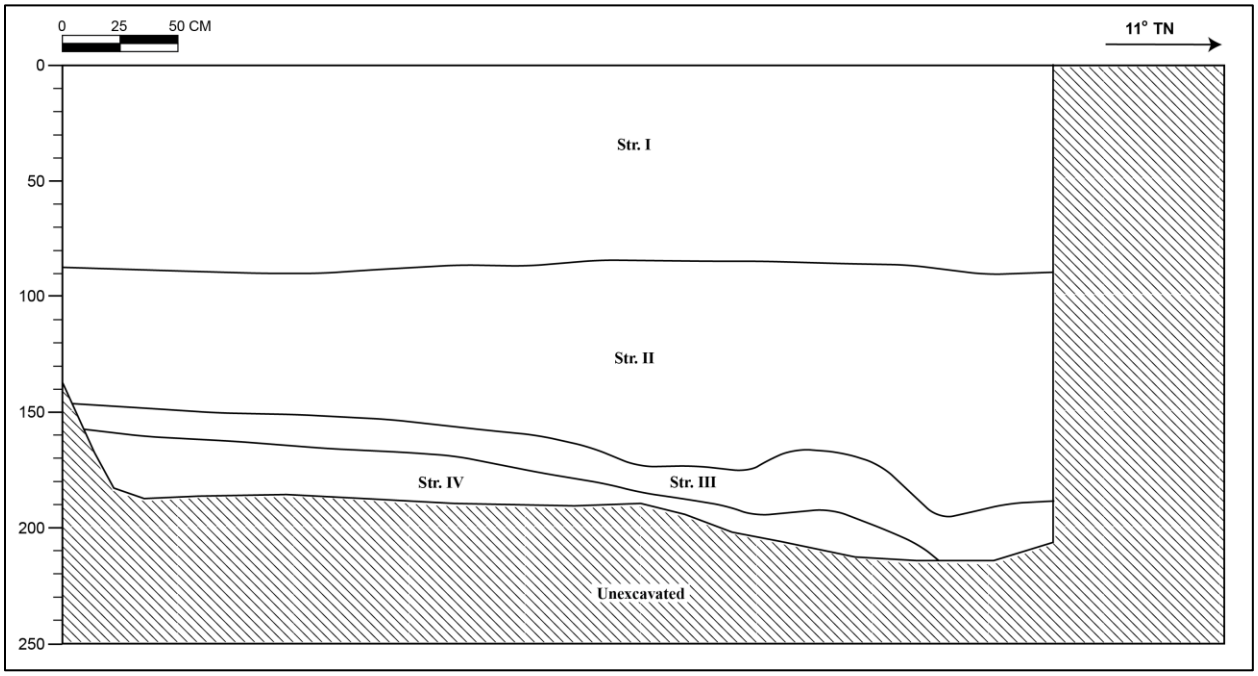


Figure 84. TE-15, stratigraphy of the west wall

Table 18. Strata observed at TE-15

Stratum	Depth (cmbs)	Description
I	0–93	Ap horizon; 5YR 3/4, dark reddish brown; gravelly silt loam; weak, fine granular structure; dry, loose consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; gradual, smooth lower boundary; contained a fine to coarse mottling of 2.5YR 2.5/3, dark reddish brown, silt loam
II	85–190	Natural; 7.5YR 2.5/3, very dark brown; silty clay loam; moderate, very fine granular structure; dry, loose consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; abrupt, irregular lower boundary
III	146–216	Natural; 5YR 2.5/1, black; extremely gravelly sand; structureless (single grain); dry, loose consistence; no cementation; non-plastic; terrigenous origin; no roots; very abrupt, smooth lower boundary; volcanic cinder
IV	158–216	Natural; 7.5YR 2.5/3, very dark brown; silt loam; moderate, very fine granular structure; dry, loose consistence; no cementation; slightly plastic; terrigenous origin; no roots; lower boundary not observed; contained an extremely coarse mottling of 10YR 8/3, very pale brown, chemically eroded basalt

4.2.16 Test Excavation 16 (TE-16)

TE-16 was placed along a row of lemon trees, in the central section of the orchard, and the western portion of the project area (Figure 85). The excavation was 5.0 m long by 1.8 m wide with a maximum depth of 0.97 mbs. The width of the excavation expanded due to the collapse of boulders from Stratum II in the east sidewall. The stratigraphy of TE-16 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying dark brown, natural very stony silty clay loam (Stratum II) (Figure 86 through Figure 88 and Table 19). No cultural materials were observed.



Figure 85. TE-16, overview of the general location, view to north



Figure 86. TE-16, close-up of the east wall, view to east



Figure 87. TE-16, oblique view of the east wall, view to southeast

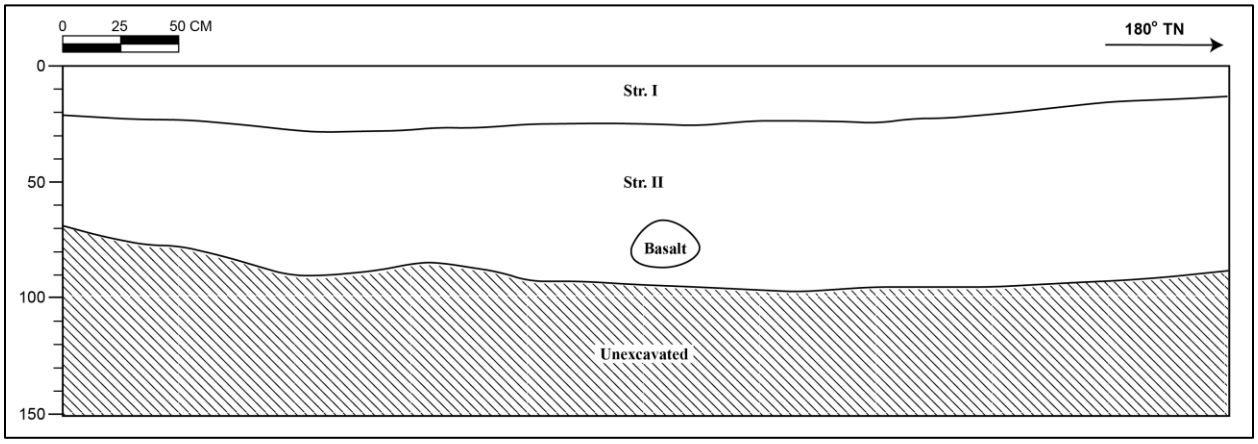


Figure 88. TE-16, stratigraphy of the east wall

Table 19. Strata observed at TE-16

Stratum	Depth (cmbs)	Description
I	0–28	Ap horizon; 7.5YR 2.5/2, very dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; clear, irregular lower boundary
II	16–97	Natural; 7.5YR 3/3, dark brown; silty clay loam; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.17 Test Excavation 17 (TE-17)

TE-17 was placed along a row of lemon trees, in the central section of the orchard, and the central portion of the project area (Figure 89). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.33 mbs. The stratigraphy of TE-17 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay mottled with dark yellowish brown silty clay (Stratum II) (Figure 90 through Figure 92 and Table 20). No cultural materials were observed.



Figure 89. TE-17, overview of the general location, view to south



Figure 90. TE-17, close-up of the west wall, view to west



Figure 91. TE-17, oblique view of the west wall, view to northwest

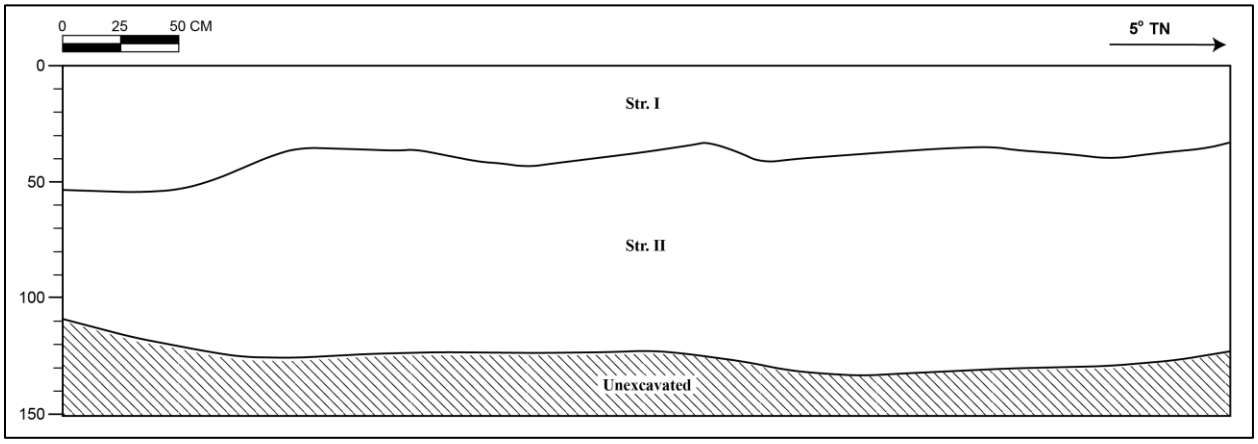


Figure 92. TE-17, stratigraphy of the west wall

Table 20. Strata observed at TE-17

Stratum	Depth (cmbs)	Description
I	0–52	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots, clear, smooth lower boundary
II	32–133	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; few fine roots; lower boundary not observed; contained a very coarse mottling of 10YR 3/6, dark yellowish brown, silty clay

4.2.18 Test Excavation 18 (TE-18)

TE-18 was placed along a row of lemon trees in the central section of the orchard in the central portion of the project area (Figure 93). The excavation was 5.15 m long by 1.05 m wide with a maximum depth of 1.60 mbs. The stratigraphy of TE-18 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam mottled with dark brown silty clay (Stratum II) (Figure 94 through Figure 96 and Table 21). No cultural materials were observed.



Figure 93. TE-18, overview of the general location, view to south



Figure 94. TE-18, close-up of the east wall, view to east



Figure 95. TE-18, oblique view of the east wall, view to southeast

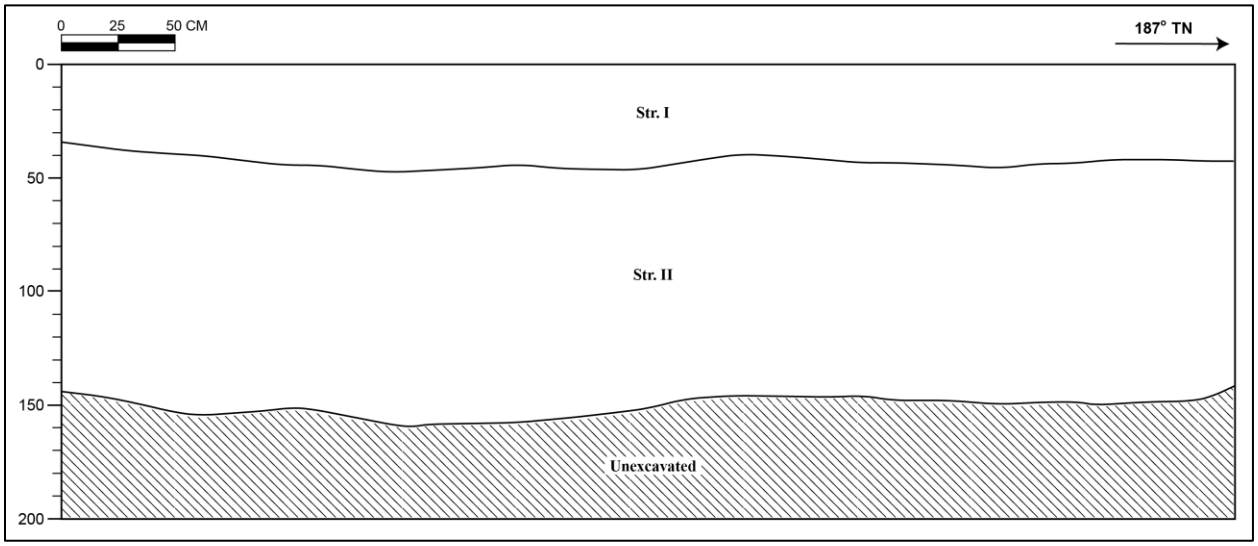


Figure 96. TE-18, stratigraphy of the east wall

Table 21. Strata observed at TE-18

Stratum	Depth (cmbs)	Description
I	0–48	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; abrupt, smooth lower boundary
II	35–160	Natural; 5YR 3/3, dark reddish brown; silty clay loam; moderate, fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; lower boundary not observed; contained a fine to coarse mottling of 10YR 3/3, dark brown, silty clay

4.2.19 Test Excavation 19 (TE-19)

TE-19 was placed along a row of lemon trees in the central section of the orchard in the northeastern portion of the project area (Figure 97). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.7 mbs. The stratigraphy of TE-19 consisted of a dark reddish brown, gravelly silt loam Ap horizon (Stratum I) overlying dark reddish brown, natural silt loam (Stratum II), dark brown, natural extremely cobbly clay loam (Stratum III), and a dark brown, natural loamy sand with pockets of volcanic cinder (Stratum IV) (Figure 98 through Figure 101 and). No cultural materials were observed.



Figure 97. TE-19, overview of the general location, view to south



Figure 98. TE-19, close-up of the east wall, view to east



Figure 99. TE-19, close-up of a volcanic cinder inclusion in Stratum IV, at the base of the east wall, view to east



Figure 100. TE-19, oblique view of the east wall, view to southeast

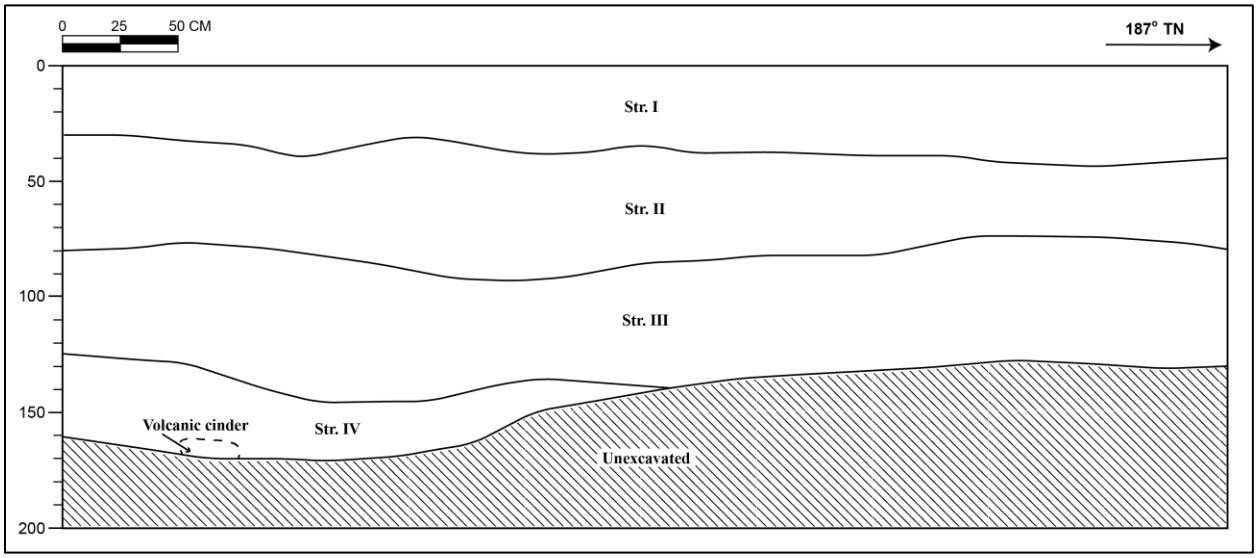


Figure 101. TE-19, stratigraphy of the east wall

Table 22. Strata observed at TE-19

Stratum	Depth (cmbs)	Description
I	0–42	Ap horizon; 5YR 3/3, dark reddish brown; gravelly silt loam; moderate, fine granular structure; dry, weakly coherent consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; diffuse, smooth lower boundary
II	33–92	Natural; 5YR 3/4, dark reddish brown; silt loam; weak, fine granular structure; moist, loose consistence; no cementation; slightly plastic; terrigenous origin; no roots; clear, wavy lower boundary
III	73–137	Natural; 10YR 3/3, dark brown; extremely cobbly clay loam; structureless; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; abrupt, smooth lower boundary
IV	124–170	Natural; 10YR 3/3, dark brown; loamy sand; structureless; moist, loose consistence; no cementation; non-plastic; terrigenous origin; no roots; lower boundary not observed; contains inclusions of volcanic cinder

4.2.20 Test Excavation 20 (TE-20)

TE-20 was placed within a row of lemon trees, near the northern perimeter access road, and the northeastern corner of the project area (Figure 102). TE-20 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 0.9 mbs. The stratigraphy of TE-20 consisted of a dark reddish brown, extremely stony silty clay loam Ap horizon (Stratum I) overlying bedrock (Figure 103 through Figure 105 and Table 23). No cultural materials were observed.



Figure 102. TE-20, overview of the general location, view to north



Figure 103. TE-20, close-up of the east wall, view to east



Figure 104. TE-20, overview of the east wall, view to southeast

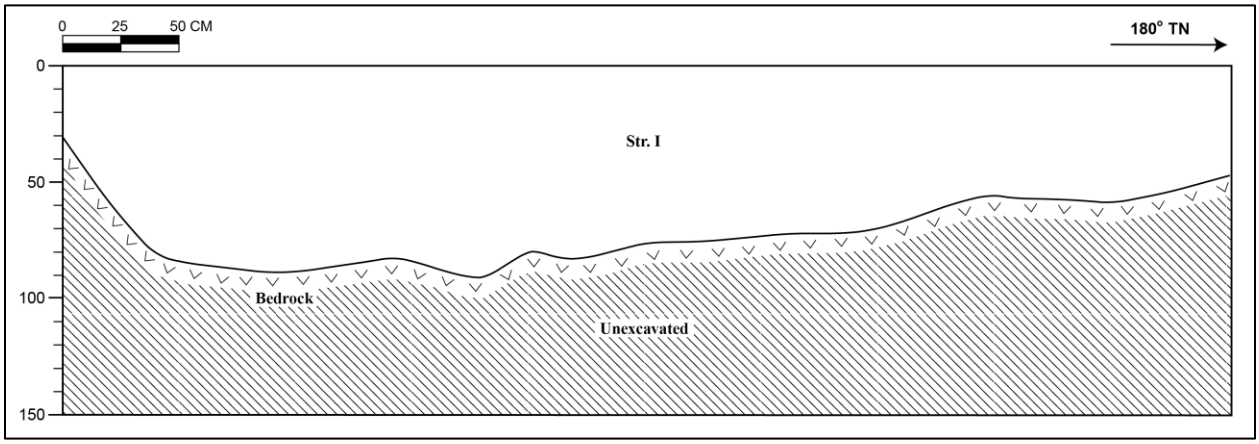


Figure 105. TE-20, stratigraphy of the east wall

Table 23. Stratum observed at TE-20

Stratum	Depth (cmbs)	Description
I	0–88	Ap horizon; 5YR 2.5/2, dark reddish brown; extremely stony silty clay loam; weak, coarse granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; very abrupt, wavy lower boundary overlying bedrock

4.2.21 Test Excavation 21 (TE-21)

TE-21 was placed along a row of lemon trees, in the central section of the orchard, and the western portion of the project area (Figure 106). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.03 mbs. The stratigraphy of TE-21 consisted of a very dark brown, silty clay loam Ap horizon (Stratum I) overlying dark red, natural very stony silty clay mottled with dark reddish brown silty clay loam (Stratum II) and bedrock (Figure 107 through Figure 109 and Table 24). No cultural materials were observed.



Figure 106. TE-21, overview of the general location, view to south



Figure 107. TE-21, close-up of the west wall, view to west



Figure 108. TE-21, overview of the west wall, view to northwest

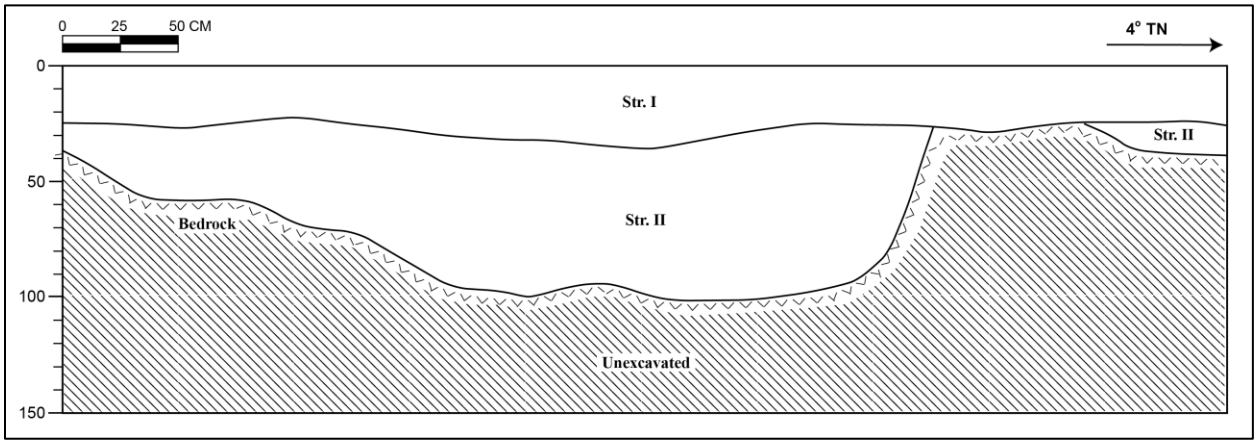


Figure 109. TE-21, stratigraphy of the west wall

Table 24. Strata observed at TE-21

Stratum	Depth (cmbs)	Description
I	0–37	Ap horizon; 7.5YR 2.5/2, very dark brown; gravelly silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; many fine to medium roots; clear, wavy lower boundary
II	23–103	Natural; 2.5YR 3/6, dark red; very stony silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; few fine roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of 5YR 3/4, dark reddish brown, silty clay loam

4.2.22 Test Excavation 22 (TE-22)

TE-22 was placed along a row of lemon trees, in the central section of the orchard, and the central portion of the project area (Figure 110). TE-22 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 0.7 m wide with a maximum depth of 1.62 mbs. The stratigraphy of TE-22 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay mottled with dark reddish brown silty clay (Stratum II) (Figure 111 through Figure 113 and Table 25). No cultural materials were observed.



Figure 110. TE-22, overview of the general location, view to north



Figure 111. TE-22, close-up of the west wall, view to west

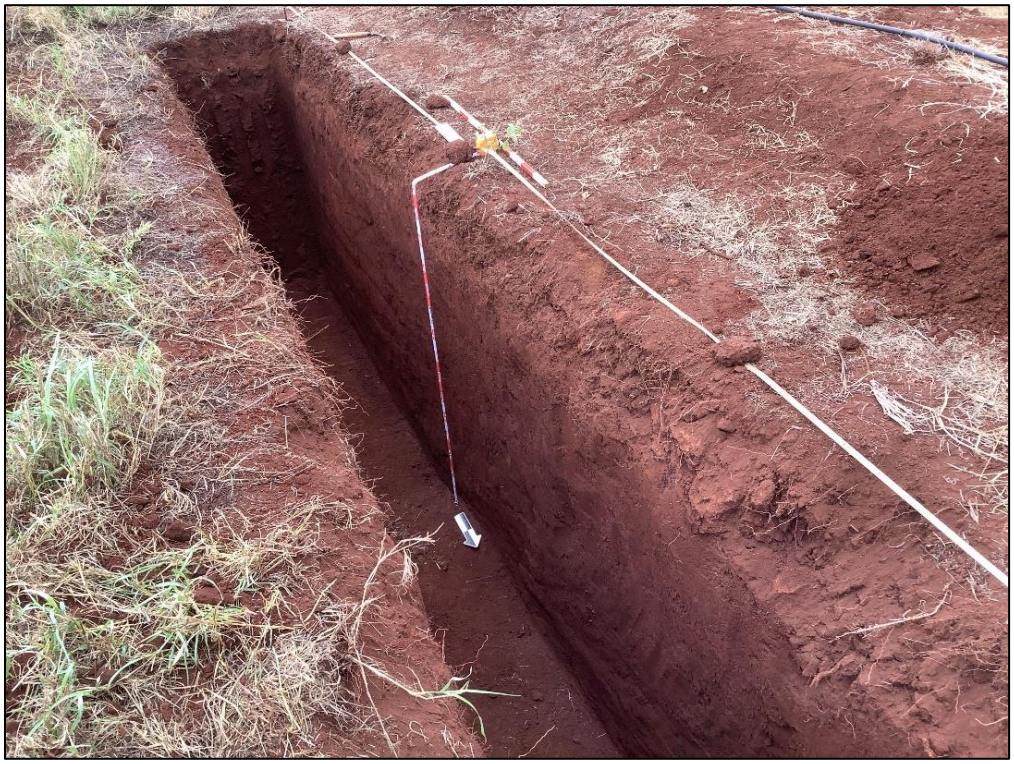


Figure 112. TE-22, oblique view of the west wall, view to southwest

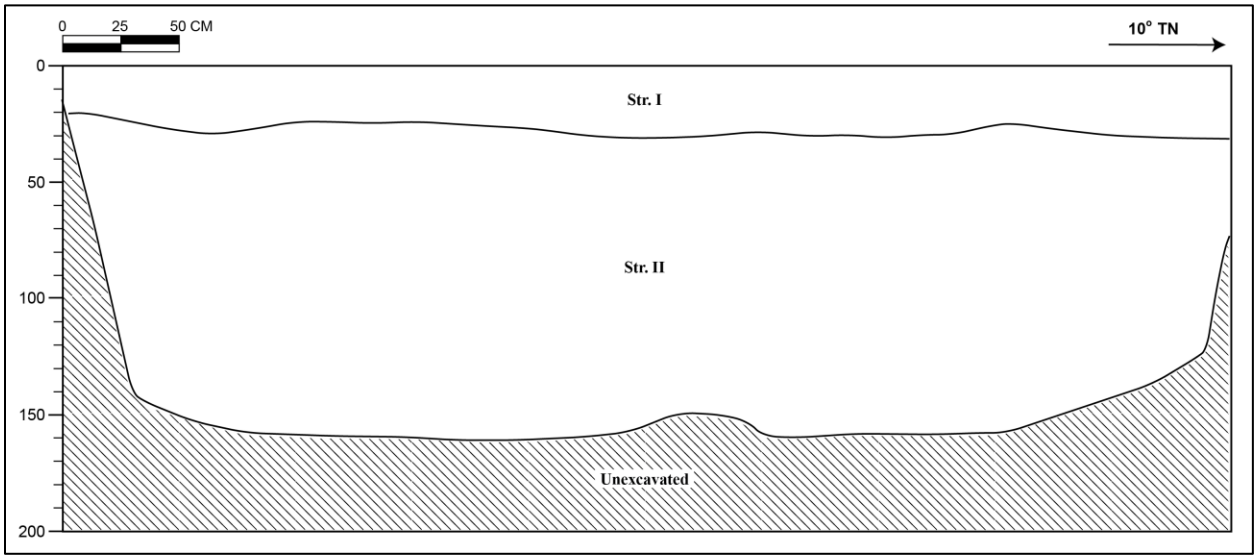


Figure 113. TE-22, stratigraphy of the west wall

Table 25. Strata observed at TE-22

Stratum	Depth (cmbs)	Description
I	0–35	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; gradual, smooth lower boundary
II	20–162	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay; weak, fine granular structure; wet, sticky consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained a very coarse mottling of 5YR 3/4, dark reddish brown, silty clay

4.2.23 Test Excavation 23 (TE-23)

TE-23 was placed along a row of lemon trees, in the central section of the orchard, and the central portion of the project area (Figure 114). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.62 mbs. The stratigraphy of TE-23 consisted of a dark reddish brown, silty clay loam Ap horizon mottled with dark reddish brown silty clay (Stratum I) overlying dark reddish brown, natural silty clay mottled with dark reddish brown silty clay (Stratum II) (Figure 115 through Figure 117 and Table 26). No cultural materials were observed.



Figure 114. TE-23, overview of the general location, view to north



Figure 115. TE-23, close-up of the west wall, view to west



Figure 116. TE-23, overview of the west wall, view to northwest

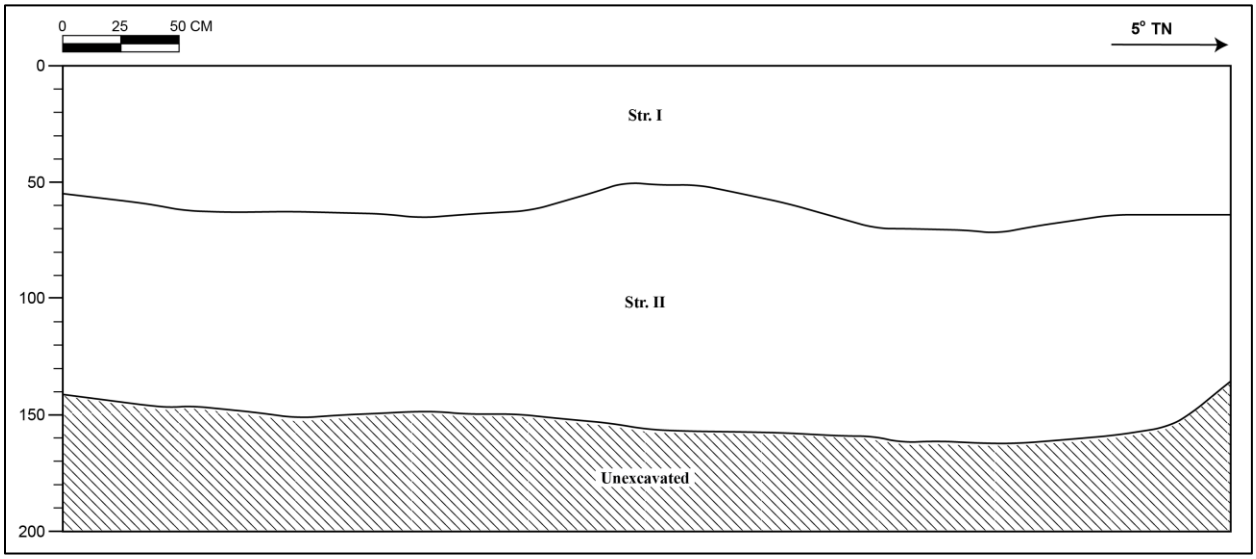


Figure 117. TE-23, stratigraphy of the west wall

Table 26. Strata observed at TE-23

Stratum	Depth (cmbs)	Description
I	0–72	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; many fine to medium roots; clear, wavy lower boundary; contained a very coarse mottling of 2.5YR 2.5/4, dark reddish brown, silty clay
II	50–162	Natural; 2.5YR 2.5/3, dark reddish brown; silty clay; moderate, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained a very coarse mottling of 2.5YR 2.5/4, dark reddish brown, silty clay

4.2.24 Test Excavation 24 (TE-24)

TE-24 was placed along a row of lemon trees, in the central portion of the orchard, and in the eastern portion of the project area (Figure 118). The excavation was 5.00 m long by 1.05 m wide with a maximum depth of 1.74 mbs. The stratigraphy of TE-24 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying reddish brown, natural silty clay loam (Stratum II) and dark reddish brown, natural very gravelly silty clay loam mottled with chemically eroded basalt (Stratum III) (Figure 119 through Figure 121 and Table 27). No cultural materials were observed.



Figure 118. TE-24, overview of the general location, view to south



Figure 119. TE-24, close-up of the east wall, view to east



Figure 120. TE-24, overview of the east wall, view to southeast

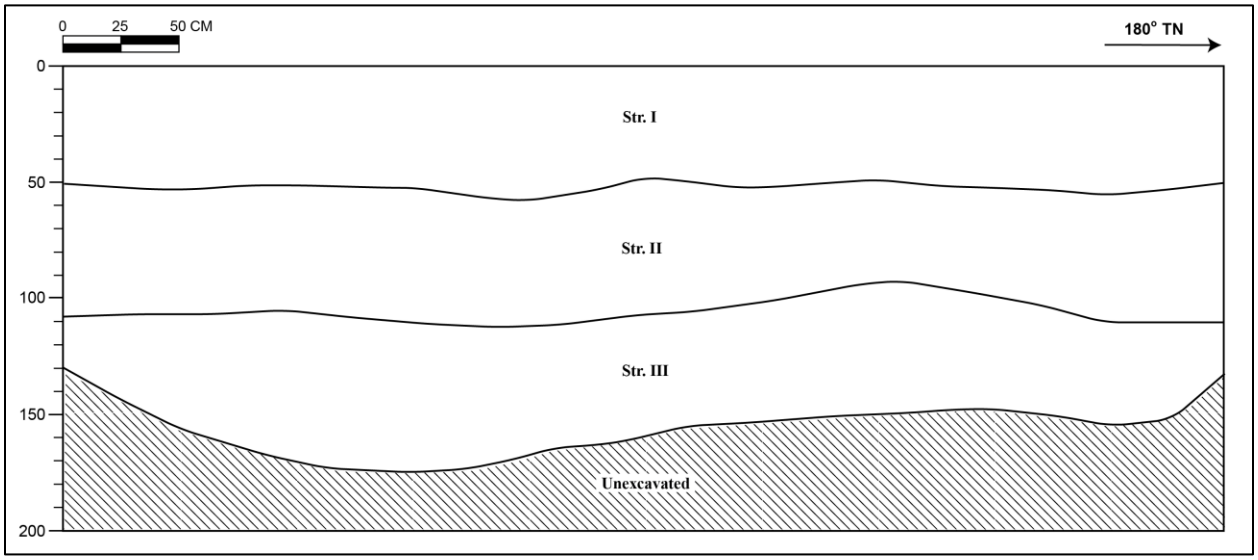


Figure 121. TE-24, stratigraphy of the east wall

Table 27. Strata observed at TE-24

Stratum	Depth (cmbs)	Description
I	0–58	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine to medium roots; clear, smooth lower boundary
II	48–110	Natural; 5YR 4/4, reddish brown; silty clay loam; weak, fine granular structure; moist, firm consistence; no cementation; plastic; terrigenous origin; no roots; clear, smooth lower boundary
III	93–174	Natural; 5YR 3/3, dark reddish brown; very gravelly silty clay loam; granular structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; no roots; lower boundary not observed: contained extremely coarse mottled variations chemically eroded basalt

4.2.25 Test Excavation 25 (TE-25)

TE-25 was placed within the compacted dirt parking lot, on the eastern side of the central section of the lemon orchard, in the eastern portion of the project area (Figure 122). The excavation was 5.10 m long by 1.05 m wide with a maximum depth of 1.00 mbs. The stratigraphy of TE-25 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying brown, natural very gravelly silt loam mottled with chemically eroded basalt and saprolites (Stratum II) and bedrock (Figure 123 through Figure 125 and Table 28). No cultural materials were observed. Notably, no plastic irrigation drip-tape was observed, likely as a result of surface grading and road usage that has truncated the previous surface of the Ap horizon.



Figure 122. TE-25, overview of the general location, view to northeast



Figure 123. TE-25, close-up of the west wall, view to west



Figure 124. TE-25, overview of the west wall, view to northwest

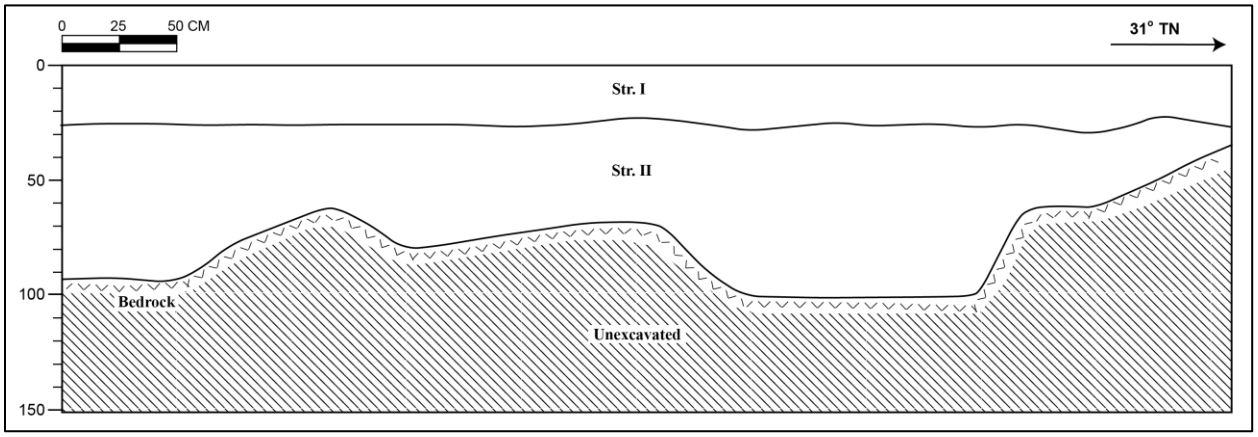


Figure 125. TE-25, stratigraphy of the west wall

Table 28. Strata observed at TE-25

Stratum	Depth (cmbs)	Description
I	0–30	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; clear, smooth lower boundary
II	23–100	Natural; 7.5YR 4/3, brown; very gravelly silt loam; weak, fine granular structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of chemically eroded basalt and saprolites (7.5YR 2.5/3, very dark brown, silty clay loam and 10YR 5/1, gray, silt loam)

4.2.26 Test Excavation 26 (TE-26)

TE-26 was placed along a row of lemon trees, in the southern section of the orchard, and the western portion of the project area (Figure 126). The excavation was 5.0 m long by 0.7 m wide with a maximum depth of 1.5 mbs. Due to the rocky substrate in portions of the project area, the backhoe had to use a smaller, toothed-bucket for the excavation of the TE-26. The stratigraphy of TE-26 consisted of a very dark brown, silty clay loam Ap horizon (Stratum I) overlying dark brown, natural silty clay loam (Stratum II) and dark red, natural stony silty clay mottled with dark brown silty clay loam (Stratum III) (Figure 127 through Figure 129 and Table 29). No cultural materials were observed.



Figure 126. TE-26, overview of the general location, view to south



Figure 127. TE-26, close-up of the east wall, view to east



Figure 128. TE-26, oblique view of the east wall, view to northeast

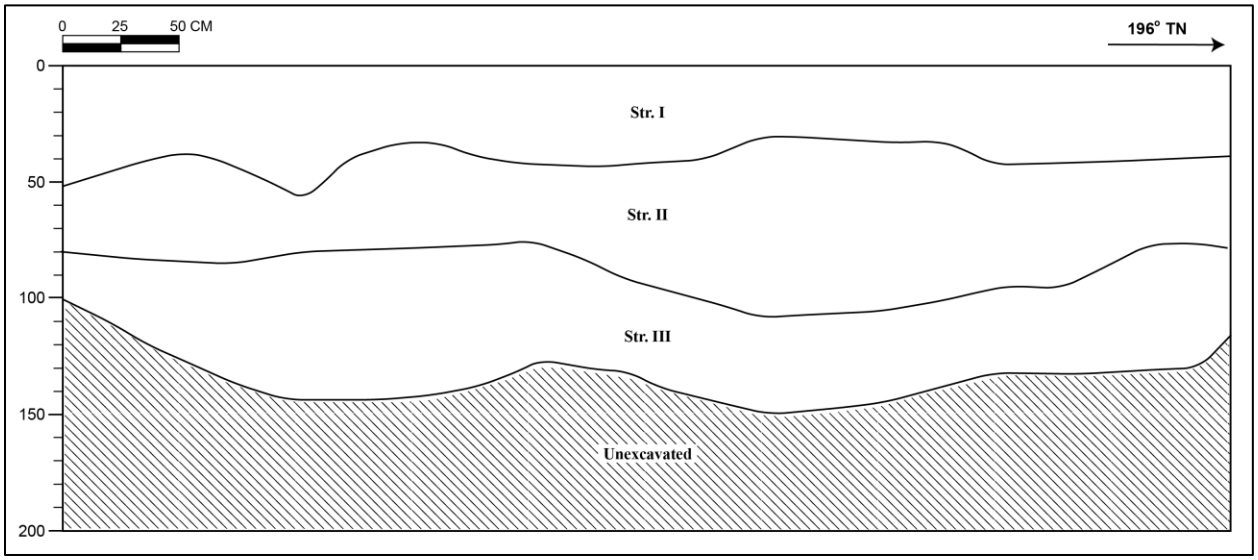


Figure 129. TE-26, stratigraphy of the east wall

Table 29. Strata observed at TE-26

Stratum	Depth (cmbs)	Description
I	0–55	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; gradual, smooth lower boundary
II	30–108	Natural; 7.5YR 3/4, dark brown; gravelly silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; clear, smooth lower boundary
III	75–150	Natural; 2.5YR 3.6, dark red; stony silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained pockets of volcanic cinder and mottles of chemically weathered basalt stones and 7.5YR 3/3, dark brown, silty clay loam

4.2.27 Test Excavation 27 (TE-27)

TE-27 was placed along a row of lemon trees, in the southern section of the orchard, and the central portion of the project area (Figure 130). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.7 mbs. The stratigraphy of TE-27 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay (Stratum II) (Figure 131 through Figure 133 and Table 30). No cultural materials were observed.



Figure 130. TE-27, overview of the general location, view to north



Figure 131. TE-27, close-up of the east wall, view to east



Figure 132. TE-27, oblique view of the east wall, view to southeast

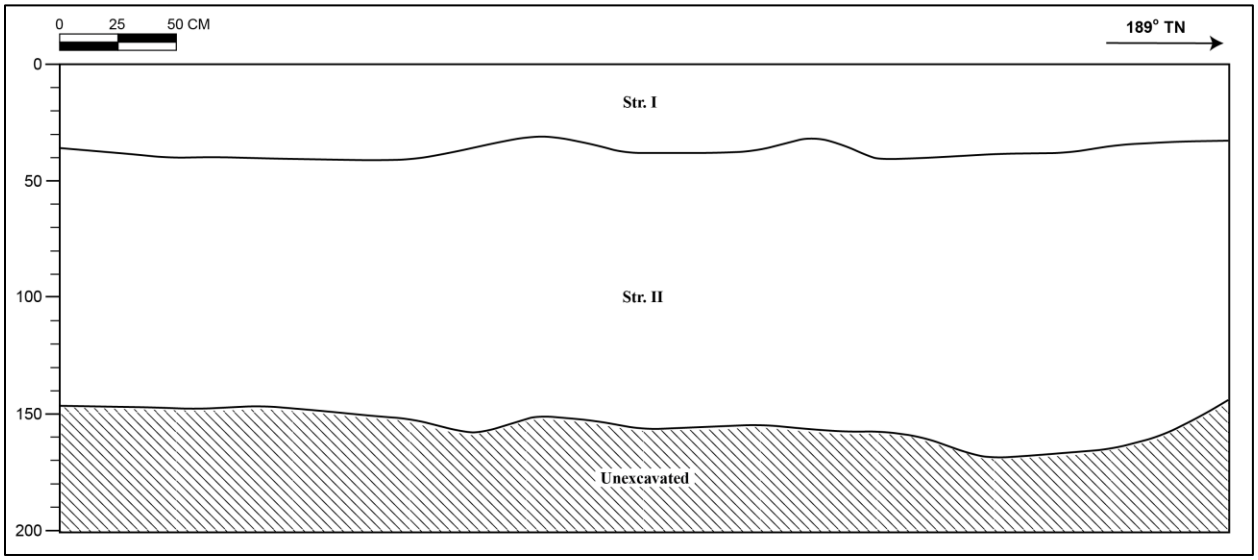


Figure 133. TE-27, stratigraphy of the east wall

Table 30. Strata observed at TE-27

Stratum	Depth (cmbs)	Description
I	0–42	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; clear, smooth lower boundary
II	32–170	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.28 Test Excavation 28 (TE-28)

TE-28 was placed along a row of lemon trees in the southern section of the orchard in the central portion of the project area (Figure 134). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.2 mbs. The observed stratigraphy in TE-28 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) and agricultural-related pits containing dark reddish brown, silty clay loam fill (Stratum II) within dark reddish brown, natural silty clay loam (Stratum III) (Figure 135 through Figure 137 and Table 31). Notably, the sediment in the trench was very wet or moist, possibly from an irrigation leak.

The elongated pits of Stratum II appeared to be from a type of plow or machine that crossed diagonally, northwest to southeast, through the area in comparison to the north-south trench orientation, as there was a pit in the west wall that was not within the east wall and vice versa (Figure 138 through Figure 142 and Table 32). In comparison to the 2023 aerial image, the location of TE-28 is near a curved berm, which may have attributed to the stratigraphic anomalies (Stratum II) (see Figure 22).

Charcoal flecking was observed in several of the agricultural-related pits of Stratum II, and a pit from both the eastern (1.5-gal) and western (10-gal) sidewalls were screened in the field with no additional findings. The presence of charcoal is attributed to modern burn events and subsequent dispersal from agricultural land use.



Figure 134. TE-28, overview of the general location, view to north



Figure 135. TE-28, close-up of the west wall, view to west



Figure 136. TE-28, oblique view of the west wall, view to southwest

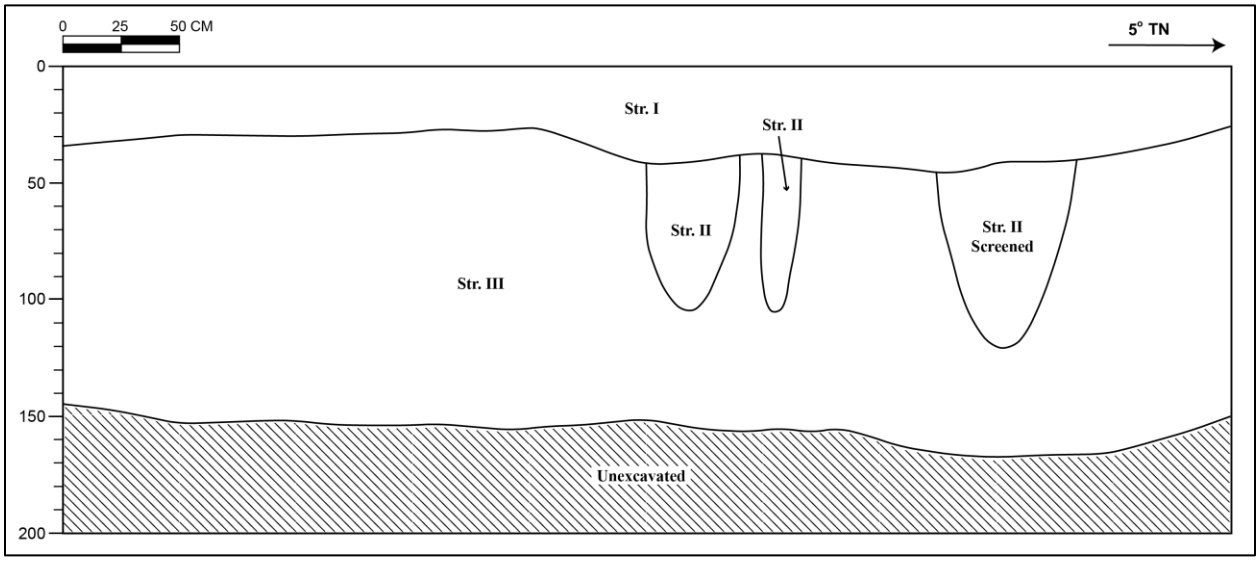


Figure 137. TE-28, stratigraphy of the west wall

Table 31. Strata observed in the west wall of TE-28

Stratum	Depth (cmbs)	Description
I	0–46	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, smooth lower boundary; contained a piece of concrete
II	37–120	Fill; 2.5YR 3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; abrupt, irregular lower boundary; contained common charcoal flecking; 10-gallon sampled
III	26–167	Natural; 5YR 3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, firm consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed



Figure 138. TE-28, overview of the east wall, view to southeast



Figure 139. TE-28, overview of the east wall, view to northeast

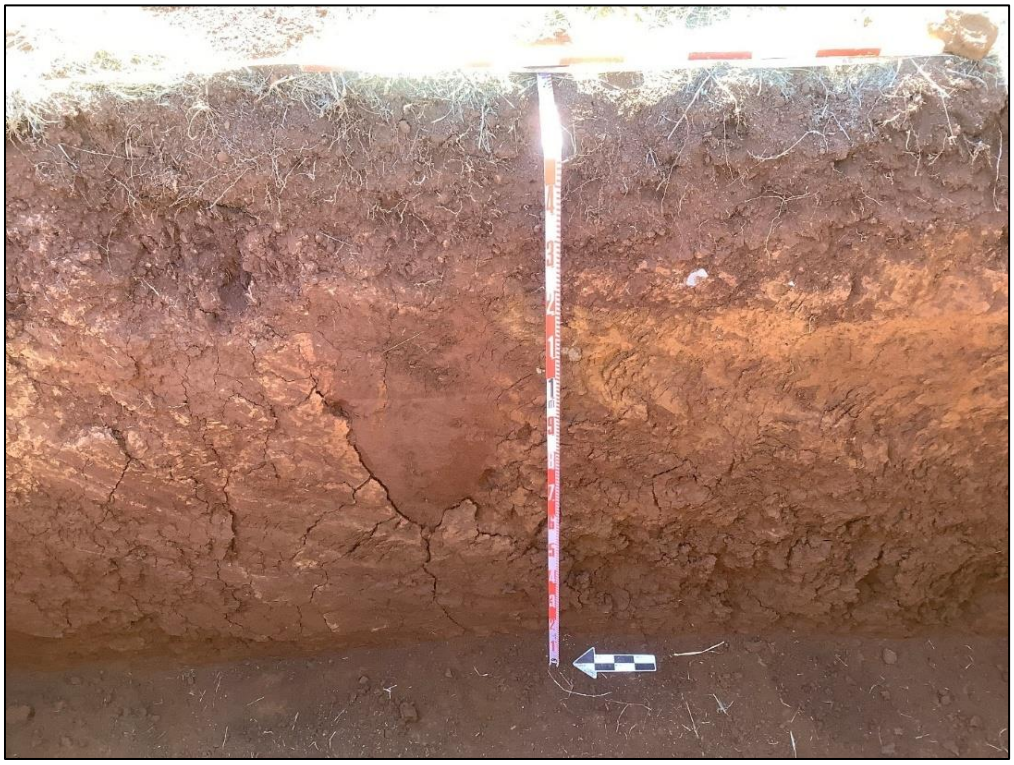


Figure 140. TE-28, close-up of the east wall, pre-sampling, view to east



Figure 141. TE-28, close-up of the east wall, post-sampling, view to east

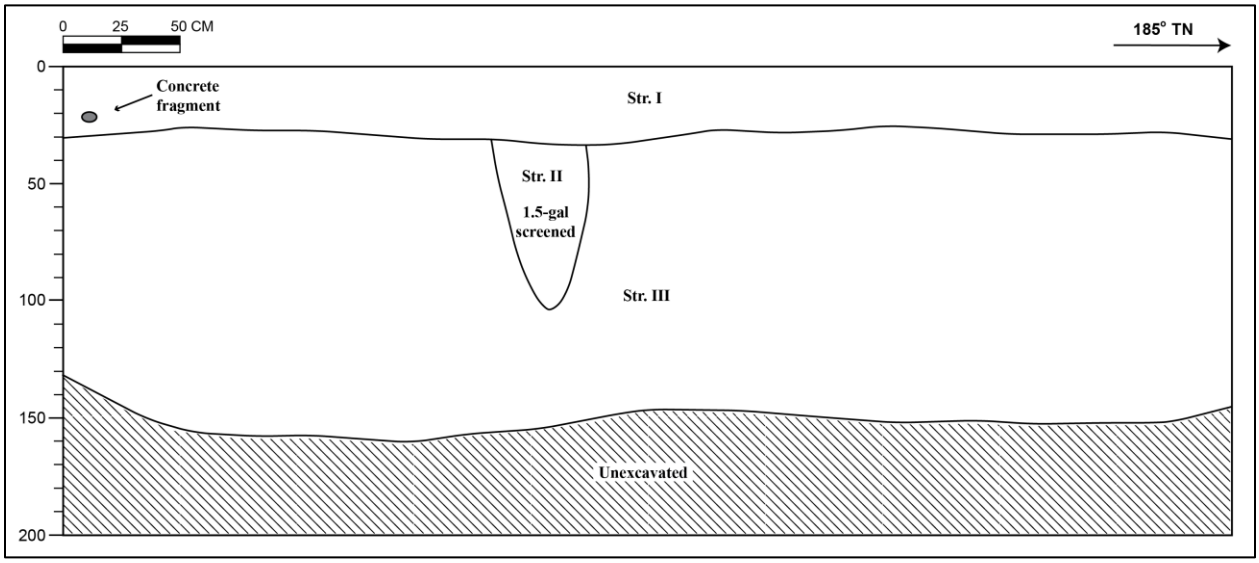


Figure 142. TE-28, stratigraphy of the east wall

Table 32. Strata observed in the east wall of TE-28

Stratum	Depth (cmbs)	Description
I	0–33	Ap horizon; 2.5YR 2.5/3, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, smooth lower boundary; contained a piece of concrete
II	32–104	Fill; 2.5YR 3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; abrupt, irregular lower boundary; contained common charcoal flecking; 1.5-gallon sampled
III	25–160	Natural; 5YR 3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, firm consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.29 Test Excavation 29 (TE-29)

TE-29 was placed along a row of lemon trees, in the central portion of the orchard, and the eastern portion of the project area (Figure 143). The excavation was 5.00 m long by 1.05 m wide with a maximum depth of 1.20 mbs. The stratigraphy of TE-29 consisted of a very dark brown, silty clay loam Ap horizon (Stratum I) overlying brown, natural very gravelly silt loam mottled with very dark brown silty clay (Stratum II) and bedrock (Figure 144 through Figure 146 and Table 33). No cultural materials were observed.



Figure 143. TE-29, overview of the general location, view to north



Figure 144. TE-29, close-up of the west wall, view to west



Figure 145. TE-29, oblique view of the west wall, view to northwest

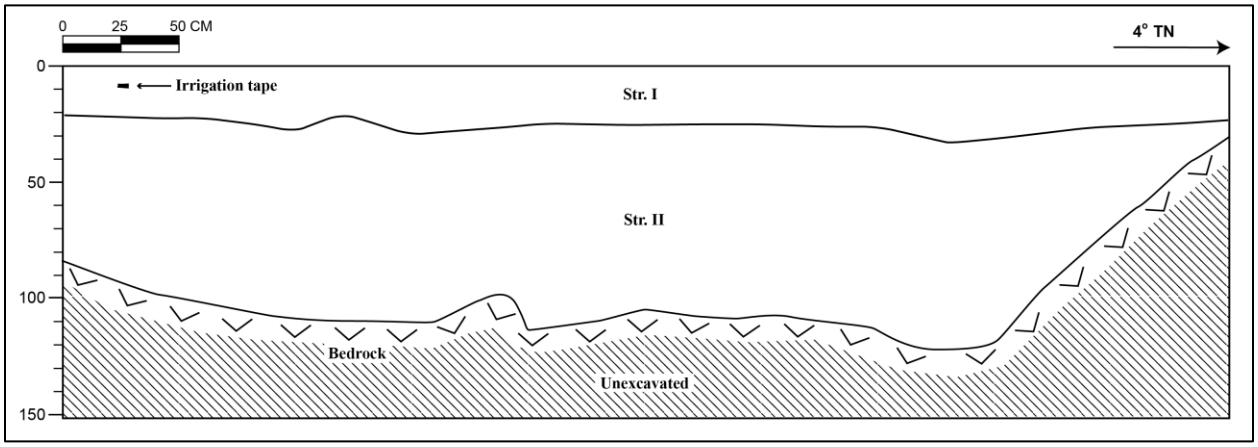


Figure 146. TE-29, stratigraphy of the west wall

Table 33. Strata observed at TE-29

Stratum	Depth (cmbs)	Description
I	0–33	Fill; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; clear, smooth lower boundary
II	20–120	Natural; 7.5YR 4/3, brown; very gravelly silt loam; weak, fine granular structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of 7.5YR 2.5/3, very dark brown; silty clay loam

4.2.30 Test Excavation 30 (TE-30)

TE-30 was placed along a row of lemon trees, in the southern section of the orchard, and the southwestern portion of the project area (Figure 147). TE-30 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.00 m long by 1.05 m wide with a maximum depth of 1.60 mbs. The stratigraphy of TE-30 consisted of a very dark brown, gravelly loam Ap horizon (Stratum I) overlying dark reddish brown, natural very stony silty clay (Stratum II) and bedrock (Figure 148 through Figure 150 and Table 34). No cultural materials were observed.



Figure 147. TE-30, overview of the general location, view to south



Figure 148. TE-30, close-up of the east wall, view to east



Figure 149. TE-30, overview of the east wall, view to southeast

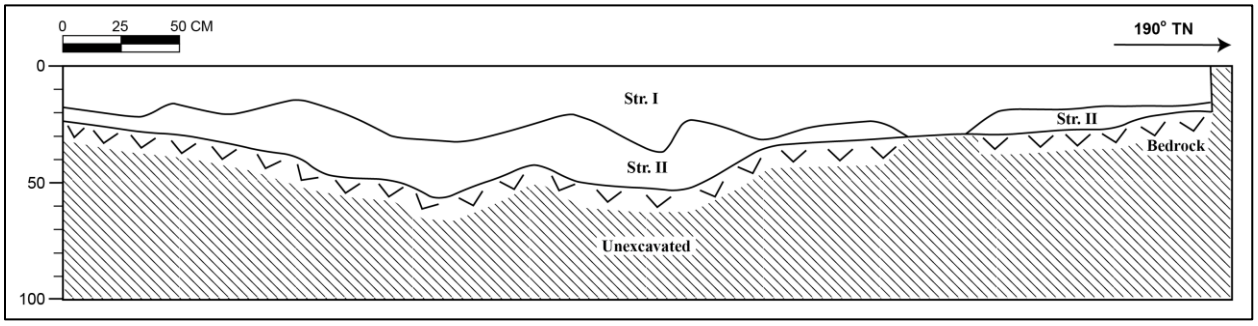


Figure 150. TE-30, stratigraphy of the east wall

Table 34. Strata observed at TE-30

Stratum	Depth (cmbs)	Description
I	0–38	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly loam; weak, very fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, wavy lower boundary
II	15–57	Natural; 5YR 3/4, dark reddish brown; very stony silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of 5YR 4/4, reddish brown; sandy loam

4.2.31 Test Excavation 31 (TE-31)

TE-31 was placed along a row of lemon trees, in the southern section of the orchard, and the southern portion of the project area (Figure 151). The excavation was 5.0 m long by 0.7 m wide with a maximum depth of 1.75 mbs. The stratigraphy of TE-31 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam (Stratum II), and dark reddish brown, natural gravelly silty clay loam mottled with dark brown sandy clay loam (Stratum III) (Figure 152 through Figure 154 and Table 35). No cultural materials were observed.



Figure 151. TE-31, overview of the general location, view to north



Figure 152. TE-31, close-up of the west wall, view to west



Figure 153. TE-31, oblique view of the west wall, view to northwest

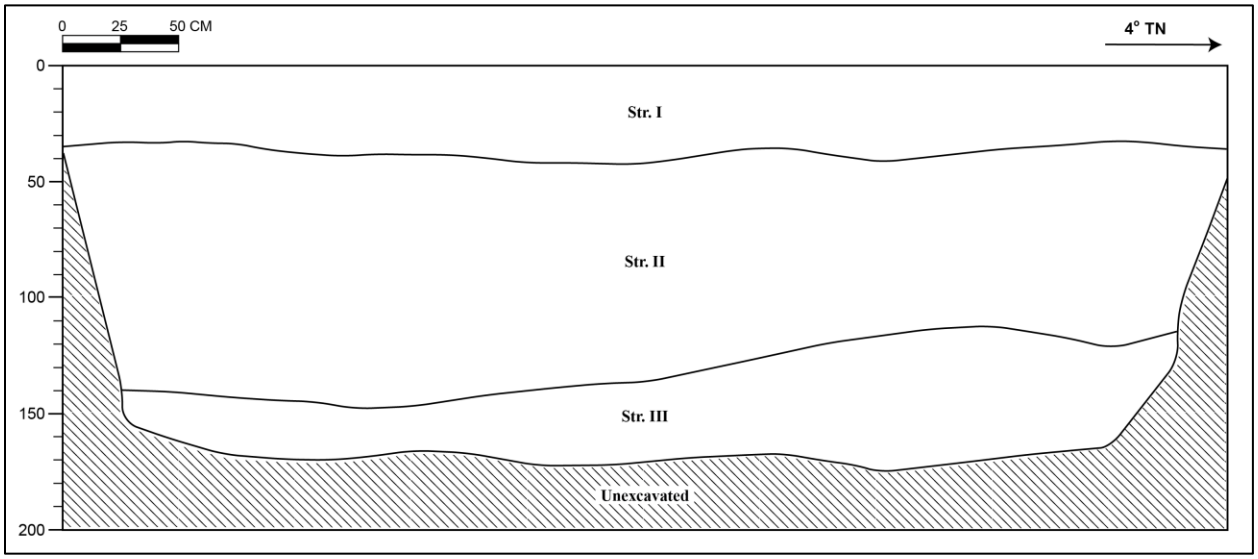


Figure 154. TE-31, stratigraphy of the west wall

Table 35. Strata observed at TE-31

Stratum	Depth (cmbs)	Description
I	0–43	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; clear, smooth lower boundary
II	33–147	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; gradual, smooth lower boundary
III	112–175	Natural; 5YR 3/4, dark reddish brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; no roots; lower boundary not observed; contained a very coarse mottling of, 7.5YR 3/3, dark brown; sandy clay loam

4.2.32 Test Excavation 32 (TE-32)

TE-32 was placed along a row of lemon trees, in the southern section of the orchard, and the southern portion of the project area (Figure 155). TE-32 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.6 m long by 1.0 m wide with a maximum depth of 1.65 mbs. The stratigraphy of TE-32 consisted of a dark reddish brown, silty clay loam Ap horizon mottled with dark reddish brown silty clay (Stratum I) overlying dark reddish brown, natural silty clay loam (Stratum II) (Figure 156 through Figure 158 and Table 36). No cultural materials were observed.



Figure 155. TE-32, overview of the general location, view to northwest



Figure 156. TE-32, close-up of the west wall, view to west



Figure 157. TE-32, oblique view of the west wall, view to southwest

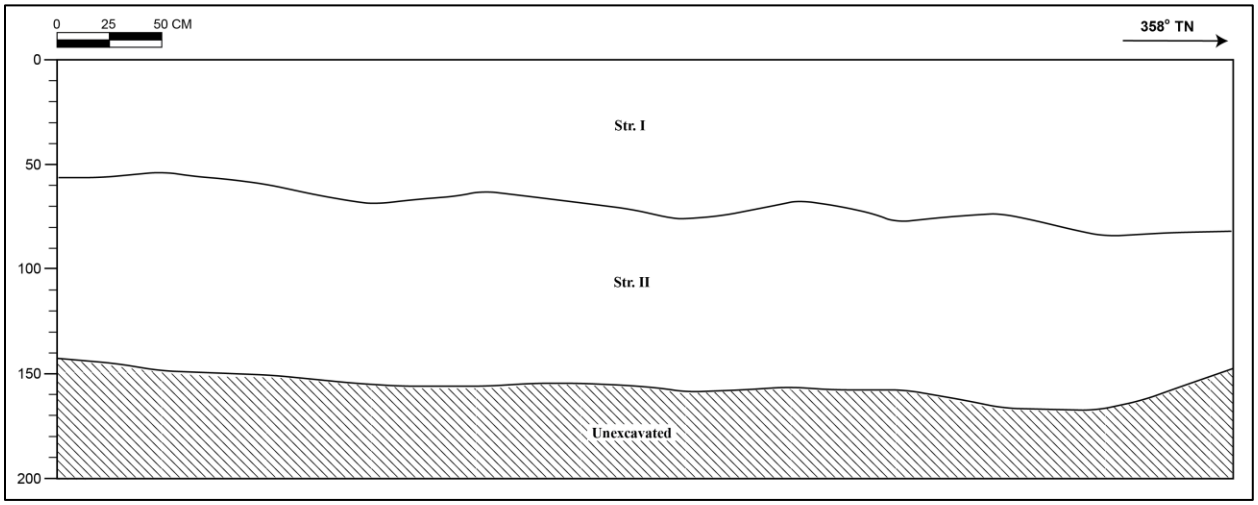


Figure 158. TE-32, stratigraphy of the west wall

Table 36. Strata observed at TE-32

Stratum	Depth (cmbs)	Description
I	0–82	Ap horizon; 5YR 3/4, dark reddish brown; silty clay loam; moderate, medium granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; many fine to medium roots; clear, smooth lower boundary; contained an extremely coarse mottling of 2.5YR 2.5/4, dark reddish brown; silty clay
II	54–165	Natural; 2.5YR 2.5/3, dark reddish brown; silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed

4.2.33 Test Excavation 33 (TE-33)

TE-33 was placed along a row of lemon trees, in the southern section of the orchard, and the southeastern portion of the project area (Figure 159). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 0.75 mbs. The stratigraphy of TE-33 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying brown, natural gravelly silty clay loam (Stratum II) and bedrock (Figure 160 through Figure 162 and Table 37). No cultural materials were observed.



Figure 159. TE-33, overview of the general location, view to north



Figure 160. TE-33, close-up of the east wall, view to east



Figure 161. TE-33, overview of the east wall, view to southeast

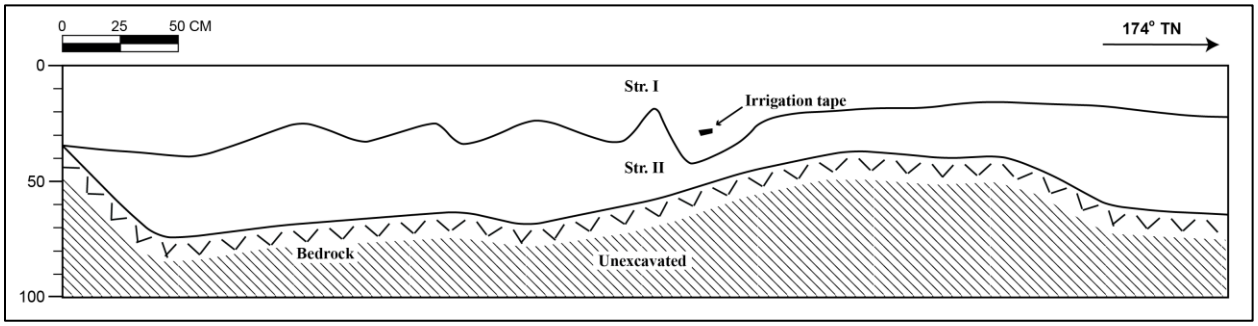


Figure 162. TE-33, stratigraphy of the east wall

Table 37. Strata observed at TE-33

Stratum	Depth (cmbs)	Description
I	0–44	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine, granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; abrupt, smooth lower boundary
II	18–75	Natural; 10YR 4/3, brown; extremely gravelly silty clay loam; weak, fine granular structure; moist, firm consistence; no cementation; slightly plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock

4.2.34 Test Excavation 34 (TE-34)

TE-34 was placed within the first row of lemon trees on the eastern side of the orchard, in the southeastern portion of the project area (Figure 163). TE-34 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.15 m long by 1.05 m wide with a maximum depth of 0.90 mbs. The stratigraphy of TE-34 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying dark brown, natural gravelly silty clay loam mottled with saprolites (Stratum II) and bedrock (Figure 164 through Figure 166 and Table 38). No cultural materials were observed.



Figure 163. TE-34, overview of the general location, view to south



Figure 164. TE-34, close-up of the east wall, view to east



Figure 165. TE-34, oblique view of the east wall, view to southeast

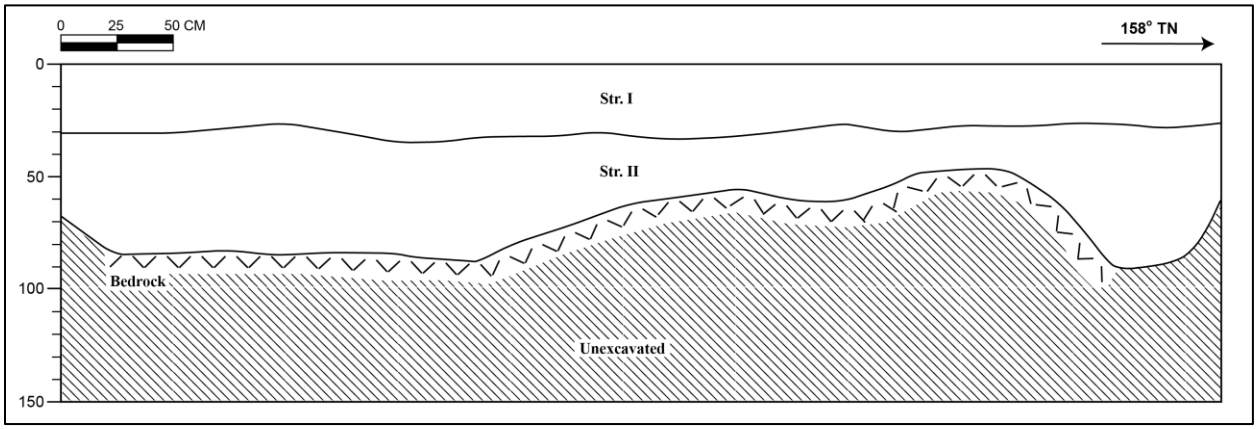


Figure 166. TE-34, stratigraphy of the east wall

Table 38. Strata observed at TE-34

Stratum	Depth (cmbs)	Description
I	0–34	Ap horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine, granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few fine roots; clear, smooth lower boundary
II	26–90	Natural; 7.5YR 3/3, dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a fine to coarse mottling of saprolites

4.2.35 Test Excavation 35 (TE-35)

TE-35 was placed along a row of lemon trees, in the southern section of the orchard, and the southwestern portion of the project area (Figure 167). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.48 mbs. The stratigraphy of TE-35 consisted of a dark red, silty clay loam Ap horizon (Stratum I) and dark brown, silty clay loam utility fill (Stratum II) overlying dark reddish brown, natural silty clay loam mottled with dark reddish brown silt loam and chemically eroded basalt (Stratum III), dark reddish brown, natural silty clay loam (Stratum IV), and bedrock (Figure 168 through Figure 171 and Table 39). Stratum II contained a 4-inch white PVC line. No significant cultural materials were observed.



Figure 167. TE-35, overview of the general location, view to north



Figure 168. TE-35, close-up of the west wall, view to west



Figure 169. TE-35, close-up of north wall with PVC, view to north



Figure 170. TE-35, overview of the west wall, view to northwest

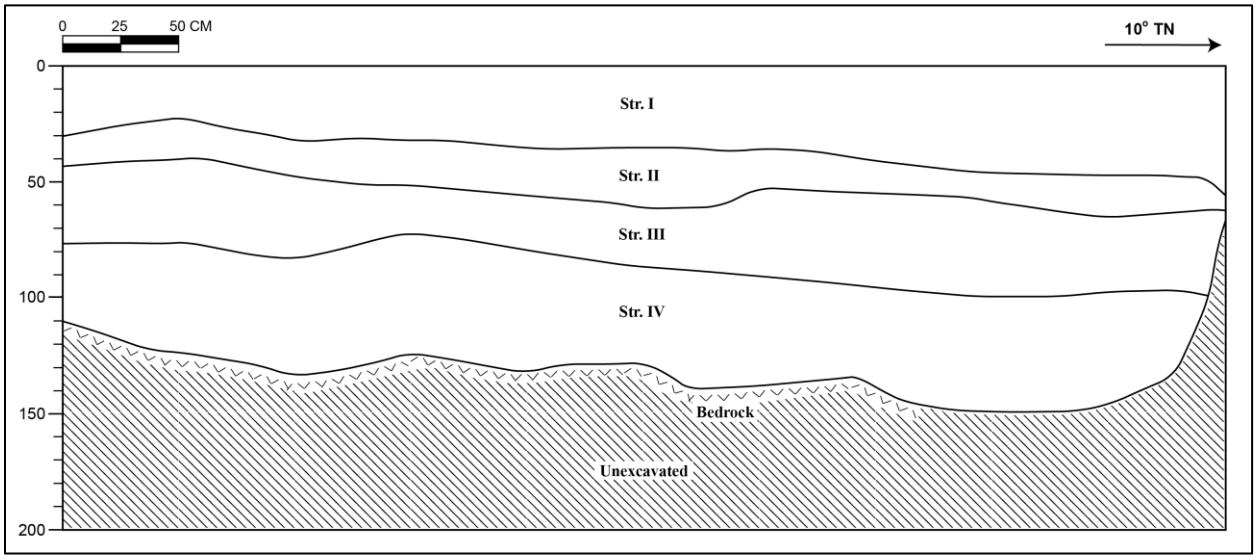


Figure 171. TE-35, stratigraphy of the west wall

Table 39. Strata observed at TE-35

Stratum	Depth (cmbs)	Description
I	0–52	Ap horizon; 2.5YR 3/6, dark red; silty clay loam; weak, medium, blocky structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine to medium roots common; abrupt, smooth lower boundary
II	23–64	Utility fill; 7.5YR 3/4, dark brown; silty clay loam; moderate, fine granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; few, fine roots; abrupt, smooth lower boundary
III	40–98	Natural; 2.5YR 2.5/4, dark reddish brown; silty clay loam; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; gradual, smooth lower boundary; contained mottles of very coarse 5YR 3/4, dark reddish brown; silt loam
IV	70–148	Natural; 5YR3/4, dark reddish brown; silty clay loam; weak, fine granular structure; moist, friable consistency; no cementation; plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock

4.2.36 Test Excavation 36 (TE-36)

TE-36 was placed along a row of lemon trees in the southern section of the orchard and the southern portion of the project area (Figure 172). The excavation was 5.00 m long by 1.05 m wide with a maximum depth of 0.80 mbs. The stratigraphy of TE-36 consisted of a dark brown, gravelly silty clay Ap horizon (Stratum I) overlying brown, natural cobbly silty clay loam mottled with saprolites (Stratum II) and bedrock (Figure 173 through Figure 175 and Table 40). No cultural materials were observed.



Figure 172. TE-36, overview of the general location, view to south



Figure 173. TE-36, close-up of the east wall, view to east



Figure 174. TE-36, oblique view of the east wall, view to northeast

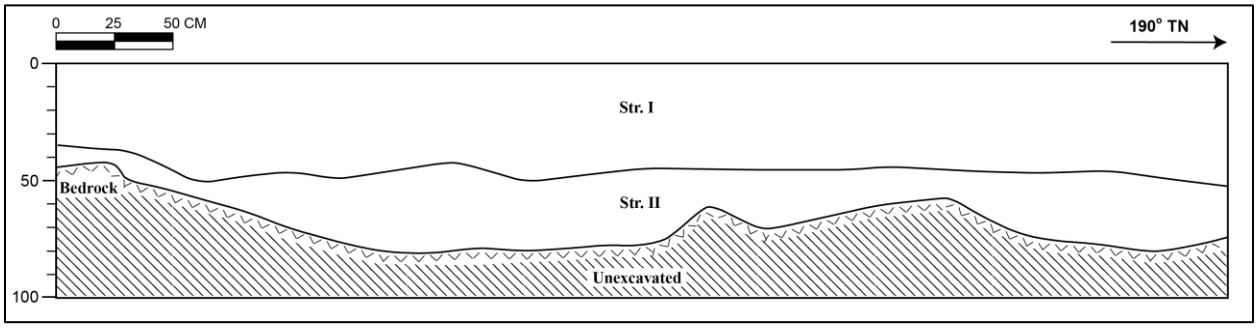


Figure 175. TE-36, stratigraphy of the east wall

Table 40. Strata observed at TE-36

Stratum	Depth (cmbs)	Description
I	0–53	Ap horizon; 7.5YR 3/3, dark brown; gravelly silty clay; moderate, medium, granular structure; dry, weakly coherent consistence; no cementation; plastic; terrigenous origin; fine roots common; abrupt, smooth lower boundary
II	35–80	Natural; 10YR 4/3, brown; cobbly silty clay loam; moderate, fine granular structure; dry, weakly coherent consistence; no cementation; slightly plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying bedrock; contained a very coarse mottling of saprolites

4.2.37 Test Excavation 37 (TE-37)

TE-37 was placed along a row of lemon trees in the southern section of the orchard and the southern portion of the project area (Figure 176). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.52 mbs. The stratigraphy of TE-37 consisted of a dark reddish brown, gravelly silty clay loam Ap horizon (Stratum I) overlying dark reddish brown, natural silty clay loam mottled with chemically eroded basalt (Stratum II) (Figure 177 through Figure 179 and Table 41). No cultural materials were observed.



Figure 176. TE-37, overview of the general location, view to north

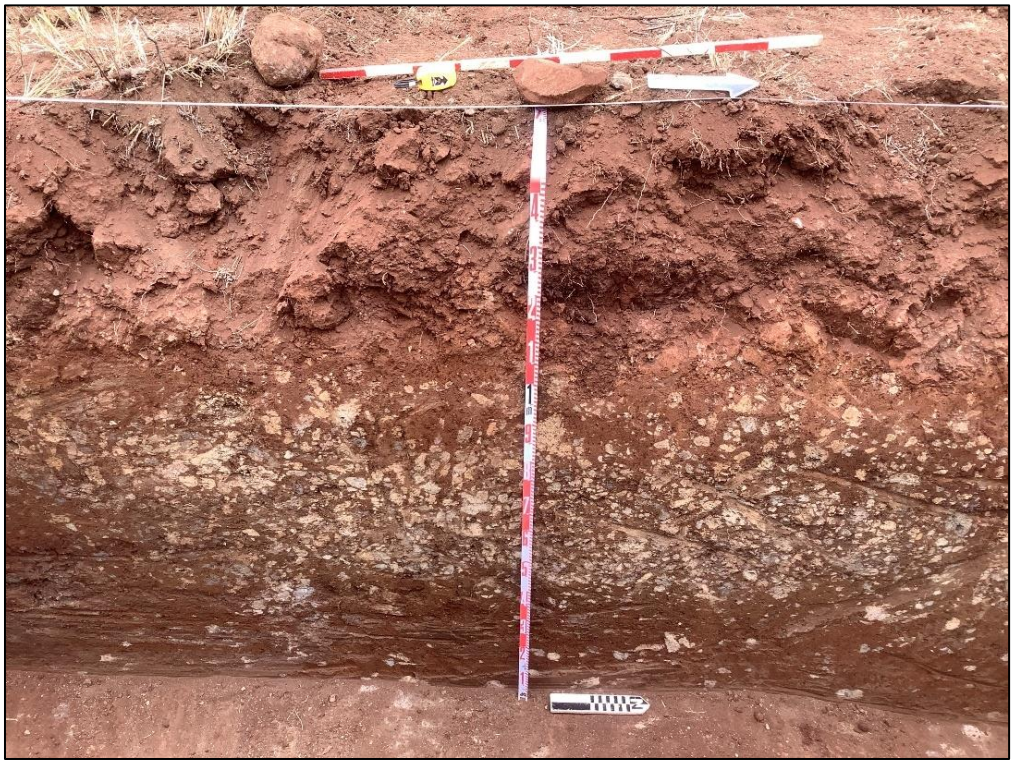


Figure 177. TE-37, close-up of the west wall, view to west



Figure 178. TE-37, overview of the west wall, view to northwest

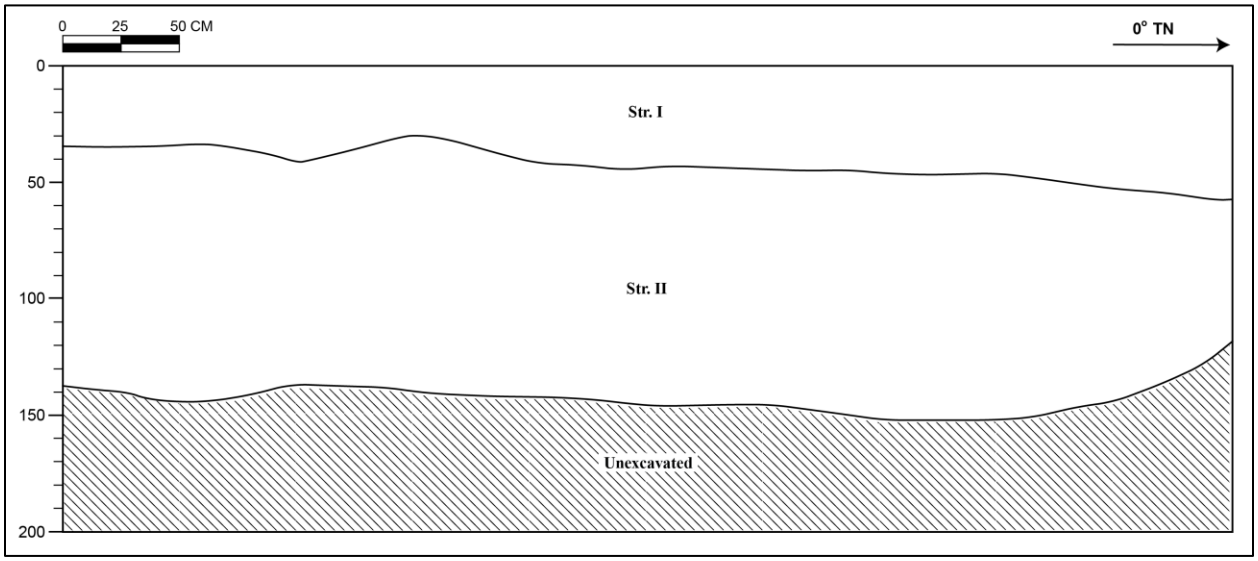


Figure 179. TE-37, stratigraphy of the west wall

Table 41. Strata observed at TE-37

Stratum	Depth (cmbs)	Description
I	0–58	Fill; 2.5YR 3/4, dark reddish brown; gravelly silty clay loam; weak, medium, granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; clear, smooth lower boundary
II	30–152	Natural; 2.5YR 3/3, dark reddish brown; very gravelly silty clay loam; weak, medium granular structure; moist, firm consistence; no cementation; plastic; terrigenous origin; no roots; lower boundary not observed; contained a very coarse mottling of chemically eroded basalt (10YR 5/1, gray; silt loam and mottling of 10YR 5/1, brown; silt loam)

4.2.38 Test Excavation 38 (TE-38)

TE-38 was placed along a row of lemon trees in the southern section of the orchard and the southeastern portion of the project area (Figure 180). The excavation was 5.0 m long by 1.0 m wide with a maximum depth of 1.2 mbs. The stratigraphy of TE-38 consisted of a very dark brown, silty clay loam Ap horizon (Stratum I) overlying very dark brown, natural gravelly silty clay loam mottled with saprolites and chemically eroded basalt (Stratum II) and bedrock (Stratum III) (Figure 181 through Figure 184 and Table 42). No cultural materials were observed.



Figure 180. TE-38, overview of the general location, view to northwest



Figure 181. TE-38, close-up of a portion of the east wall, view to east



Figure 182. TE-38, close-up of a portion of the east wall, view to east



Figure 183. TE-38, oblique view of the east wall, view to southeast

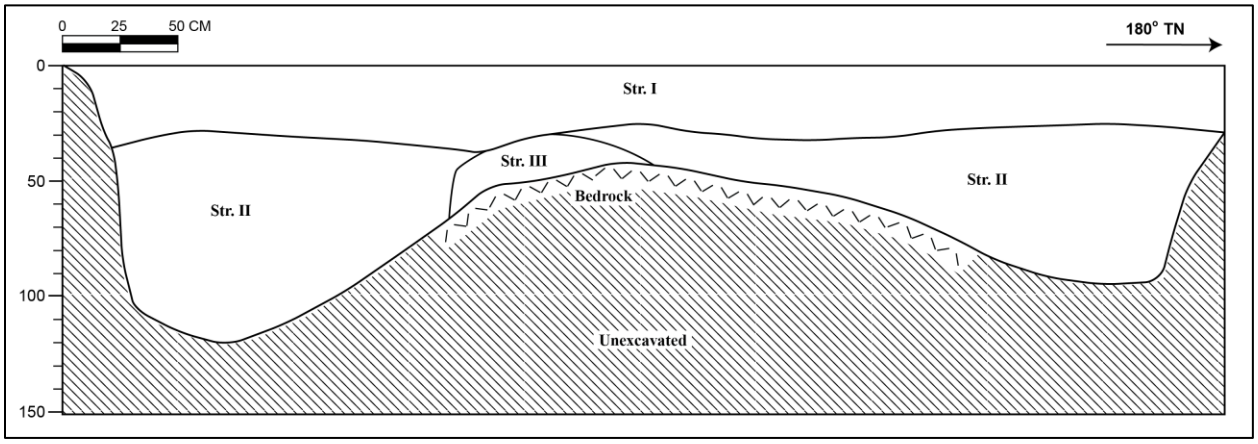


Figure 184. TE-38, stratigraphy of the east wall

Table 42. Strata observed at TE-38

Stratum	Depth (cmbs)	Description
I	0–38	Fill; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine, granular structure; moist, friable consistence; no cementation; slightly plastic; terrigenous origin; fine roots common; clear, smooth lower boundary
II	24–120	Natural; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary; contained a fine to coarse mottling of saprolites and chemically eroded basalt (7.5YR 4/1, dark gray; silty clay loam and 10YR 4/3, brown; silty clay loam)
III	28–65	R horizon; bedrock

4.2.39 Test Excavation 39 (TE-39)

TE-39 was placed along a row of lemon trees in the southern section of the orchard and the southwestern portion of the project area (Figure 185). The excavation was 5.0 m long by 0.7 m wide with a maximum depth of 1.45 mbs. The backhoe had to use a smaller, toothed-bucket for the excavation of the TE-39. The stratigraphy of TE-39 consisted of a dark reddish brown, silty clay loam Ap horizon (Stratum I) overlying dark red, natural silty clay mottled with yellowish red sandy loam (Stratum II) and bedrock (Figure 186 through Figure 188 and Table 43). No cultural materials were observed.



Figure 185. TE-39, overview of the general location, view to north



Figure 186. TE-39, close-up of the east wall, view to east



Figure 187. TE-39, oblique view of the east wall, view to northeast

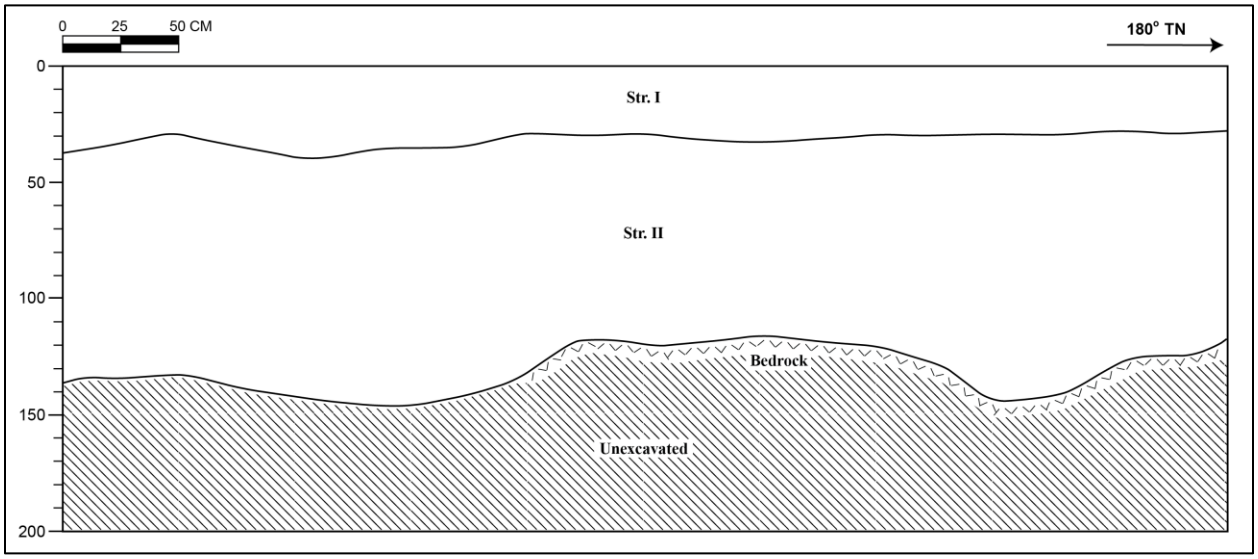


Figure 188. TE-39, stratigraphy of the east wall

Table 43. Strata observed at TE-39

Stratum	Depth (cmbs)	Description
I	0–39	Ap horizon; 5YR 3/4, dark reddish brown; gravelly silty clay loam; moderate, medium, blocky structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; clear, smooth lower boundary
II	27–145	Natural; 2.5YR 3/6, dark red; silty clay; weak, very fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; very abrupt, wavy lower boundary overlying; contained a very coarse mottling of 5YR 4/6, yellowish red; sandy loam

4.2.40 Test Excavation 40 (TE-40)

TE-40 was placed along a row of lemon trees in the southern section of the orchard and the southern portion of the project area (Figure 189). TE-40 was reoriented from east-west to north-south to fit between the orchard rows without damaging the trees. The excavation was 5.0 m long by 0.7 m wide with a maximum depth of 1.23 mbs. The backhoe had to use a smaller, toothed-bucket for the excavation of the TE-40. The stratigraphy of TE-40 consisted of a very dark brown, gravelly silty clay loam Ap horizon (Stratum I) overlying brown, natural very gravelly silty clay (Stratum II), and bedrock (Stratum III) (Figure 190 through Figure 192 and Table 44). No cultural materials were observed.



Figure 189. TE-40, overview of the general location, view to north



Figure 190. TE-40, close-up of the east wall, view to east



Figure 191. TE-40, oblique view of the east wall, view to northeast

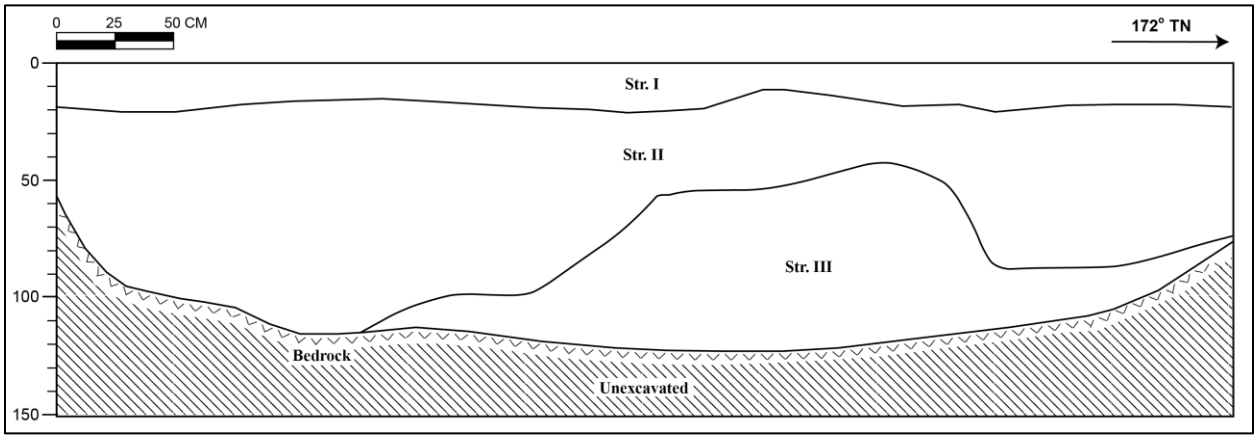


Figure 192. TE-40, stratigraphy of the east wall

Table 44. Strata observed at TE-40

Stratum	Depth (cmbs)	Description
I	0–22	A horizon; 7.5YR 2.5/3, very dark brown; gravelly silty clay loam; weak, medium, blocky structure; moist, friable consistence; no cementation; plastic; terrigenous origin; fine to medium roots common; clear, smooth lower boundary
II	12–116	Natural; 7.5YR 4/2, brown; very gravelly silty clay loam; weak, fine granular structure; moist, friable consistence; no cementation; plastic; terrigenous origin; no roots; abrupt, irregular lower boundary
III	42–123	R horizon; bedrock

Section 5 Summary

At the request of Hawaiian Cement, CSH conducted an AIS for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por. As there were no historic properties identified during the AIS, this study is termed an archaeological assessment (AA) in accordance with §13-284-5(5)(A).

The project area is along the western side of Upper Kīhei Road and consists of approximately 125 acres (50.59 hectares) of agricultural land (portions of Fields 815 and 818) containing an active lemon orchard. Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Pu‘unēnē Quarry within a portion of the existing permitted area of 167.7 acres. In consideration of an impending January 2027 lease termination of the current quarry area, Hawaiian Cement proposes to develop a new mining area on the adjacent property, which has an ample supply of rock resources and will allow the facility to continue production. The entire 125-acre project area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock. At the time of this study, Hawaiian Cement has purchased 55 of the 125-acre project area and will purchase the remaining 70 acres from Mahi Pono Holdings, LLC upon issuance of the permit.

Six archaeological studies have been conducted in the vicinity of the Pu‘unēnē Quarry and subsequent expansion areas. These studies have included a 1990 walk-through reconnaissance survey that covered the southern portion of the current project area with no findings (Kennedy 1990) and three AIS studies with negative findings (Rotunno-Hazuka et al. 2011; Fuentes et al. 2020; Yucha et al. 2023). Additional studies conducted around the periphery of the quarry have identified surface historic properties related to commercial sugarcane cultivation, ranching, and military use at the former Naval Air Station Puunene (Tomonari-Tuggle et al. 2001; Lee-Greig et al. 2011).

The AIS investigation included a 100% pedestrian surface survey and 40 test excavations distributed throughout the project area. No significant cultural materials were encountered, and no surface or subsurface historic properties were identified. Charcoal flecking was observed in TE-3 and TE-4 in the northwest and TE-28 in the southeast and attributed to decades of previous sugarcane burn events. The negative results of AIS testing within the project area are consistent with the negative results reported from previous studies at the quarry site (Fuentes et al. 2020; Kennedy 1990; Rotunno-Hazuka et al. 2011; Yucha et al. 2023).

In general, the stratigraphy observed throughout the project area included a modern agricultural plow zone surface (Ap horizon) overlying natural alluvial soil and chemically eroded bedrock. The bedrock shelf (R horizon) was encountered within most of the excavations along the eastern, southern, and western edges. Notably, the bedrock shelf was not reached within the central portion or most of the northern portion of the project area. The excavations that did not reach bedrock were between 0.97 and 1.80 mbs (3.1 and 5.9 ft below surface). Naturally deposited volcanic cinder was present in several excavations near the northeastern boundary and in one excavation in the western portion of the project area.

Section 6 Project Effect and Mitigation Recommendations

6.1 Project Effect

The current AIS has confirmed that there were no identified historic properties within the project area and in accordance with HAR §13-13-284-7, the effect recommendation for the proposed project is “no historic properties affected”.

6.2 Mitigation Recommendations

No further work is recommended. The current AIS has confirmed that no historic properties are present. In the unlikely event that subsurface historic properties are identified during mining within the project area, CSH recommends that work be ceased in the immediate vicinity of the find, the find be protected from additional disturbance, and the SHPD be contacted immediately in order to provide additional guidance.

Section 7 References Cited

Allen, Gwenfread

1950 *Hawaii's War Years, 1941 -1945*. The Advertiser Publishing Company, University of Hawai‘i Press, Honolulu.

Army, U. S.

1948 *27th Infantry Division Official 1948 Yearbook*. Raymond L. Balasny, Yearbooks Publishing Company, 222 East 46th Street, New York.

Balch, D. F.

1938 *Maui Airport, Maui, Territory of Hawai‘i.* Proposed airport layout in Maui's central isthmus, along the Government Road to Kīhei., 1"=300' (1 inch equals 300 feet). Territory of Hawai‘i Airport Engineers in cooperation with E. L. Yacavich, Chief Airline Inspector, Foreign, Bureau of Air Commerce. Honolulu, Hawai‘i.

Beckwith, Martha W.

1970 *Hawaiian Mythology*. University of Hawai‘i Press, Honolulu.

Belknap, William "Jazz, " Sr.

1947 Puunene Air Station Now Ghost Town; NASKA Faces Same Fate. *The Maui News* May 28, 1947. Wailuku, Hawai‘i.

Brown, Roderick S., and Alan Haun

1989 Draft: Archaeological Inventory Survey, Keokea and Waiohului Subdivisions, Lands of Keokea and Waiohuli, Makawao, Island of Maui. Paul H. Rosedahl, Inc., Hilo, Hawai‘i.

Burgett, Berdena, and Robert L. Spear

1995 *An Archaeological Inventory Survey of 22.25 acres of Land in Kula, Kaonoulu Ahupua‘a Makawao District, Island of Maui (TMK 2-2-06:105)*. Scientific Consultant Services, Inc., Kaneohe, Hawai‘i.

Cabos, August

2000 History of the 48th SeaBees at NAS Puunene., edited by Robert Hill. Cultural Surveys Hawai‘i, Inc., Kihei, Hawai‘i.

Clark, John R. K.

1980 *The Beaches of the Maui County*. University of Hawai'i Press, Honolulu, Hawai'i.

Command, Naval History and Heritage

1947 (K-17-APO 959/S)(4)(7OF)(2-12-47)(21 48'N - 156 28'W)(PUU NENE FIELD)(MAUI, T.H.)(RESTRICTED). Vol. Oblique. U. S. Air Forces vols. Base Photo Lab APO 959, 2-6-1C.

Condé, Jesse C., and Gerald M. Best

1973 *Sugar Trains: Narrow Gauge Rails of Hawaii*. Glenwood Publishers, Felton, California.

Cotten, Commander J. L.

1945 *NAS Puunene Unit History*. Submitted to Department of the Navy, Serial G132, San Francisco.

County of Maui

n.d. *Fallout Shelters County of Maui*. County of Maui.

Cressy, Commander F. B.

1944 39th C.B. Censor's Office. *39th N.C.B. Shore Lines* January 31, 1944. "Island X".

Dean, Arthur L.

1950 *Alexander & Baldwin, Ltd. and the Predecessor Partnerships*. Alexander & Baldwin Ltd. and Advertiser Publishing Company, Honolulu.

Department of the Navy

1947 *Building the Navy's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946*. U.S. Government Printing Office, Washington, D.C.

Dodge, F.S.

1885 *Maui, Hawaiian Islands. Registered Map 1268*, 1:90,000. Hawaiian Government Survey. Library of Congress Geography and Map Division Washington, D.C. 20540-4650.

Donham, Theresa K.

1992 *Surface Survey of the Koyanagi Subdivision, Omaopio, Kula, Maui TMK 2-3-03:129*. State of Hawai‘i Department of Land and Natural Resources, State Historic Preservation Division, Wailuku, Hawai‘i

EagleView Technologies Inc.

2023 *Aerial Image*. EagleView Technologies, Inc. Bellevue, WA.

Fahrney, USN Ret., Rear Admiral D. S.

1982 Guided Missiles: U.S. Navy The Pioneer. *American Aviation Historical Society AAHS Journal* 27(1):15-28.

Feightner, Rear Admiral Edward L. "Whitey"

1997 Naval aviation combat training at NAS Puunene under the instruction of Edward "Butch" O'Hare edited by Robert Hill. appears in CSH reports PULEH-1 to date, regarding the history of NAS Puunene during WWII, originally interviewed on behalf of the Maui Military Museum, in Pensacola, Florida. ed.

Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens

1972 *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. Soil Conservation Service, United States Department of Agriculture, Washington, D.C.

Fuentes, Reynaldo, Lisa Rotunno-Hazuka, Jenny O‘Claray-Nu, and Jeffrey Pantaleo

2020 *Archaeological Assessment Report for Hawaiian Cement Quarry Expansion Located at TMK: [2] 3-8-001 pors., Pulehu Nui Ahupua'a, Kula Moku; Wailuku District Island of Maui*. Copies available from LLC. Archaeological Services Hawaii, Wailuku, Hawai'i.

Giambelluca, Thomas W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte

2013 Online The Rainfall Atlas of Hawai‘i. In *Bull. Amer.Meteor. Soc.*, pp. 313-316. Vol. 94. University of Hawai‘i at Mānoa, Honolulu.

Giambelluca, Thomas W., X. Shuai, M.L. Barnes, R.J. Alliss, R.J. Longman, T. Miura, Q. Chen, A.G. Frazier, R.G. Mudd, L. Cuo, and A.D. Businger

2014 Evapotranspiration of Hawai‘i. Final report submitted to the U.S. Army Corps of Engineers—Honolulu District, and the Commission on Water Resource Management, State of Hawai‘i. University of Hawai‘i at Mānoa, Honolulu.

Gilmore, A. B.

1936 *The Hawaii Sugar Manual*. New Orleans, Louisiana.

Google Earth Pro

2025 *Google Earth Aerial Imagery*.

Handy, E.S. Craighill, and Elizabeth G. Handy

1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Handy, E.S. Craighill, Elizabeth Green Handy, and Mary Kawena Pukui

1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Revised ed. Bernice P. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Hawaii TMK Service

2014 *Tax Map Key [2] 3-8-004*. Hawaii TMK Service.

Hawaiian Commercial & Sugar Co.

1949 *Sugar Plantation of the Hawaiian Commercial & Sugar Co.* Hawaiian Commercial and Sugar Company.

Helber, Larry E., Mark H. Hastert, and Thomas A. Fee

1995 *Puunene Airport Area Master Plan/MEO Transportation Facility Concept Plan, Pūlehu Nui, Maui, Hawai`i*, edited by County of Maui Planning Department. Helber Hastert and Fee, Planners, Inc., Honolulu, Hawai`i.

James, Van

2002 *Ancient Sites of Maui, Moloka‘i and Lāna‘i: Archaeological Places of Interest in the Hawaiian Islands*. Mutual Publishing, Honolulu.

Janion, Aubrey P.

1977 *The Olowalu Massacre and Other Hawaiian Tales*. Island Heritage, Australia, Norfolk Island.

Journal, Infantry

1948 *A History of the 33rd Infantry Division*. Infantry Journal, Inc., 1115 17th Street, Washington, D.C.

Kamakau, Samuel Mānaiakalani

1961 *Ruling Chiefs of Hawaii*. Kamehameha Schools Press, Honolulu.

Kennedy, Joseph

1990 *Archaeological Walk-Through Reconnaissance Survey of the Proposed Hawaiian Cement Puunene Quarry, Located at Pulehunui, Wailuku, (Kula), Maui, TMK: 3-8-04:01 (por.) and 3-8-04:02 (por.).* Copies available from Inc. Archaeological Consultants of Hawaii, Haleiwa, Hawai‘i.

1992 Archaeological Inventory Survey with Subsurface Testing Report for a Property at TMK: 3-9-04:76,77,78 in Kama‘ole Ahupua`a, Wailuku District, Island of Maui. Archaeological Consultants of Hawai‘i, Hale‘iwa, Hawai‘i.

Kennedy, Stanley C.

1937 America's Most Westerly Domestic Airline *Pan-Pacific*: 17-18.

Kolb, Michael J., Patty J. Conte, and Ross Cordy

1997 Kula: The Archaeology of Upcountry Maui in Waiohuli and Keokea, An Archaeological and Historical Settlement Survey in the Kingdom of Maui. Translated by State of Hawaii Department of Land and Natural Resources State Historic Preservation Division. State of Hawaii Department of Land and Natural Resources, State Historic Preservation Division, Honolulu.

Kuykendall, R.S.

1938 *The Hawaiian Kingdom: 1778-1854, Foundation and Transformation*. University of Hawaii Press, Honolulu.

Lacouture, USN (Ret.), Captain John E.

1989 A Brief History of NAS Puunene, NAS Kahului, and Alexis Von Tempsky Zabriskie *Wings of Gold*.

Lee-Greig, Tanya L., Katie Sprouse, Michael Willman, Todd MCCurdy, and Hallet H. Hammatt

2011 An Archaeological Inventory Survey Report for an Agricultural Subdivision of Approximately 3165 Acres Pulehu Nui Ahupua'a, Wailuku District, Maui Island TMKs: (2) 3-8-04:002, 020, and 024, Volume 2 of 2. Cultural Surveys Hawaii, Inc., Wailuku, Hawai'i.

Lundstrom, John B., and Steve Ewing

1990 *The First Team, Pacific Naval Air Combat from Pearl Harbor to Midway*. Naval Institute Press, Annapolis, Maryland.

McCandless, James Sutton

1936 *Development of Artesian Well Water in the Hawaiian Islands, 1880-1936*. Advertiser Publishing Company, Honolulu.

McCully, J.

1879 In the Matter of the Boundaries of Pulehunui, Supreme Court of the Hawaiian Kingdom. *Hawaiian Journal of Law and Politics*.

Moffat, Riley M., and Gary L. Fitzpatrick

1995 *Surveying the Mahele: Mapping the Hawaiian Land Revolution*. Palapala‘āina. Editions Limited, Honolulu.

Morison, Samuel Eliot

1951 *The Rising Sun in the Pacific, 1931 - April 1942*. First ed. History of United States Naval Operations in World War II, Vol. Volume III. Little, Brown & Co., Boston.

1953 *Coral Sea, Midway, and Submarine Actions, May 1942 - August 1942*. History of United States Naval Operations in World War II. Little, Brown & Co., Boston.

Pratt, Linda W., and Samuel M. III Gon

1998 Terrestrial Ecosystems. In *Atlas of Hawai‘i Third Edition.*, edited by Sonia P. Juvik, and James O. Juvik, pp. 121-129. University of Hawaii Press., Honolulu, Hawai‘i

Priestman, Captain Frederic W.

1946 $114,000 Damages Done by Tidal Wave Here. *The Flyer, NAS Kahului Maui* April 13, 1946 Vol. II, No. 21:8. Kahului, Hawai‘i.

Pukui, Mary Kawena, Samuel H. Elbert, and Esther T. Mookini

1974 *Place Names of Hawaii*. Revised and Enlarged ed. University Press of Hawaii, Honolulu.

Rogers II, USN, Captain E. Earle

2002 Declassified *Foundation Magazine*: 56-60.

Rotunno-Hazuka, Lisa, Reynaldo Fuentes, Jenny O‘Claray, and Jeffrey Pantaleo

2011 *Archaeological Assessment Report for Hawaiian Cement Quarry Expansion Located at TMK: [2] 3-8-001 pors., Pulehu Nui Ahupua'a, Kula Moku; Wailuku District Island of Maui*. Copies available from LLC. Archaeological Services Hawaii, Wailuku, Hawai'i.

Saito, Norman

2008 Maalaea Airport. Cultural Surveys Hawaii, Inc., Wailuku, Maui.

Sanford, Mary Cameron

2004 Civilian interaction with military forces on Maui during WWII., edited by Robert Hill. Cultural Surveys Hawaii, Makawao.

2008 History of newspaper communication on Maui during WWII, edited by Robert Hill. Cultural Surveys Hawaii, Wailuku.

Shettle Jr. , M. L.

1997 NAS Puunene, Hawaii. In *U.S. Naval Air Stations of World War II*, Vol Volume 2: Western States, pp. 190-191. Schaertel Publishing Co., Bowersville, Georgia.

Shoemaker, H.I.

1910 *Map of Sugar Plantation at Puunene, Maui, T.H., Owned by Hawaiian Commercial and Sugar Company*, 1:1200.

Shoemaker, H.J.

1907 *Approximate Map of Kihei Plantation Compiled from various Sources*, 500=1". Puunene, Hawai‘i.

Stearns, Harold T., and Gordon A. Macdonald

1942 *Geology and Ground-Water Resources of the Island of Maui, Hawaii*. Bulletin 7 vols. Territory of Hawaii, Division of Hydrography, Advertiser Publishing Company, Honolulu.

Sterling, Elspeth P.

1998 *Sites of Maui*. Bishop Museum Press, Honolulu.

Stokes, John F.G.

1917 Report on the Heiau of Maui. In *Hawaiian Alamanac and Annual for 1913 The Reference Book of Information and Statistics Relating to the Territory of Hawaii, of Value to Merchants, Tourists and Others.*, edited by Thomas G. Thrum, pp. 125. Thos. G. Thrum, Honolulu.

Thrum, Thomas G.

1900 Lowrie Irrigating Canal. In *Hawaiian Almanac and Annual for 1901*. Hawaiian Gazzette Company, Honolulu.

Tomonari-Tuggle, M.J., H. David Tuggle, Dawn Deunsing, Coral Magnuson, and Usha Prasad

2001 *Fire on the Land: Archaeology, Architecture, and Oral History of Former Naval Air Station Pu‘unene, Pulehunui, Maui*. International Archaeological Research Institute, Inc., Honolulu.

Turner, Jack W.

1945 Souvenir Edition Tradewinds. *48th U. S. Naval Construction Battalion* 60.

U.S. Army

1947 *40th Infantry Division, the Years of World War II*. Army and Navy Publishing Company, Baton Rouge, Louisiana.

U.S. Department of Agriculture, Natural Resources Conservation Service

2001 Soil Survey Geographic (SSURGO) database for Island of Maui, Hawaii (hi980). U.S. Department of Agriculture, Natural Resources Conservation Service.

U.S. Geological Survey

1954a *Maalaea Quadrangle, Hawaii [map]*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

1954b *Puu O Kali Quadrangle, Hawaii [map]*. United States Department of the Interior, USGS. Reston, Virginia.

1954c *Topographic Map, Paia Quadrangle*. United States Department of the Interior, USGS. Reston, Virginia.

1955 *Wailuku Quadrangle, Hawaii [map]*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

1976 Puu o Kali Orthophoto Quadrangle. United States Department of the Interior, USGS, Reston, Virginia.

1992 *Puu o Kali Quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston.

1996 *Maalaea Quadrangle, Hawaii [map]*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

1997a *Paia Quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

1997b *Wailuku Quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston.

1997c *Wailuku quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

2017a *Paia Quadrangle, Hawaii*. United States Department of the Interior.

2017b *Puu O Kali Quadrangle, Hawaii*. United States Department of the Interior.

2024 *Puu o Kali Quadrangle, Hawaii*. United States Department of the Interior.

Vint, Paul

2000 History of the U. S. Navy 48th Construction Battalion on Maui, edited by Robert Hill. Fire on the Land: Tomonari-Tuggle et al 2001, and all subsequent CSH reports on NAS Puunene ed. Cultural Surveys Hawaii, Inc., Kihei, Hawaii.

Waihona ‘Aina

2000 Mahele Database. Waihona ‘Aina Corporation.

Walker, Winslow

1931 *Archaeology of Maui*. Bernice Pauahi Bishop Museum, Honolulu.

Wilcox, Carol

1996 *Sugar Water: Hawaii’s Plantation Ditches*. University of Hawai‘i Press, Honolulu.

Wilcox, Robert K.

2004 *First Blue: The Story of WWII Ace Butch Voris and the Creation of the Blue Angels*. Thomas Dunne Books, St. Thomas Press, New York, NY.

Woodbury, David O.

1946 *Builders For Battle, How the Pacific Naval Air Bases were Constructed*. E. P. Dutton and Company Incorporated, New York.

Yanik, Kevin

2018 Hawaii operation overcomes waste coarse aggregate issue *Pit&Quarry*.

Yoklavich, Ann, Myra J. Tomonari-Tuggle, and David J. Welch

1997 Architecture and Archaeology at Naval Air Station Kahului, Kahului Airport, Island of Maui. Spencer Mason Architects and International Archaeological Research Institute, Inc., Honolulu, Hawai‘i.

Young, Charles.

1950 Land, Water Discussed at Meetings Here. *The Maui News* August 23, 1950. Wailuku.

Yucha, Trevor M., Josephine M. Yucha, and Hallett H. Hammatt

2023 Archaeological Assessment Report for the Hawaiian Cement Quarry Mining Site Increment 4 Expansion Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana District, Maui Island, TMK: (2) 3-8-004:001 por. . Cultural Surveys Hawai‘i, Inc., Wailuku, Hawai‘i.

Appendix A AIS Testing Strategy

CULTURAL SURVEYS HAWAI`I
ARCHAEOLOGICAL, CULTURAL, AND HISTORICAL DOCUMENTATION SERVICES - SINCE 1982

January 9, 2025

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Branch Offices:
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Subject: Early Consultation for Archaeological Inventory Survey Fieldwork Strategy for the Hawaiian Cement New Mining Area Project, Pulehunui Ahupua‘a, Wailuku District (Pū‘ali Komohana Moku), Maui Island, TMK: [2] 3-8-004:001-002 por.

CSH Job Code: PULEHUNUI 21
HICRIS Project: TBD
Permits: TBD

Aloha:

On behalf of Hawaiian Cement, Cultural Surveys Hawai‘i, Inc. (CSH) would like to consult with the State Historic Preservation Division (SHPD) regarding an appropriate archaeological inventory survey (AIS) fieldwork strategy for the Hawaiian Cement New Mining Area Project. We hope to be able to obtain SHPD approval to conduct an AIS with a subsurface testing component so that we can begin this work prior to initiation of the project's permit review process.

Project Background
Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Pu‘unēnē Quarry within a portion of the existing permitted area of 167.7 acres. Hawaiian Cement is requesting an expansion of 125 acres to their permit area. The proposed 125-acre expansion area (defined in this letter as the "project area") consists primarily of former commercial sugarcane fields (Figure 1). The change in mining progression was prompted by the unexpected change in the geology of the rock source and rock product

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requirements at the time. The entire 125-acre expansion area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock.

Six archaeological studies have been conducted in the vicinity of the Pu‘unēnē Quarry and subsequent expansion areas (Figure 2). These studies have included a 1990 walk-through reconnaissance survey that covered the southern portion of the current project area with no findings (Kennedy 1990) and three AIS studies with negative findings (Rotunno-Hazuka et al. 2011; Fuentes et al. 2020; Yucha et al. 2023). Additional studies conducted around the periphery of the quarry have identified surface historic properties related to commercial sugarcane cultivation, ranching, and military use at the former Naval Air Station Puunene (Tomonari-Tuggle et al. 2000; Lee-Greig et al. 2011).

While the current project area was previously used for commercial sugarcane cultivation, there remains a potential for surface historic properties related to commercial agriculture as well as subsurface historic properties related to pre- and post-Contact land use. Subsurface testing conducted during the AIS will confirm the presence/absence of historic properties that may be located beneath the agricultural plow zone. In order to identify historic properties and any potential cultural impacts or concerns related to the proposed project, CSH proposes to conduct an AIS that utilizes the subsurface testing strategy and methodologies outlined herein as well as a cultural impact assessment that will include outreach and consultation with persons knowledgeable about the project area's history.

Pedestrian Inspection

The AIS fieldwork will include a 100 percent coverage pedestrian survey of the surface of the project area to identify any surface historic properties that may be present. The survey will be completed by a team of archaeologists conducting pedestrian transects. Transect spacing will depend on ground visibility. For open, plowed fields where ground visibility is excellent, spacing will be 10.0 m. For vegetated or unmaintained areas where ground visibility is poor, spacing will be 5.0 m. All surface historic properties will be recorded using a GPS receiver that is capable of sub-meter accuracy.

Documentation of Surface Historic Properties

If surface archaeological historic properties are identified, these properties will be inventoried and documented in accordance with Hawai‘i Administrative Rules (HAR) §13-276-5(d) and other pertinent law. Documentation will generally include photographs (with scale and north arrow), written descriptions, scaled plan and/or profile maps, and sub-meter accurate GPS location.

If architectural historic properties are identified, CSH proposes to document these historic properties to be consistent with the documentation of archaeological historic properties, which can be used by the SHPD Architecture Branch or a qualified architectural historian to complete an assessment of significance.

Geotechnical Testing

In order to determine the feasibility of mining, some initial geotechnical drilling was conducted within the project area prior to CSH's involvement with the project. While these excavations were not directly observed by an archaeologist, the geotechnical boring logs provide relevant data on the depth and characteristics of soil deposits within the project area. The boring logs indicate that soil depths vary throughout the project area from 0 to 32 ft (0 to 9.7 m) below surface. These soil deposits overlay basalt bedrock. The locations and results of geotechnical boring will be included within the AIS report in order to supplement the locations selected for AIS subsurface testing.

Subsurface Testing

No previous archaeological testing has been conducted within the subject project area. A review of previous archaeological studies indicates that there is a potential to identify subsurface historic properties in this region that include historic artifact scatters (SIHP #s 50-50-10-06687, -06701, and -06751) like those identified by Lee-Greig et al. (2011) to the south of the current project area.

In an effort to identify subsurface historic properties, CSH proposes to complete systematic sampling throughout the project area. The proposed sampling strategy will require the excavation of 40 mechanically assisted test excavations (T-1 through T-40) that have been plotted in a systematic gridded pattern distributed throughout the project area (Figure 3 and Figure 4). Each AIS excavation will be of equal size and measure 5.0 m by 1.0 m (16.4 by 3.3 ft). Each AIS excavation will extend to culturally sterile soil or bedrock. The proposed sampling strategy is consistent with the sampling strategy that was completed by CSH for the AIS of the Increment 4 Expansion (Yucha et al. 2023).

Fieldwork will be directed by CSH principal investigator and qualified osteologist, Josephine Yucha, M.S., along with a field crew of 2-3 archaeologists. A backhoe contractor will be used to slowly excavate and backfill each trench. If sand deposits or other potentially significant deposits are encountered, these deposits will be excavated in short draws and 6-inch lifts using the backhoe in order to minimize any potential disturbance to subsurface historic properties. All excavation locations will be recorded using a GPS receiver that is capable of sub-meter accuracy.

Documentation of Subsurface Historic Properties

Documentation of each excavation will include the recordation of soils, a stratigraphic profile of the entire length of the excavation, plan view maps as necessary, photographs, and sub-meter accurate GPS location. If non-burial subsurface historic properties are identified, then CSH will document these historic properties in accordance with HAR §13-276-5(d) and other pertinent law. Once identified, non-burial historic properties will be exposed using hand excavation and any sediment matrix associated with the historic property will be screened through 1/8th-inch wire mesh. If human skeletal remains are identified, they will be treated as previously identified finds. CSH will stop work, notify the SHPD and representatives of the Maui/Lāna‘i Islands Burial Council (MLIBC), and ensure that the remains are secured in place pending an MLIBC treatment determination.

Following each excavation, the area will be backfilled, compacted, and restored to near original condition. At the conclusion of fieldwork, CSH will prepare and submit a draft AIS report for the review and acceptance of the SHPD.

If you have any questions or comments regarding this strategy, please feel free to call me at (808) 242-9882 on Maui or toll free at 1-800-599-9962. You may also reach me by e-mail at tyucha@culturalsurveys.com.

Sincerely,



Trevor Yucha
Cultural Surveys Hawai‘i, Inc.

(On behalf of CSH Principal Investigator, Josephine M. Yucha, M.S.)

To: SHPD **Page 5**

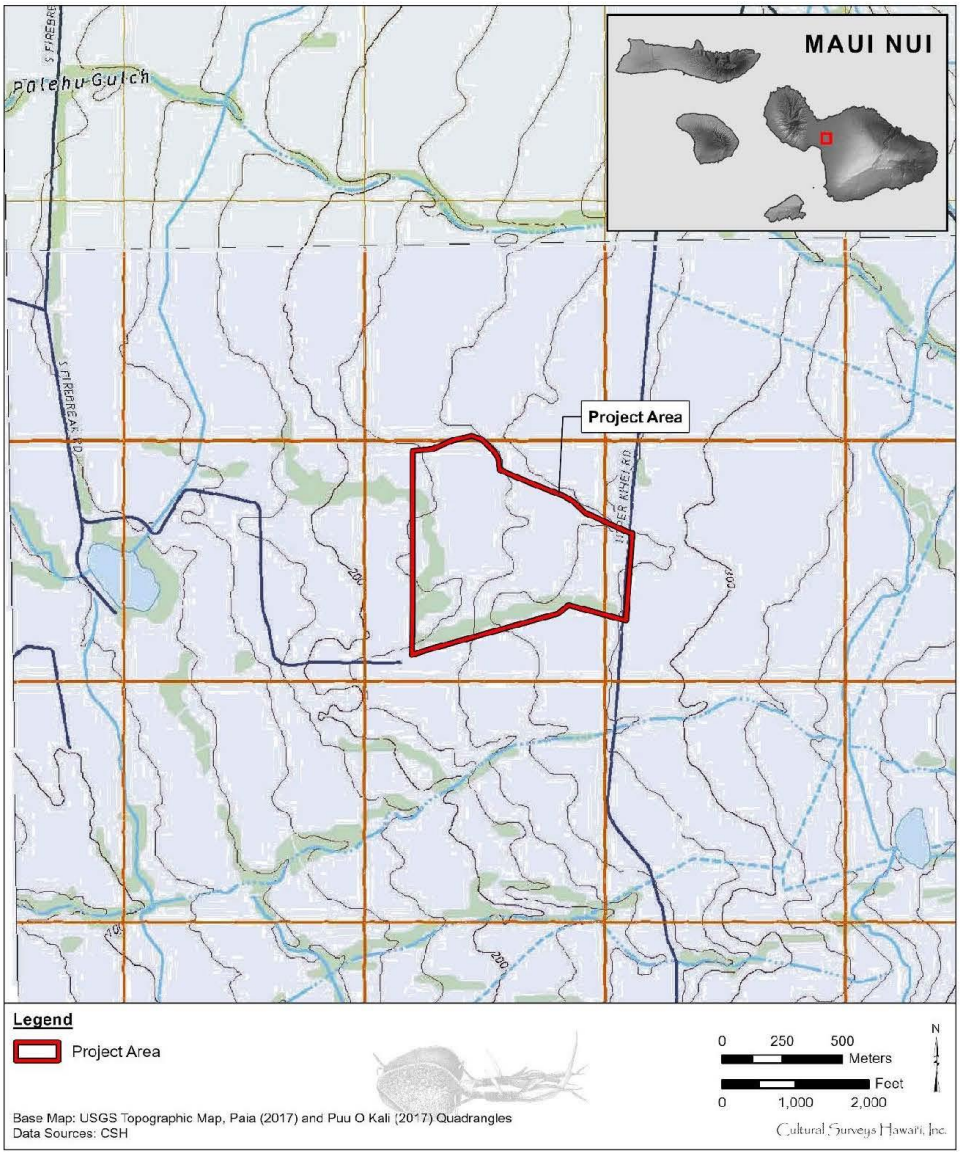


Figure 1. Portions of the 2017 Paia and 2017 Puu o Kali U.S. Geological Survey 7.5-minute topographic quadrangles depicting the location of the current project area

Re: Hawaiian Cement New Mining Area Project

CULTURAL SURVEYS HAWAI'I

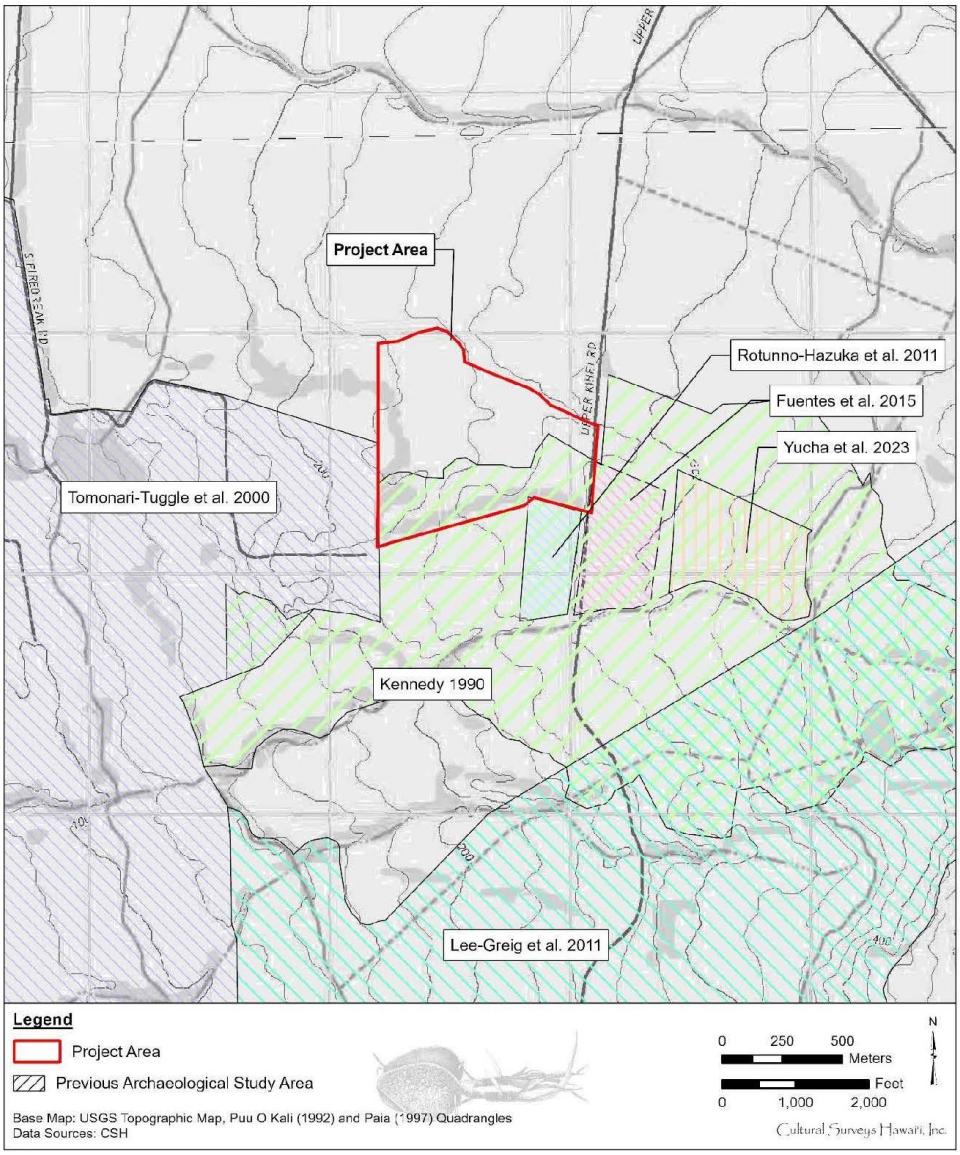


Figure 2. Portions of the 1997 Paia and 1992 Puu o Kali U.S. Geological Survey 7.5-minute topographic quadrangles depicting the locations of previous archaeological studies conducted in the vicinity of the current project area

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CULTURAL SURVEYS HAWAI'I

To: SHPD **Page 7**

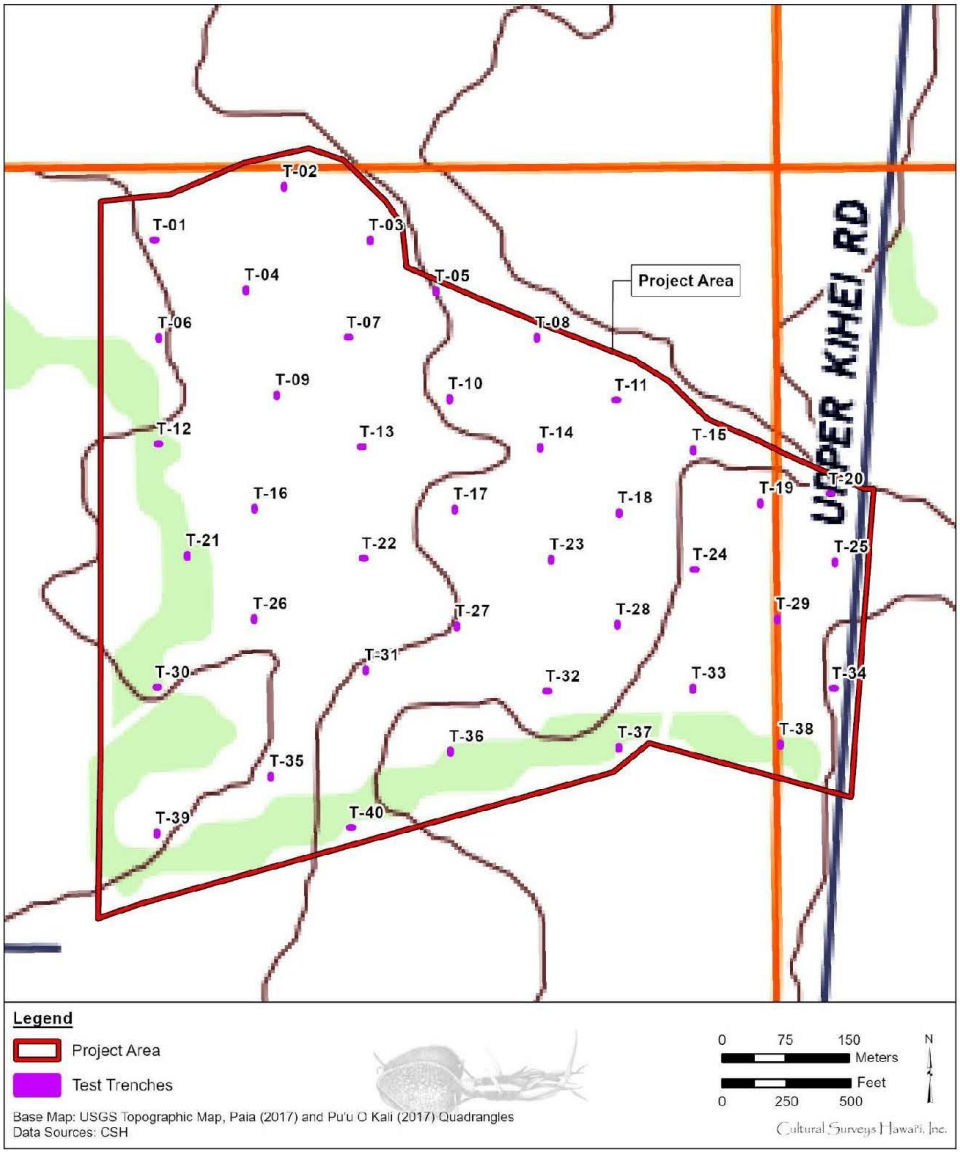


Figure 3. Portions of the 2017 Paia and 2017 Puu o Kali U.S. Geological Survey 7.5-minute topographic quadrangles depicting the proposed locations of 40 AIS test excavations (T-1 through T-40) within the current project area

Re: Hawaiian Cement New Mining Area Project

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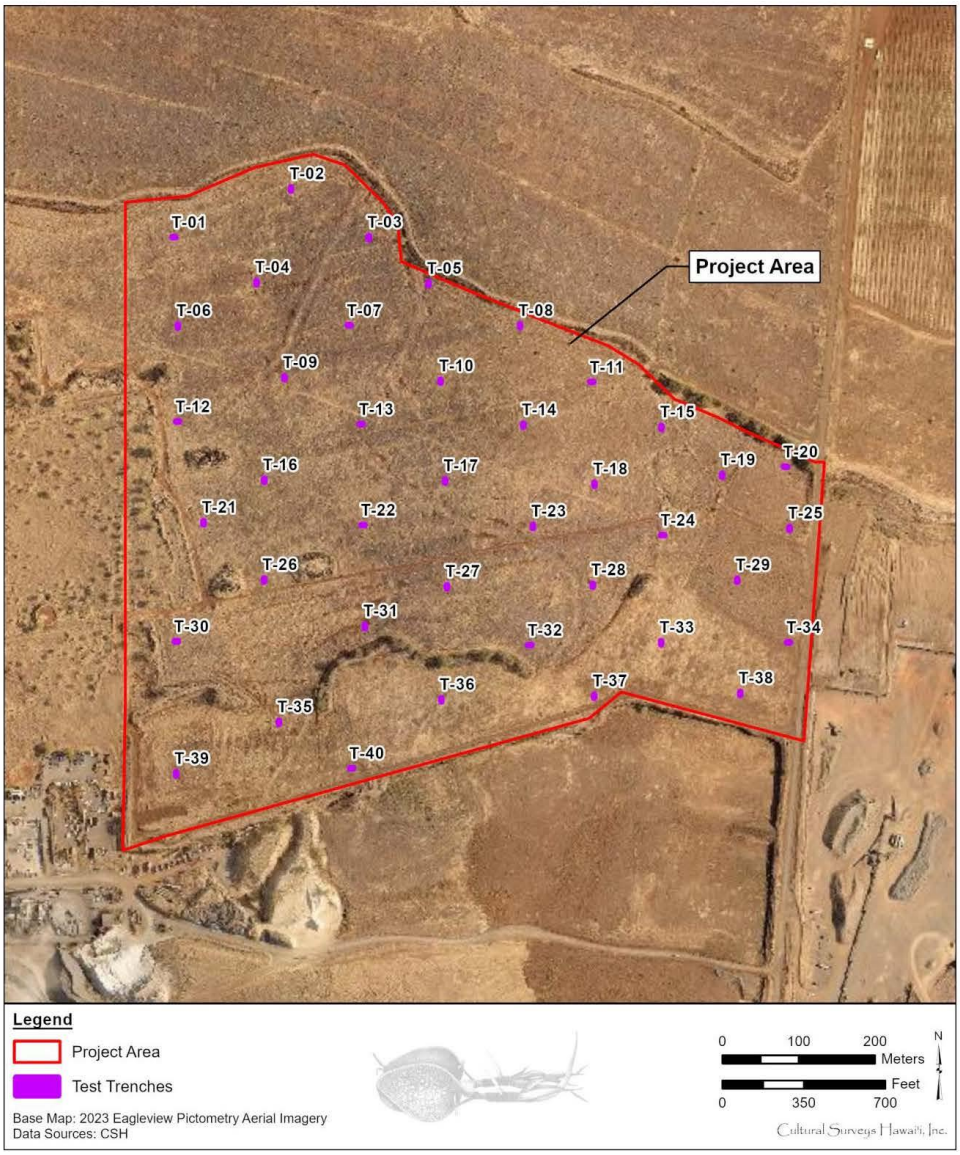


Figure 4. 2023 aerial image depicting the proposed locations of 40 AIS test excavations (T-1 through T-40) within the current project area

Re: Hawaiian Cement New Mining Area Project

CULTURAL SURVEYS HAWAI'I

EXHIBIT 28

Cultural Impact Assessment

Cultural Impact Assessment for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por.

Prepared for
Hawaiian Cement

Prepared by
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Cultural Surveys Hawai‘i, Inc.
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(Job Code: PULEHUNUI 22)

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Management Summary

Reference	Cultural Impact Assessment for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por. (Spencer and Hammatt 2025)
Date	June 2025
Project Number(s)	Cultural Surveys Hawai‘i, Inc. (CSH) Job Code: PULEHUNUI 22
Agencies	Environmental Review Program (ERP)
Land Jurisdiction	Private
Project Location	The project area is within agricultural land (portions of Fields 815 and 818) along the western side of Upper Kīhei Road. It is on the western flank of Haleakalā and near the edge of the central isthmus of Maui. The southern and eastern sides and of the project area are bounded by the current Hawaiian Cement Quarry area, the southwestern corner is bounded by an active industrial area, and the northern and western sides are bounded by agricultural fields. The project area is depicted on portions of the 2017 Paia and 2017 Puu o Kali USGS 7.5-minute topographic quadrangles
Project Description	Hawaiian Cement proposes to develop a new mining area adjacent to their existing cement quarry area.
Project Acreage	Approximately 125 acres (50.59 hectares)
Document Purpose and Regulatory Context	This cultural impact assessment (CIA) supports compliance for the Hawaiian Cement New Mining Area Project with: • The mandate set forth by the Hawai‘i State Constitution (Articles IX and XII), courts, Hawai‘i Regulatory Statutes (HRS), and Hawai‘i Administrative Rules (HAR) and other Hawai‘i State laws requiring government agencies to promote and preserve cultural beliefs, practices. and resources of native Hawaiians and other ethnic groups; • the State of Hawai‘i’s environmental review process under HRS §343, which requires consideration of the proposed project’s potential effects on cultural practices and cultural features in order to “promote responsible decision making” (HRS §343); • and, the State of Hawai‘s historic preservation review process under HAR §13-275-6 and §13-284-6, which requires the identification and mitigation of adverse effects proposed by a potential project in order to “promote the use and conservation of historic properties for the education of the citizens of Hawai‘i” (HAR §13-275-6)

	This CIA contains information gathered from archival research and consultation, compiled in order to “analyze the impact of a proposed action on cultural practices and features associated with the project area” (Environmental Council 1997). Cultural practices and cultural features may include traditional cultural properties (TCPs), designated significant historic properties under State of Hawai‘i significance Criterion e, pursuant to Hawai‘i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance Criterion e refers to historic properties that “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 §13-275-6 and §13-284-6).
Results of Background Research	Background research for this project yielded the following information (presented in approximate chronological order): 1. The current project area is located on the western flank of Haleakalā in the *moku* (district) of Kula and *ahupua‘a* (traditional land division usually extending from the mountains to the sea) of Pūlehunui. Overall, Pūlehunui Ahupua‘a begins at Kilohana Peak, on the summit ridge of Haleakalā, and ends at a mid-point on the west shore of the central plains at a shared boundary with Waikapū Ahupua‘a, encompassing a total area of 16,687.78 acres (McCully 1879). 2. The lands of coastal Pūlehunui were rich in marine resources. Hawaiian traditions and the presence of four fishponds are evidence that the coastal environs were also a focus of settlement and marine resource collection (Kolb et al. 1997). 3. Ke Kula o Kama‘oma‘o, or the Plains of Kama‘oma‘o, is a region of the central Maui isthmus close to the present project area that was known by Hawaiians in traditional times as a wandering place of the souls (Beckwith 1970). 4. About the year 1776, Kama‘oma‘o Plain saw the battle of Kakanilua between Kalani‘ōpu‘u and Kahekili. Kalani‘ōpu‘u‘s army was annihilated in what was recognized as one of the most legendary battles of pre-contact Hawai‘i (Kamakau 1992:85). 5. During the early and middle 1800’s, the Hawaiian demography was affected by two dramatic factors: radical depopulation resulting from Western disease and nucleation around the developing port towns (Kuykendall 1938:312–313).

	6. A total of 13 land commission claims were made in Pūlehunui, and nine were awarded (LCAs 0327B, 9671, 9019, 4672, 9672, 9673, 8866, 4567, and 5230). Only one of these awards, LCA 5230, is immediately surrounding and inclusive of the current project area. 7. The introduction of whaling to the Maui community brought with it an increased demand for foodstuffs and in particular the long-lasting Irish potato. Kula became the area of highest potato production and was known as “the potato district” (the area between 2000 and 5000 ft elevation). During this time, sugar cultivation and ranching were established in the Kula region (Brown and Haun 1989:C-7 and C-6). 8. During World War II, Pu‘u Nēnē Naval Air Station became the command headquarters for both Navy and Army units on the island of Maui (Command History 1945). 9. The Hawaiian Cement Puunene Quarry started in the late-1970s with 28 acres. The quarry was further expended in 1980 to 194 acres. The primary resource of the quarry is basalt that is crushed and used for road base course, concrete and pavement aggregate, railroad ballast, and many other purposes (Yanik 2018).
Results of Community Consultation	CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Community outreach letters were sent to 43 individuals or groups; two responded, none provided written testimony, and none of these *kama‘āina* (native-born) and/or *kūpuna* (elder/of the grandparent’s generation) met with CSH for more in-depth interview(s).
Identification of Cultural Resources and Practices	Based on the results of community consultation and background research conducted as part of this CIA, CSH has identified the following cultural resources and practices within Pūlehunui Ahupua‘a: 1. Agricultural and gathering practices 2. Plant resources 3. Coastal and marine resources 4. *Mo‘olelo* (stories) and *wahi pana* (storied places)
Identification of Impacts on Cultural Resources and Practices	No impacts to ongoing cultural resources and practices were identified within the project area during background research and community consultation for this CIA.
Mitigation Possibilities Identified During	The results of community consultation, underscored by background research conducted for this CIA, inform the following mitigation

Background Research and Consultation	possibilities promoting and preserving cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups: 1. Project construction workers and all other personnel involved in the construction and related activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. In the event that any potential historic properties are identified during construction activities, all activities will cease and the State Historic Preservation Division (SHPD) will be notified pursuant to HAR §13-280-3. In the event that *iwi kūpuna* (ancestral remains) are identified, all earth-moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40. In addition, in the event of an inadvertent discovery of human remains, the completion of a burial treatment plan, in compliance with HAR §13-300 and HRS §6E-43, is recommended. 2. In the event that *iwi kūpuna* and/or cultural finds are encountered during construction, project proponents should consult with cultural and lineal descendants of the area to develop a reinterment plan and cultural preservation plan for proper cultural protocol, curation, and long-term maintenance.

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Section 1 Introduction

1.1 Project Description

At the request of Hawaiian Cement, Cultural Surveys Hawai‘i, Inc. (CSH) has prepared this cultural impact assessment (CIA) report for the Hawaiian Cement New Mining Area Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana Moku, Wailuku District, Maui, TMKs: [2] 3-8-004:001 and 002 por. The project area is approximately 125 acres (50.59 hectares) within agricultural land (portions of Fields 815 and 818) along the western side of Upper Kīhei Road. It is on the western flank of Haleakalā and near the edge of the central isthmus of Maui. The southern and eastern sides and of the project area are bounded by the current Hawaiian Cement Quarry area, the southwestern corner is bounded by an active industrial area, and the northern and western sides are bounded by agricultural fields. The project area is depicted on a portions of the 2017 Paia and 2017 Puu o Kali U.S. Geological Survey (USGS) 7.5-minute topographic quadrangles (Figure 1), a tax map plat (Figure 2), and a 2023 aerial image (Figure 3).

Hawaiian Cement proposes to develop a new mining area adjacent to their existing cement quarry area. Hawaiian Cement currently operates its quarry, concrete batching, asphalt production, and concrete casting operations at its Pu‘unēnē Quarry within a portion of the existing permitted area of 167.7 acres. The change in mining progression was prompted by the unexpected change in the geology of the rock source and rock product requirements at the time. The entire 125-acre expansion area is proposed for project-related ground disturbance that will include the removal of the soil deposits overlying bedrock. The parcel is currently privately owned by MP Central A LLC C and Hawaiian Cement has entered into a long-term lease with the respective fee owner.

1.2 Regulatory Context

This CIA supports compliance for the Hawaiian Cement New Mining Area Project with:

- The mandate set forth by the Hawai‘i State Constitution (Articles IX and XII), courts, Hawai‘i Regulatory Statutes (HRS), and Hawai‘i Administrative Rules (HAR) and other Hawai‘i State laws requiring government agencies to promote and preserve cultural beliefs, practices. and resources of native Hawaiians and other ethnic groups;
- the State of Hawai‘i’s environmental review process under HRS §343, which requires consideration of the proposed project’s potential effects on cultural practices and cultural features in order to “promote responsible decision making” (HRS §343);
- and, the State of Hawai‘s historic preservation review process under HAR §13-275-6 and §13-284-6, which requires the identification and mitigation of adverse effects proposed by a potential project in order to “promote the use and conservation of historic properties for the education of the citizens of Hawai‘i” (HAR §13-275-6)

1.3 Document Purpose

This CIA contains information gathered from archival research and consultation, compiled in order to “analyze the impact of a proposed action on cultural practices and features associated with the project area” (Environmental Council 1997). Cultural practices and cultural features may include traditional cultural properties (TCPs), designated significant historic properties under State

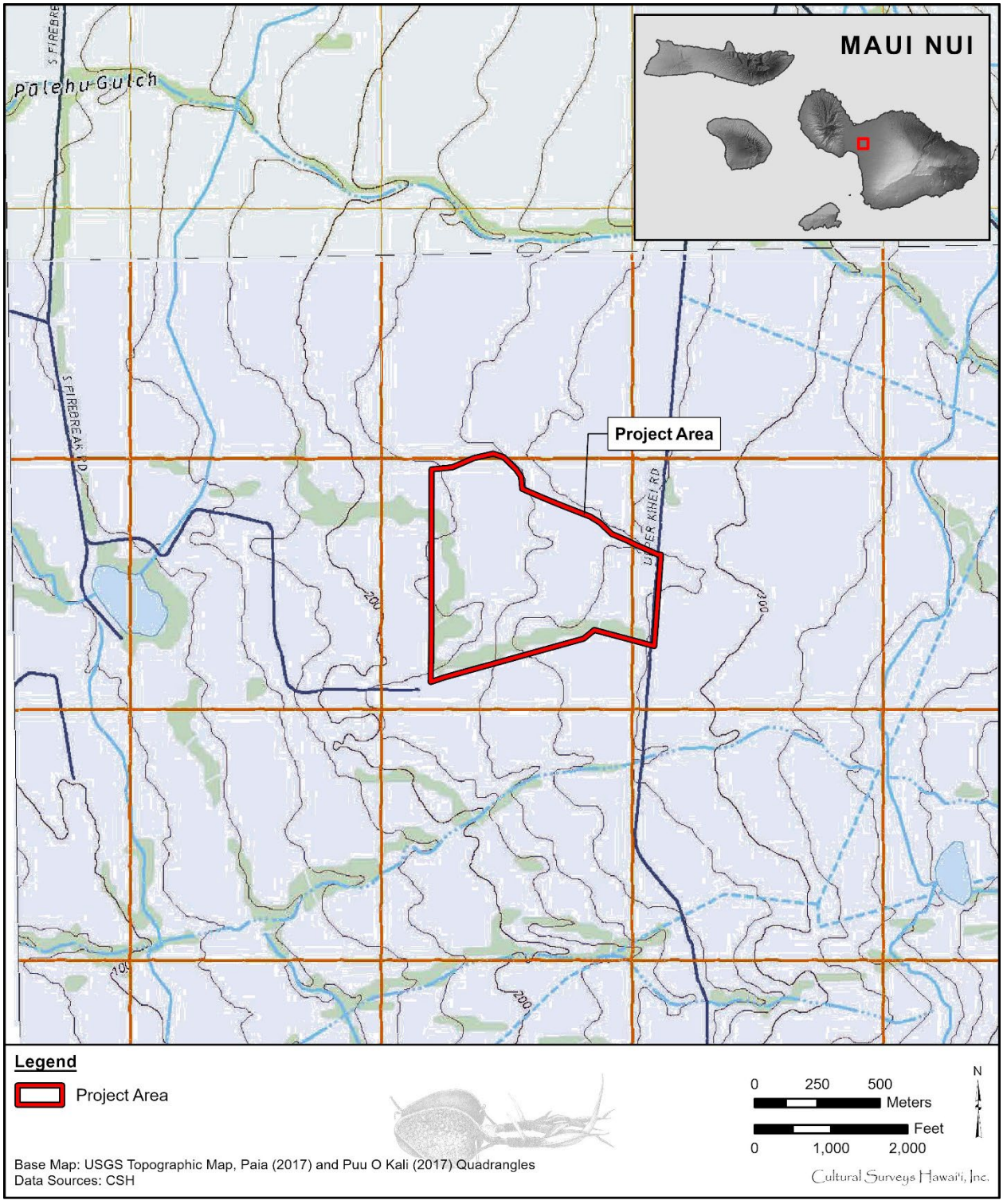


Figure 1. Portions of the 2017 Paia and 2017 Puu o Kali USGS 7.5-minute topographic quadrangles showing the location of the project area (U.S. Geological Survey 2017a, 2017b)

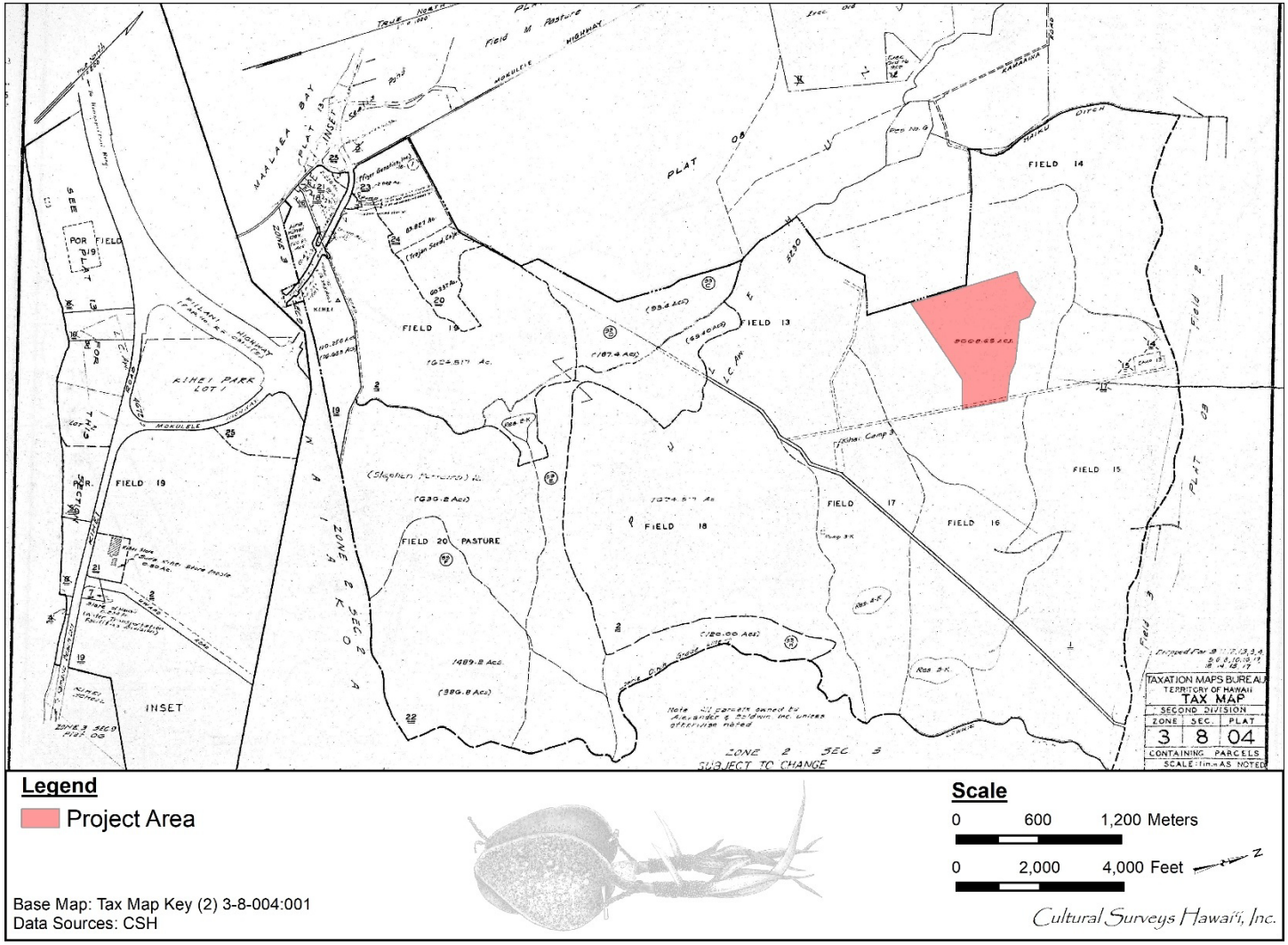


Figure 2. Tax Map Key (TMK) [2] 3-8-004 showing the project area (Hawaii TMK Service 2014)



Figure 3. EagleView Technologies Inc. (2023) aerial image of the project area

of Hawai‘i significance Criterion e, pursuant to Hawai‘i Administrative Rules (HAR) §13-275-6 and §13-284-6. Significance Criterion e refers to historic properties that “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 §13-275-6 and §13-284-6).

1.4 Natural Environment

The current project area is located on the western flank of Haleakalā along the edge of the level central isthmus of Maui. The project area is approximately 4.53 km (2.81 mi) from the nearest shoreline at Mā‘alaea Bay, and the elevation is ranges from 64 to 86 m (210 to 282 ft) above mean sea level (AMSL). The topography of the project area is a gentle westward slope. The project area, and overall quarry site, is bisected by Kolaloa Gulch, a perennial tributary to Keālia Pond. Other nearby gulches include Pūlehu Gulch to the north of the project area and Keāhuaiwi Gulch to the south of the project area.

In 2014, the average monthly air temperature for the project area was between 21.43°C (70.58°F) in January and 25.50°C (77.90°F) in August, with an average annual air temperature of 23.51°C (74.31°F) (Giambelluca et al. 2014). The vicinity of the project area received a mean annual rainfall of 327.0 mm (12.87 inches) between 1978 and 2007, according to the University of Hawai‘i 2011 *Online Rainfall Atlas of Hawaii* (Giambelluca et al. 2013). The mean monthly rainfall varied between 1.4 mm (0.06 inch) in June and 82.4 mm (3.24 inches) in January. This pattern of rainfall and low annual precipitation rate once sustained a lowland, dry shrubland, and grassland native ecosystem (Pratt and Gon 1998).

Most of the project area consists of agricultural fields that were formerly cultivated with sugarcane (*Saccharum officinarum*). Under the ownership of MP Central A LLC, the land is within Fields 815 and 818 that are planted with citrus trees. Other vegetation includes *kiawe* (*Prosopis pallida*), *koa haole* (*Leucaena leucocephala*), and grasses.

1.4.1 *Nā Lepo* (Soils)

According to the U.S. Department of Agriculture (USDA) (2001) Soil Survey Geographic (SSURGO) database and soil survey data gathered by Foote et al. (1972), the project area’s soils consist of Pulehu silt loam, 0 to 3 percent slopes (PpA), Pulehu silt loam, 3 to 7 percent slopes (PpB), Pulehu cobbly silt loam, 3 to 7 percent slopes (PrB), Waiakoa very stony silty clay loam, 3 to 7 percent slopes (WgB), Waiakoa silty clay loam, 3 to 7 percent slopes (WeB), and Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2) (Figure 4).

Pulehu Series soils are described as follows:

> This series consists of well-drained soils on alluvial fans and stream terraces and in basins. These soils occur on the islands of Lanai, Maui, Molokai, and Oahu. They developed in alluvium washed from basic igneous rock. The soils are nearly level to moderately sloping. Elevations range from nearly sea level to 300 feet. The annual rainfall amounts to 10 to 35 inches. The mean annual soil temperature is 74° F. Pulehu sops are geographically associated with Ewa, Jaucas, Kealia, Lualualei, Waialua, and Mala soils.

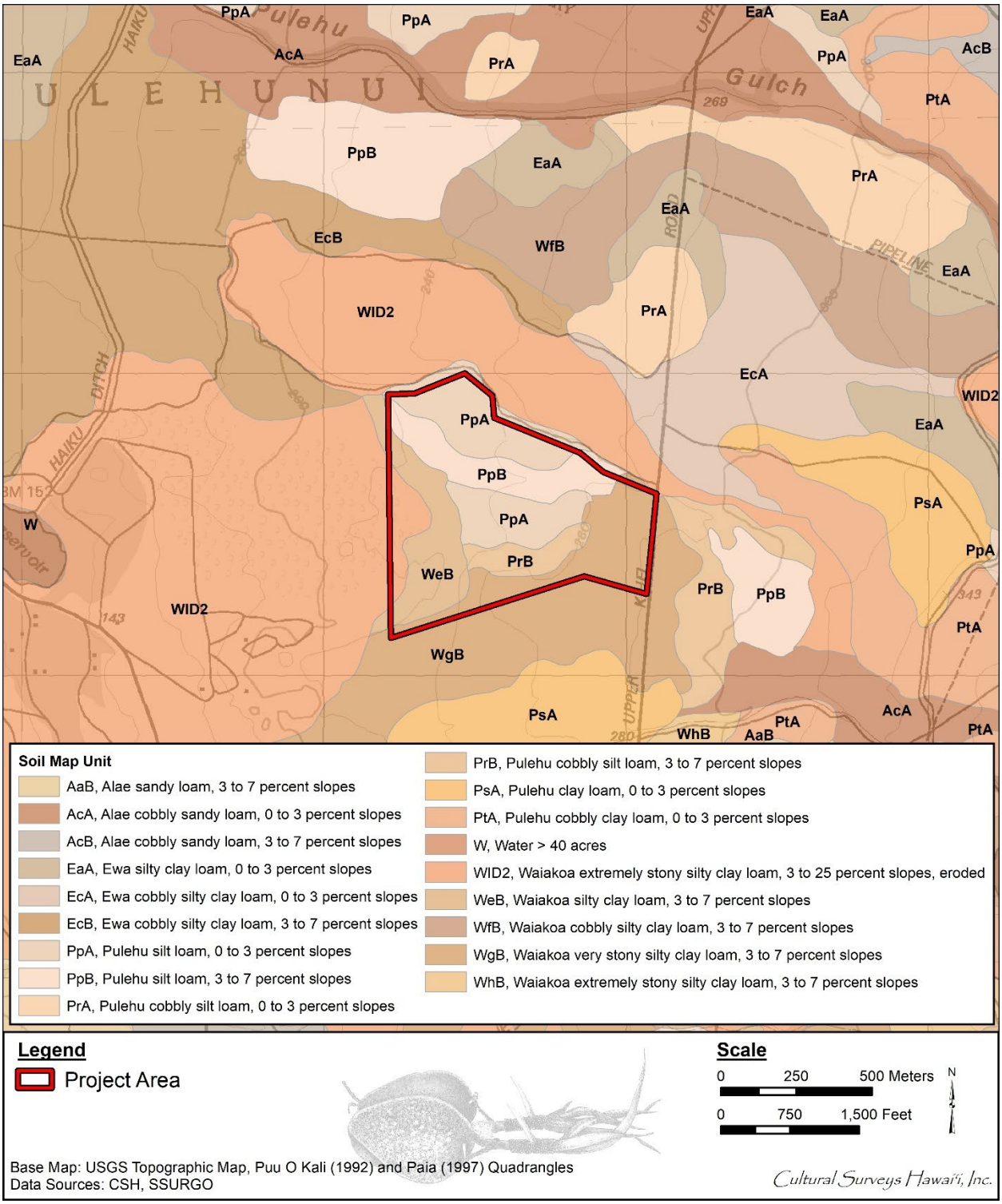


Figure 4. Overlay of *Soil Survey of the State of Hawaii* (Foote et al. 1972), indicating soil types within and surrounding the project area (U.S. Department of Agriculture 2001)

> These soils are used for sugarcane, truck crops, pasture, homesites, and wildlife habitat. The natural vegetation consists of bermudagrass, bristly foxtail, fingergrass, kiawe, klu, lantana, koa haole, and sandbur. [Foote et al. 1972:115]

Pulehu silt loam, 0 to 3 percent slopes (PpA) is described as follows:

> This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam. This soil is used for sugarcane. Small acreages are used for homesites.
>
> (Capability classification I if irrigated, IVc if nonirrigated; sugarcane group 1; pasture group 2) [Foote et al. 1972:116]

Pulehu silt loam, 3 to 7 percent slopes (PpB) is described as follows:

> This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam. Runoff is slow, and the erosion hazard is slight. Included in mapping were small areas underlain by coral sand at a depth of 20 to 36 inches.
>
> This soil is used for sugarcane. (Capability classification IIe if irrigated, IVc if nonirrigated; sugarcane group 1; pasture group 2) [Foote et al. 1972:116]

Pulehu cobbly silt loam, 3 to 7 percent slopes (PrB) is described as follows:

> This soil is similar to Pulehu clay loam, 0 to 3 percent slopes, except that the texture is silt loam, and the surface layer is cobbly. Runoff is slow, and the erosion hazard is slight. Included in mapping were small areas underlain by coral sand at a depth of 20 to 36 inches.
>
> This soil is used for sugarcane. Small areas are used for pasture. (Capability classification IIe if irrigated, IVs if nonirrigated; sugarcane group 1; pasture group 2) [Foote et al. 1972:116]

Waiakoa Series soils are described as:

> This series consists of well-drained soils on uplands on the island of Maui. These soils developed in material weathered from basic igneous rock. The upper part of the profile is influenced by volcanic ash. These soils are gently sloping to moderately steep. Elevations range from 100 to 1,000 feet. The annual rainfall amounts to 12 to 20 inches; most of it occurs in winter. The mean annual soil temperature is 74° F. Waiakoa soils are geographically associated with Keahua and Keawakapu soils.
>
> These soils are used for sugarcane, pasture, homesites, and wildlife habitat. The natural vegetation consists of buffelgrass, feather fingergrass, ilima, kiawe, uhaloa, and zinnia. [Foote et al. 1972:126]

Waiakoa very stony silty clay loam, 3 to 7 percent slopes (WgB) is described as follows:

> This soil is on smooth, low uplands. Included in mapping were small areas of Keahua and Keawakapu soils. Also included were small, nearly level areas.
>
> In a representative profile the surface layer is dark reddish-brown silty clay loam about 2 inches thick. The subsoil, about 23 inches thick, is dark reddish-brown and

> very dark grayish-brown silty clay loam that has prismatic structure or is massive. The substratum is very dark brown silty clay loam and hard, basic igneous rock. The soil is neutral in the surface layer and slightly acid to neutral in the subsoil.
>
> Permeability is moderate. Runoff is slow, and the erosion hazard is slight. The available water capacity is about 1.5 inches per foot of soil. In places roots penetrate to bedrock. [Foote et al. 1972:126]

Waiakoa silty clay loam, 3 to 7 percent slopes (WeB) is described as follows:

> This soil has a profile like that of Waiakoa very stony silty clay loam, 3 to 7 percent slopes, except that it is nonstony. Included in mapping were small, nearly level areas.
>
> This soil is used for sugarcane. Small acreages are used for pasture and homesites. (Capability classification IIe if irrigated, VIs if nonirrigated; sugarcane group 1; pasture group 1) [Foote et al. 1972:127]

Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded (WID2) is described as follows:

> This soil is similar to Waiakoa very stony silty clay loam, 3 to 7 percent slopes, except that it is eroded and stones cover 3 to 15 percent of the surface. In most areas about 50 percent of the surface layer has been removed by erosion. Runoff is medium, and the erosion hazard is severe. Included in mapping were small, steep areas. Also included were a few cinder cones.
>
> This soil is used for pasture and wildlife habitat. (Capability classification VIIs, nonirrigated; pasture group 1) [Foote et al. 1972:127]

1.4.2 *Nā Makani* (Winds)

Northeasterly trade winds prevail throughout the year, although their frequency varies from 80-95% of the time during the summer months, when high-pressure systems tend to be located north and east of the Hawaiian Islands. During the winter months, the high pressure systems are located farther to the south, decreasing the occurence of the trade winds to about 50-80% of the time (WRCC 2010).

The Hawaiian word for wind is *makani*. *The Wind Gourd of La‘amaomao* tells the story of Pāka‘a and his son Kuāpāka‘a who are descendants of the wind goddess La‘amaomao. With their possession of this special wind gourd, they could control and call forth the winds of Hawai‘i. Pāka‘a’s chant traces the winds of Maui in the *moku* of Wailuku. Five distinct winds are identified in relation to the project area and nearby *ahupua‘a*: *Wawahi-hale, Kololio, I‘a-iki, ‘O‘opu*, and *Kaua‘ula* (Nakuina 1992:51). Pāka‘a’s chant is listed below:

Kololio mai o Waikapu,	Kololio is of Waikapū,
He i‘a iki ko Wailuku,	I‘a-iki is of Wailuku,
He oopu ko Waihee,	‘O‘opu is of Waihe‘e,
Pa ka makani Kauaula,	The Kaua‘ula wind blows,

[Nakuina 1902:68;1992:62]

1.4.2.1 Maui Vortex

Pāka‘a’s wind chant recognizes an upwardly circulating wind pattern in the following lines: “*He pelu ka makani no kai, He kupa he okea ka makani*” which translates to “The wind that doubles up is of the lowlands, Kupa and Okea are the winds,” (Nakuina 1902:69;1992:63). In the iteration of the chant found in Sterling (1998:7), *okea* is written as *okee*, meaning, “To veer, as the wind, to change, as direction; to eddy” (Pukui and Elbert 1986:281).

The Maui Vortex is a diurnal weather pattern, dissipating in the evening when the slopes of Haleakalā cool. It was modelled in 1949 by Luna Leopold, Chief Meteorologist at the Pineapple Research Institute (Leopold 1949), and again in 1966 by the National Weather Service (Peterson 1966).

1.4.3 *Ua* (Precipitation)

Precipitation is a major component of the water cycle, and is responsible for depositing *wai* (fresh water) on local flora. Pre-Contact *kānaka* (Native Hawaiians) recognized two distinct annual seasons. The first, known as *kau* (period of time, especially summer) lasts typically from May to October and is a season marked by a high-sun period corresponding to warmer temperatures and steady trade winds. The second season, *ho‘oilo* (winter, rainy season) continues through the end of the year from November to April and is a much cooler period when trade winds are less frequent, and widespread storms and rainfall become more common (Giambelluca et al. 1986:17). Typically the maximum rainfall occurs in January and the minimum in June (Giambelluca et al. 1986:17). Handy and Pukui describe this seasonal change as follows:

> The season of storm and rain was termed Ho‘oilo, including roughly the period of November through March, It commenced with ‘Ikuwa (October-November) whose name means ‘Loud-voice,’ when Lono’s thunder resounds over uplands and plains. Now the long drought of summer, when the intense heat of radiation of sun on black lava combined with the steady tradewinds made the kula kai seared and dry as a black tropical desert and the kula uka brown and arid, gives way to moisture-laden southern warm fronts pressing inshore, as tradewinds lapse. November is a noisy month with variable strong winds; and with the winds come the roaring and pounding surf . . . Commencing now and continuing through the rainy months until March, there was and is little deep-sea fishing, and inshore fishing depending on those occasions when the sea was not too rough. [Handy and Pukui 1977:23]

Rainfall accumulation near the project area averages around 15 inches per year with the heaviest rainfall occurring during the winter months (December through February) and little to no rainfall during the summer months (June through August) (Giambelluca et al. 1986). This pattern of rainfall and low annual precipitation rate may have once sustained a lowland, dry shrub land and grassland native ecosystem (Pratt and Gon 1998).

It was a customary and necessary tradition to grant a name for each type of rain. Rains were named to show their action toward plants or the supposed effects on people or their possessions (Pukui and Elbert 1986:361). Names of rain referencing the *moku* of Wailuku include *Hō‘eha‘ili,* the skin-hurting rain of Waiehu (Akana and Gonzalez 2015:36); *Kili*, a delicate gentle rain associated with Waihe‘e (Akana and Gonzalez 2015:81); *Kili‘o‘opu* found at Waihe‘e, Waiehu, Wailuku and Waikapū (Akana and Gonzalez 2015:83); *Ho‘olua* (to talk loudly and pointlessly), a

heavy rain and intense north wind (Akana and Gonzalez 2015:40); *Lehua*, the wind and rain name of the *‘ōhi‘a lehua* (*Metrosideros macropus*, *M. collina subsp. polymorpha*) tree (Akana and Gonzalez 2015:146); *Līlīlehua* (tiny drops on the *lehua* blossom) appears at East Maui, Honokōwai, Kā‘anapali, Kahana, Keka‘a, Pi‘iholo and Waiehu (Akana and Gonzalez 2015:155–158); *Nahua* (to pelt, sting) is a fine rain accompanying tradewinds on the north side of Maui, Hoeuli, Honokōwai, Kā‘anapali, Kahana, Keka‘a and Lāhaināluna (Akana and Gonzalez 2015:180–183). *Uhiwai* (water covering) is the heavy mist or fog of ‘Īao, as in the following phrase: “*Nae iki ‘Īao i ka uhiwai*. (Mount) ‘Īao is barely breathing in the heavy mist.” According to Pukui and Elbert (1986:364), this was a way of describing someone in anguish. *Nāulu* is a sudden shower, cloud and wind associated with ‘Alae, East Maui, Haleakalā, Kama‘oma‘o, Kula, Lau‘ulu, Olinda, Pi‘iholo, and a rain cloud from Kaho‘olawe to ‘Ulupalakua (Akana and Gonzalez 2015:191–193); the *‘Ūkiukiu* is of Makawao (Akana and Gonzalez 2015:259); and *Ulalena* (yellowish-red) is of Liliko‘i (Akana and Gonzalez 2015:262).

1.5 Built Environment

The current project area consists mostly of agricultural fields. The adjacent quarry site includes infrastructure and equipment that are used to quarry, transport, refine, and store quarry products. Infrastructure includes crushing equipment, conveyors, office and maintenance buildings, and storage buildings. The Puunene Armory and Maui Raceway Park are located west of the project area.

Section 2 CIA Methods

2.1 Archival Research

Research centers on Hawaiian activities including *ka‘ao* (legends), *wahi pana* (storied places), *‘ōlelo no‘eau* (proverbs), *oli* (chants), *mele* (songs), traditional *mo‘olelo* (stories), traditional subsistence and gathering methods, ritual and ceremonial practices, and more. Background research focuses on land transformation, development, and population changes beginning with the early post-Contact era to the present day.

Cultural documents, primary and secondary cultural and historical sources, historic maps, and photographs were reviewed for information pertaining to the study area. Research was primarily conducted at the CSH library. Other archives and libraries including the Hawai‘i State Archives, the Bishop Museum Archives, the University of Hawai‘i at Mānoa’s Hamilton Library, Ulukau, The Hawaiian Electronic Library (Ulukau 2014), the State Historic Preservation Division (SHPD) Library, the State of Hawai‘i Land Survey Division, the Hawaiian Historical Society, and the Hawaiian Mission Houses Historic Site and Archives are also repositories where CSH cultural researchers gather information. Information on Land Commission Awards (LCAs) were accessed via Waihona ‘Aina Corporation’s Māhele database (Waihona ‘Aina 2000), the Office of Hawaiian Affairs (OHA) Papakilo Database (Office of Hawaiian Affairs 2015), and the Ava Konohiki Ancestral Visions of ‘Āina website (Ava Konohiki 2015).

2.2 Consultation

Throughout the course of this assessment, an effort was made to contact and consult with Native Hawaiian Organizations (NHO), agencies, and community members including descendants of the area, in order to identify individuals with cultural expertise and/or knowledge of the *ahupua‘a* of Pūlehunui.

2.2.1 Community Outreach, Interview, and Transcription Methods

2.2.1.1 Scoping for Participants

We begin our consultation efforts with utilizing our in-house contact list from previous outreach efforts to facilitate the interview process. This list often includes *kupuna* (elders), *kama‘āina* (native born), cultural practitioners, lineal and cultural descendants, Native Hawaiian Organizations (NHOs; includes Hawaiian Civic Clubs and those listed on the Department of Interior’s NHO list), and community groups. We also contact agencies such as SHPD, OHA, and the appropriate Island Burial Council where the proposed project is located for their response to the project and to identify lineal and cultural descendants, individuals and/or NHO with cultural expertise and/or knowledge of the study area. CSH is also open to referrals and new contacts.

2.2.1.2 Talk Story Sessions

Prior to the interview, CSH cultural researchers explain the role of a CIA, how the consent process works, the project purpose, the intent of the study, and how their *‘ike* (insight) and *mana‘o* (opinion) will be used in the report. The interviewee is given an Authorization and Release Form to read and sign.

“Talk Story” sessions range from the formal (e.g., sit down and *kūkākūkā* [consultation, discussion] in participant’s choice of place over set interview questions) to the informal (e.g., hiking to cultural sites near the study area and asking questions based on findings during the field outing). In some cases, interviews are recorded and transcribed later.

CSH may conduct group interviews, which range in size. Group interviews usually begin with set, formal questions. As the group interview progresses, questions are based on interviewee’s answers. Group interviews are always transcribed and notes are taken. Recorded interviews assist the cultural researcher in 1) conveying accurate information for interview summaries, 2) reducing misinterpretation, and 3) providing missing details for *mo‘olelo*.

CSH seeks *kōkua* (assistance) and guidance in identifying past and current traditional cultural practices of the study area. Those aspects include general history of the *ahupua‘a*; past and present land use of the study area; knowledge of cultural sites (for example, *wahi pana*, archaeological sites, and burials); knowledge of traditional gathering practices (past and present) within the study area; cultural associations (*ka‘ao* and *mo‘olelo*); referrals; and any other cultural concerns the community might have related to Hawaiian cultural practices within or in the vicinity of the study area.

2.2.1.3 Interview Completion

After an interview, CSH cultural researchers transcribe and create an interview summary based on information provided by the interviewee. Cultural researchers give a copy of the transcription and interview summary to the interviewee for review and ask them to make any necessary edits. Once the interviewee has made those edits, we incorporate their *‘ike* and *mana‘o* into the report. When the draft report is submitted to the client, cultural researchers then prepare a finalized packet of the participant’s transcription, interview summary, and any photos taken during the interview. We also include a thank you card and honoraria. This is for the interviewee’s records.

It is important to CSH cultural researchers to cultivate and maintain community relationships. The CIA report may be completed, but CSH researchers continuously keep in touch with the community and interviewees throughout the year—such as checking in to say hello via email or by phone, volunteering with past interviewees on community service projects, and sending holiday cards to them and their *‘ohana* (family). CSH researchers feel this is an important component to building relationships and being part of an *‘ohana* and community.

“*I ulu no ka lālā i ke kumu*—the branches grow because of the trunk,” an *‘ōlelo no‘eau* (#1261) shared by Mary Kawena Pukui with the simple explanation: “Without our ancestors we would not be here” (Pukui 1983:137). As cultural researchers, we often lose our *kūpuna* but we do not lose their wisdom and words. We routinely check obituaries and gather information from other informants if we have lost our *kūpuna*. CSH makes it a point to reach out to the *‘ohana* of our fallen *kūpuna* and pay our respects including sending all past transcriptions, interview summaries, and photos for families to have on file for genealogical and historical reference.

Section 3 Traditional Accounts

3.1 *Ka‘ao* and *Mo‘olelo* (Legends and Stories)

Hawaiian storytellers of old were greatly honored; they were a major source of entertainment and their stories contained teachings while interweaving elements of Hawaiian lifestyles, genealogy, history, relationships, arts, and the natural environment (Pukui and Green 1995:IX). According to Pukui and Green (1995), storytelling is better heard rather than read for much becomes lost in the transfer from the spoken to the written word and *ka‘ao* are often full of *kaona* or double meanings.

Ka‘ao are defined by Pukui and Elbert as a “legend, tale […], romance, [and/or], fiction” (Pukui and Elbert 1986:108). *Ka‘ao* may be thought of as oral literature or legends, often fictional or mythic in origin, and have been “consciously composed to tickle the fancy rather than to inform the mind as to supposed events” (Beckwith 1970:1). Conversely, Pukui and Elbert define *mo‘olelo* as a “story, tale, myth, history, [and/or] tradition” (Pukui and Elbert 1986:254). The *mo‘olelo* are generally traditional stories about the gods, historic figures or stories that cover historic events and locate the events with known places. *Mo‘olelo* are often intimately connected to a tangible place or space.

In differentiating *ka‘ao* and *mo‘olelo* it may be useful to think of *ka‘ao* as expressly delving into the *wao akua* (realm of the gods), discussing the exploits of *akua* (gods) in a primordial time. However, it is also necessary to note there are exceptions, and not all *ka‘ao* discuss gods of an ancient past. *Mo‘olelo* on the other hand, reference a host of characters from *ali‘i* (chief), to *akua* and *kupua* (supernatural beings), to finally *maka‘āinana* (commoners), and discuss their varied and complex interactions within the *wao kānaka* (realm of man). Beckwith elaborates, “In reality, the distinction between ka‘ao as fiction and mo‘olelo as fact cannot be pressed too closely. It is rather in the intention than in the fact” (Beckwith 1970:1). Thus, a so-called *mo‘olelo*, which may be enlivened by fantastic adventures of *kupua*, “nevertheless corresponds with the Hawaiian view of the relation between nature and man” (Beckwith 1970:1).

Both *ka‘ao* and *mo‘olelo* provide important insight into a specific geographical area, adding to a rich fabric of traditional knowledge. The preservation and passing on of these stories through oration remains a highly-valued tradition. Additionally, oral traditions associated with the study area communicate the intrinsic value and meaning of a place, specifically its meaning to both *kama‘āina* as well as others who also value that place.

The following section presents traditional accounts of ancient Hawaiians living in the vicinity of the project area. Many relate an age of mythical characters whose epic adventures inadvertently lead to the Hawaiian race of *ali‘i* and *maka‘āinana*. The *ka‘ao* in and around the project area shared below are some of the oldest Hawaiian stories that have survived; they still speak to the characteristics and environment of the area and its people.

3.1.1 Owl Dieties of the Plains of Kama‘oma‘o

Owls are described as one of the oldest class of *‘aumakua* (personal family gods) in Hawaiian mythology. Beckwith names the owl god Pueo-nui-akea as the restorer of life to souls who drifted the plains (Beckwith 1970:124).

3.1.2 The Story of Pumaia

The story of Pumaia tells the adventures of a man and his friend Wakaina. They traverse the two realms of the living and the dead and run into many creatures of different temperaments along their way home: a strong man kills them, an evil prophet who seeks to kill them, and a wise owl deity who intervenes in the pursuit from the evil prophet (Fornander 1919:550–554).

> Pumaia was born in Koloa, Kauai. Malaihi was the father and Kuhihewa was the mother. They lived together until the child had grown up, and his body had acquired strength, when Pumaia said to his father, ‘You will please let me go to see the club of my grandmother.’ The father gather his consent. The son went, and arriving at the house of Kiha, his grandmother, he asked, ‘Where is the club?’ ‘Here it is,’ said the grandmother . . . He shouldered the club and commenced his journey. He caught up with Wakaina, and the latter inquired, ‘Where are you journeying to?’ ‘Going sightseeing,’ replied Pumaia. ‘Please let me go with you.’ Pumaia consented and they went along.
>
> Puukolea stood forth and called out, ‘Whose offspring are you?’ ‘Our own,’ replied Pumaia. ‘If you excel in strength, you are saved; if your strength is meager, I will kill you.’ Then they commenced to fight. That man, however, had a dual body, while these had the ordinary living body. Pumaia asked Wakaina, ‘Which of us shall be the first one to fight with this man?’ The other replied, ‘It is better that I do it.’ Pumaia consented and Wakaina went to fight Puukolea. Before they commenced fighting, however, he chanted a portion of a song, thus:
>
> Behold! Behold! The mere lehua of Puuoni,
>
> Struggling with the clouds of the air,
>
> Now above, now below the rain clouds.
>
> . . . They kept on fighting until Pumaia was weakened. He thought of his club; so when Wakaina came back and inquired, ‘How are you?’ he answered, ‘I am weak; go and fetch my club; perhaps it can do something.’While they yet spoke the other man appeared in a different body. The fought on, and before Pumaia could reach for his club, he was killed by this man; Wakaina also was killed. Their spirits returned on their parents and were seen by them . . .
>
> Fear is creeping over us,
>
> Coming for us to go;
>
> We can not; we are held by Waiauau.
>
> Come to give us life!
>
> Life—indeed.
>
> When these ghosts finished their chant the parents came out immediately, but they saw nothing. They looked here and there, but they would not see them. Meanwhile the two had gone as spirits until they met Pupuilima. Some people saw these two coming, but Pupuilima said: ‘Those are not men; those are ghosts.’ ‘How do you know those are ghosts?’ said the others. So they laid wagers. Pupuilima then said to them, ‘I will spread

an ape leaf on the ground; and if it breaks, then they are men, but if it does not, then they area spirits.' He spread it. Meanwhile Pumaia said to Wakaina, 'There is our death being prepared.' 'How shall we be saved?' Pumaia explained: 'Where my feet tread there you tread; because I was raised from my young days until I died, and until I found you; for this process is like that done to Pamano when by the spreading of an ape leaf he was saved.' So when they proceeded Pumaia trod on the ape leaf and it broke through; the friend treaded after him. They were chased by the prophet until they were caught. This is what I have obtained.

While they were going along they were given chase. They came along until they caught up with Pueonuiokona. The owl, however, did not catch sight of them while they were coming. When they had passed ahead the prophet who was chasing them caught up with Pueonuiokona. The owl asked, 'What is the cause of this heavy breathing and this perspiring?' This one answered, 'That you should be asking "what"? Spirits! And there they are! I am chasing them, but can not catch them; I have been wishing to get near them so that I can kill them, for I am possessed with great anger towards them.'

When the owl heard what the prophet had said, he said to him, 'You are a prophet, and I am a prophet, still I did not see them; and now I hear you saying that if you catch then they die.' Where they were holding this conversation, however, was on the plain of Kamaomao. While the others prepared to come for the spirits, Pumaia said to his friend, 'Here comes our death; but we will wait. If the new one gets ahead of the old one then we have hope for life.'

. . . While the prophets were following, and because Pueonuiokona was the faster, an idea occurred to one of them, and he said to himself, 'If I catch up to that prophet I shall kill him, for he is simply going after my enemies to save them.' The owl went along slowly until his fellow prophet thundered after him and gave his hand a jerk. Pueo asked, 'What wrong has a fellow committed that you should tug at the arm from behind and thereby nearly tripping me?' The other replied with blazing eyes, 'Who told you to go after my enemies with the intention of saving them? Why don't you look for your own, and on them practice saving?' The owl replied: 'If you excel in strength you can obtain them, but if you are weak you can not have them; because I, even I, am an old resident of the plain. When spirits from the dead arrive I cause them to revive. Also no prophet comes to this plain; this is the first time that I have seen a prophet on this plain, and that is yourself. Because you complained of my desire to give life to those spirits, so be it! By a test of strength will [we know] whether you obtain them or I do.'

They immediately commenced to fight. Where they fought was at Kalepolepo, near the isthmus. The prophet was killed and his entrails were disemboweled by Pueonuiokona and placed on the *akolea*. That shrub used to be plentiful at that place, but it is destroyed now on account of numerous animals.

August 8, 1872

Kiliona

[Fornander 1919:550–554]

Beckwith further elaborates the ending of the story as the origin of the traditional name of the native dodder called *pōpolo* (*Cuscuta sandwichiana*), or "intestines of the prophet" (Figure 5):

> The great owl of Kona (Pueo-nui-o-Kona) fights the prophet and his entrails become spred over the akolea ferns that used to grow in that place. 39 [Hence the name of "intestines of the prophet" for the endemic species of the dodder, called popolo and used for love charms, whose yellow stems form a tangle over bushes in some parts of the islands (*Cuscuta sandwichiana.)*] [Beckwith 1970:445]

3.2 *Wahi Pana* (Storied Places)

Wahi pana are legendary or storied places in a landscape. These legendary or storied places can be a variety of natural or human-constructed features. Oftentimes dating to the pre-Contact period, many but not all *wahi pana* are connected to particular *mo‘olelo*. Dr. Davianna McGregor outlines the types of natural and human-made structures that may constitute *wahi pana*:

> Natural places have mana or spiritual power, and are sacred because of the presence of the gods, the akua, and the ancestral guardian spirits, the ‘aumakua. Human-made structures for the Hawaiian religion and family religious practices are also sacred. These structures and places include temples, and shrines, or heiau, for war, peace, agriculture, fishing, healing, and the like; pu‘uhonua, places of refuge and sanctuaries for healing and rebirth; agricultural sites and sites of food production such as the lo‘i pond fields and terraces slopes, ‘auwai irrigation ditches, and the fishponds; and special function sites such as trails, salt pans, hōlua slides, quarries, petroglyphs, gaming sites, and canoe landings. [McGregor 1996:22]

As McGregor makes clear, *wahi pana* can refer to natural geographic locations such as streams, peaks, rock formations, ridges, offshore islands and reefs, or they can refer to Hawaiian land divisions such as *ahupua‘a* or *‘ili* (traditional land division smaller than an *ahupua‘a*), and man-made structures such as fishponds. It is common for places and lanscape features to have multiple names, some of which may only be known to certain *‘ohana* or even certain individuals within an *‘ohana*, and many have been lost, forgotten, or kept secret through time. Place names also convey *kaona* and *huna* (secret) information that may even have polotical or subversive undertones. Before the introduction of writing to the Hawaiian Islands, cultural information was exclusively preserved and perpetuated orally. Hawaiians gave names to literally everything in their environment, including points of interest that may have gone unnoticed by persons of other cultural backgrounds. Hawaiians have named taro patches, rocks and trees that represented deities and ancestors, sites of houses and *heiau* (pre-Contact place of worship), canoe landings, fishing stations in the sea, resting places in the forests, and the tiniest spots where miraculous or interesting events are believed to have taken place (Pukui et al. 1974:x).

3.2.1 Place Names near Pūlehu Nui

An analysis of the place name meanings (Table 1) for the region surrounding the project area may yield some insight into the patterns of life in an area. Literal translations of several of the place names for land areas and divisions near to the project area are listed below. Unless otherwise noted, the translations are taken from Pukui and others (1974).



Figure 5. “Intestines of the prophet,” or *pōlolo* (*Cuscuta sandwichiana*). A plant whose name is based on a legend occurring on the Plains of Kama‘oma‘o. Photo courtesy of Native Plants Hawai‘i (University of Hawai‘i 2009)

Table 1. Place Names and their Meanings in the Vicinity of the Project Area

Name	***Meaning***
Kakanilua	Sandhills between Wailuku and the mill at Pu‘u Nēnē (Sterling 1998)
Kalialinui (Gulch)	Possible literal translation: “Large tree or plant used for medicine” (Pukui and Elbert 1986). Kalialinui Gulch measures some 11 miles long, beginning on the upper slopes of Haleakalā, through the project area, and on across the Wailuku Ahupua‘a, terminating on the flat plains of Kahului just south of Kanahā Pond.
Ka‘ōpala	Lit., “the rubbish”; a dividing line between Pūlehu Nui (Ahupua‘a) and Waikapū (Ahupua‘a).
Kilohana (Boundary Point)	Lit., “lookout point”; Corner of Kamehamenui, Pūlehu Nui, Kalialinui, Papa‘anui on crater rim.
Mana (Heiau)	A *heiau* called Mana, in the vicinity of ‘Ōma‘opio, “of large size and platform character, also in ruins, was found to be now used as a burial place, though in a cactus field (Thrum 1938)
‘Ōma‘opio (Ahupua‘a)	Lit., “perhaps, whistling thrush”; Ahupua‘a directly north of Pūlehu Nui.
Papa‘ula	Lit., “red flats”; the region just inland of this promontory is presently a portion of the modern Maui Country Club golf course.
Pūlehu Nui (Ahupua‘a)	Large *pūlehu* where *pūlehu* is literally translated as “broiled”. This *ahupua‘a* abuts the *ahupua‘a* of Wailuku and Waikapū, and constitutes much of the land area of the central isthmus.
Pu‘u Nēnē	Lit., “goose hill.” A cinder cone, once located just inland of Papa‘ula, mined for its gravel during WWII to construct the runways at NAS Kahului. Not to be confused with another Pu‘u Nēnē located just inland of Wawa‘u beach in Wailuku.
Pu‘u Paha	No further information found on this particuar *pu‘u* (hill) but it is depicted on the 1885 Hawaiian Government Survey Map by F.S. Dodge; located on the eastern end of the ahupua‘a near the crater of Haleakalā.
Waiakoa (Ahupua‘a)	Lit., “water [used] by warrior”; Ahupua‘a directly south of Pūlehu Nui.
Waianuhi	No further information found on this particuar feature but it is depicted on the 1885 Hawaiian Government Survey Map by F.S. Dodge.
Waikapū (Ahupua‘a)	Lit., “water of the conch”, a meaning with reference to the conch shell formerly found in a cave at Waikapū, until it was stolen by a supernatural dog, named Puapualenalena. Also, the scene of a great battle, fought between Kahekili, king of Maui, and Kalani‘opu‘u, king of Hawai‘i Island, at Waikapū Commons.

Name	*Meaning*
Wailuku (Ahupua‘a)	Lit., “water of destruction”, possibly a reference to the battle which took place at ‘Īao between the forces of Kamehameha I and the Maui chiefs. Sterling (1998) states that Pukui (1974) believes the name is older than the famous battle. Westervelt (1910) makes special reference to the waters of Wailuku in ‘Īao (Lit., “asking for clouds”) emptying into the Kahului Harbor. Fornander (1916:304) recorded that Wailuku was known as the place of flying clouds.

3.2.2 Pu‘u Nēnē

Pu‘u Nēnē, is literally translated as “goose hill” according to Pukui and others (1974:49). The site of the Hawaiian Commercial & Sugar (HC&S) sugar mill at Pu‘u Nēnē, the avenue of Pu‘u Nēnē and the school named Pu‘unēnē are not located where the actual “goose hill” once stood. The hill, named for the Hawaiian goose or *nēnē* (*Nesochen sandvicensis*), was a cinder cone built by lavas of the Kula series (Stearns and MacDonald 1942:83), elevation 187 feet (56 meters), that was located some 4 miles northeast of the Pu‘u Nēnē Mill. Most all of the cinder from Pu‘u Nēnē was removed to pave the runways of the Pu‘u Nēnē Naval Air Station Kahului during WWII. Families with grave sites were notified by the plantation and the military to remove their burials prior to the excavation of the cinder (Saito 2008).

3.2.3 Kama‘oma‘o: A Wandering Place of Spirits

Ke Kula o Kama’oma’o, or the Plains of Kama‘oma‘o, is a region of the central Maui isthmus close to the present project area that was known by Hawaiians in traditional times as a wandering place of the souls (Beckwith 1970), a place where dead spirits waited for a friendly escort, perhaps a family *‘aumakua*, to show them the way to eternity:

> The worst fate that can befall a soul is to be abandoned by its aumakua and left to stray, a wandering spirit (*kuewa*) in some barren and desolate place, feeding upon spiders and night moths. Such spirits are believed to be malicious and to take delight in leading travelers astray; hence the wild places which they haunt on each island are feared and avoided. Such are the plains of Kama‘oma‘o on the island of Maui, the rough country of Kaupea at Pu‘uloa on Oahu, Uhana on Lanai, Maohelaia on Molokai, Mana on Kauai, Halali‘i on Ni‘ihau. In these desolate places lost spirits wander until some friendly *aumakua* takes pity upon them (Beckwith 1970:154). in leading travelers astray; hence the wild places which they haunt on each island are feared and avoided. Such are the plains of Kama‘oma‘o on the island of Maui, the rough country of Kaupea at Pu‘uloa on Oahu, Uhana on Lanai, Maohelaia on Molokai, Mana on Kauai, Halali‘i on Ni‘ihau. In these desolate places lost spirits wander until some friendly *aumakua* takes pity upon them. [Beckwith 1970:154]

3.2.4 Mau‘oni and Kanahā

On the north shore of the central isthmus lie the fish ponds named Mau‘oni and Kanahā. A traditional story concerning their construction appears in Sterling (1998:87–88), based on an interview with Mrs. Rosalie Blaisdell in 1923 by J.F.G. Stokes (BPBM Anthropology Department archives, Grp 7, 10.10.C9). According to tradition, construction of the pond walls was begun by an O‘ahu chief, but finished by Kamehamehanui, king of Maui in the mid-1700’s. The story

established that Kapiiohookalani, the original architect of the two ponds and one-time king of O‘ahu and half of Moloka‘i, was killed in battle before he could complete the construction of the pond walls. His daughter, Kahamaluihiikeaoihilani, sought her brother, Kanahaokalani, and searched Moloka‘i and Maui for him. The pond walls were finished by Kamehamehanui, who placed a *kapu* (prohibition) on the bank, or *kuapa*, dividing the two ponds. The chiefess Kahamaluihii was born of such high rank that she was able to break the *kapu* by walking on the center *kuapa* of the ponds. Following this act, Kamehamehanui allowed her to name the ponds. She named Kanahā for her brother, and Mau‘oni for the identity she travelled by to protect her status as a chiefess of the highest rank.

Sterling (1998) also noted two references by Samuel Kamakau (1992) stating that Kihapi‘ilani had built the stonework separating the two ponds at a much earlier time than the work performed by Kamehamehanui. Kanahā is a wetland sanctuary that is home to a large population of native Hawaiian stilts (*‘ae‘o*). Over fifty species of birds have been observed here, including herons, geese, ducks, owls, plovers, sandpipers, tattlers, coots, pheasants and doves (Pukui et al. 1974:83).

3.2.5 Boundary Commission Testimony of H. Kuihelani

The Boundary Commission was established in 1862 to delineate in legal terms the borders of *ahupua’a* awarded during the Māhele. Descriptions of land boundaries, environmental features, cultural practices and Native Hawaiian views of the land were captured in the testimonies that were recorded by the Boundary Commission between 1871 to 1896 (Maly and Maly 2006:80).

The following is an excerpt from the testimony of H. Kuihelani that is rich in descriptions of cultural practices in the study area: lineal connections to Wailuku; stewardship of Mau‘oni and Kanahā fish ponds; fish harvesting and salt bundling practices at Pukaulua; the gathering of *ma‘o* (*Gossypium sandvicense*) at Kama‘oma‘o for use in *kapa* (bark cloth) making; references to *pōhaku* (stones) that mark the boundaries of Wailuku, and the spiritual associations of Kama’oma’o (Maly and Maly 2003:357–358):

> *H. Kuihelani hoohikiia a olelo mai:*
>
> *I Wailuku ku‘u wahi i hanau ai, he kanalima paha o‘u M.H. i noho ai ma keia aina o Wailuku nei a keu aku paha. Ua noho ku‘u makua i konohiki no Wailuku nei. Aole au i noho konohiki. Aka ua ike nae au ia Mauoni ame Kanaha. He mau loko ia ma Wailuku nei, mokupuni o Maui. I kuu wa uuku ua hele pu au me ku‘u makuakane ma keia wahi i haiia ae la. He umi paha o‘u makahiki ia manawa. No ka Moi, Elua ia mau loko ia. Ua hele au mahope iho o ka manawa o Kamehameha Ekolu. Ia makou na‘e ka malama oia mau loko. Na makou no e lave i ka i-a.*
>
> *Apau o Kamehameha Ekolu, o Kamehameha Eha iho, aole nae ia makou ka malama ia manawa. O P. Nahaolelua ka mea nana e malama nei i keia mau loko ia i ke ahupuaa o Wailuku, Maui. Keahua ka palena o Wailuku ma ke kai. Ia‘u ka malama oia kai mai ku‘u makuakane mai, oia ka aina i oleloia iho nei o Pukaulua. Aia no ia ili aina ia‘u i keia manawa. No ka Moi ke kai. Aole poe i aeia e kii i kela ia iloko o na loko ia, no ka mea ua kapu loa ke kii i ka ia. Aia no a hu ka i-a mawaho o ka loko alaila hiki i kela mea, keia mea ke kii i ka i-a mawaho wale no o na loko. He paakai no kolaila. He opeia ka paakai a laveia na na alii. Aole au i ike i ka aina o Kalialinui e oleloia nei. Aole au i hele i Kalialinui e laveia ai. Ua ike au ia*

Kamaomao, ua koke no ia Pohaku, ke ahupuaa o Wailuku, Maui nei ko Hawaii Pae Aina…

…Ua hoohuliia kanaka i ke kukulu ana i ka pa mawaho o na loko ia, ma Oopuola. O Kihapiilani ke Alii o Maui ia manawa, nana no i hoohuli na kanaka i ke kukulu ana i ka pa. Ua ike au i ka pohaku o Makaku. O ku‘u lohe he pohaku kela no na uhane e hui ai. Pela mai ka olelo a kekahi poe. Ame Kamaomao kekahi, ua hele makou e ohi i mao no na alii i mea e ala ai na Kapa Aahu o lakou. Aole poe kanaka e ae, o na kanaka wale iho la no o Wailuku, Maui, Hawaii Pae Aina. [Volume No. 1:10–11]

H. Kuihelani, sworn and says:

My birth place is at Wailuku, I have lived on the land of Wailuku for fifty years, a little more perhaps. My father was the konohiki of Wailuku. I was not a konohiki. But, I do know Mauoni and Kanaha. They are fishponds of wailuku, Island of Maui. When I was little I went with my father to this place spoken of. I was perhaps ten years old at the time. For the King, two fishponds. I went after the time of Kamehameha Third. It was us who cared for those ponds. It was us who took the fish.

When Kamehameha Third died, it went to Kamehameha Fourth; we did not take care of them then. P. Nahaolelua is the one who cares for these fishponds in the ahupuaa of Wailuku, Maui. Keahua is the boundary of Wailuku at the shore. I am the one who has stewardship of sea (fishery); it is from my father; that land mentioned is Pukaulua. I have that land section at this time. The fishery is for the King. People are not allowed to take the fish from within the fishponds, because the harvesting of fish is restricted. Though when the fish overflow from the ponds, then this person and that person can harvest the fish that are on the outside of the ponds. There is also salt there. The salt is bundled up and taken by the chiefs. I do not know the land of Kalialinui, spoken of. I did not go to take things from Kalialinui. I know of Kamaomao, the stone is close to pig-cairn (boundary marker) of Wailuku, Maui of the Hawaiian Islands…

…Men were sought out to construct the wall outside of the ponds, at Oopuola. Kihapiilani was the Chief of Maui at that time, it was he who sought out the men to build the wall. I know of the stone of Makaku. What I heard was that it is a stone where the spirits gather. That is what some people say. And Kamaomao is one also; we used to go gather mao [a native hibiscus] for the chiefs, as something with which they would scent their Kapa Clothing. No other people, only the people of Wailuku, Maui, Hawaiian Islands… [Maly, translator] (Maly and Maly 2003:357–358)

3.2.6 *Heiau*

Sterling (1998:253) describes two *heiau* located at Pūlehu Nui:

Haleokane Heiau, Walker Site 221

Location: At Poonahoahoa above the main road one hundred and fifty years, and beyond the end of the side road.

> Description: A small heiau platform only 22 x 30 feet. It is largely hidden in the grass and earth but an edge of the terrace 3 feet high can be seen. In spite of its small size the natives attach considerable importance to it and report noise of drums on the night of Kane. The name Haleokane was given by the old woman on whose property the heiau stands but the other kamaainas did not regard her information as accurate. [Walker in Sterling 1998:253]

The second *heiau* mentioned by Sterling is described below:

> Nininiwai Heiau, Walker Sites 222 and 223
>
> Location: Nininiwai was a heiau on the mauka side of the main road near the branch road. It was destroyed in clearing the land for pineapples. The other heiau is located on a hill in the midst of the cactus a mile and a half below the main road and near the branch road.
>
> Description: A medium-sized walled heiau, 50 x 50 feet. It is double-terraced on the north side and the wall is here 10 feet thick. Elsewhere it is 6 feet thick. There is a small enclosure in one corner. Cattle are continually trampling over this heiau and will in a short time reudce it to a shapeless pile of rocks. [Walker in Sterling 1998:253]

3.3 *‘Ōlelo No‘eau* (Proverbs)

Hawaiian knowledge was shared by way of oral histories. Indeed, one’s *leo* (voice) is oftentimes presented as *ho‘okupu* (“to cause growth,” a gift given to convey appreciation, to strengthen bonds); the high valuation of the spoken word underscores the importance of the oral tradition (in this case, Hawaiian sayings or expressions), and its ability to impart traditional Hawaiian “aesthetic, historic, and educational values” (Pukui 1983:vii). Thus, in many ways these expressions may be understood as inspiring growth within reader or between speaker and listener:

> They reveal with each new reading ever deeper layers of meaning, giving understanding not only of Hawai‘i and its people but of all humanity. Since the sayings carry the immediacy of the spoken word, considered to be the highest form of cultural expression in old Hawai‘i, they bring us closer to the everyday thoughts and lives of the Hawaiians who created them. Taken together, the sayings offer a basis for an understanding of the essence and origins of traditional Hawaiian values. The sayings may be categorized, in Western terms, as proverbs, aphorisms, didactic adages, jokes, riddles, epithets, lines from chants, etc., and they present a variety of literary techniques such as metaphor, analogy, allegory, personification, irony, pun, and repetition. It is worth noting, however, that the sayings were spoken, and that their meanings and purposes should not be assessed by the Western concepts of literary types and techniques. [Pukui 1983:vii]

Simply, *‘ōlelo no‘eau* may be understood as proverbs. The Webster dictionary notes it as “a phrase which is often repeated; especially, a sentence which briefly and forcibly expresses some practical truth, or the result of experience and observation.” It is a pithy or short form of folk wisdom. Pukui equates proverbs as a treasury of Hawaiian expressions (Pukui 1995:xii). Oftentimes within these Hawaiian expressions or proverbs are references to places. This section

draws from the collection of author and historian Mary Kawena Pukui and her knowledge of Hawaiian proverbs describing *‘āina* (land), chiefs, plants, and places. The following proverbs concerning the larger area of Pūlehunui come from Mary Kawena Pukui's *‘Ōlelo No‘eau* (Pukui 1983).

3.3.1 *‘Ōlelo No‘eau* # 1534

The following *‘ōlelo no‘eau* describes the four main water sources on Maui.

Na wai ‘ehā.

The four waters.

A poetic term for these places on Maui: Wailuku, Waiehu, Waihe‘e, Waikapū, each of which has a flowing water (wai). [Pukui 1983:251]

3.3.2 *‘Ōlelo No‘eau* # 2647

The following *‘ōlelo no‘eau* plays on the word *luku* (destruction) in Wailuku.

Pili ka hanu o Wailuku.

Wailuku holds its breath.

Said of one who is speechless or petrified with either fear or extreme cold. There is a play on *luku* (destruction). Refers to Wailuku, Maui. [Pukui 1983:290]

3.3.3 *‘Ōlelo No‘eau* # 2578

The following *‘ōlelo no‘eau* describes two ponds in Kahului, Maui: Mau‘oni and Kanahā.

Pākāhi ka nehu a Kapi‘ioho.

The *nehu* of Kapi‘ioho are divided, one to a person.

Kapi‘ioho, ruler of Moloka‘i, had two ponds, Mau‘oni and Kanahā, built on his land at Kahului, Maui. The men who were brought from Moloka‘i and O‘ahu to build the ponds were fed on food brought over from Moloka‘i. The drain on that island was often so great that the men were reduced to eating nehu fish, freshwater ‘ōpae and poi. The saying is used when poi is plentiful but fish is scarce and has to be carefully rationed. [Pukui 1983:284]

3.3.4 *‘Ōlelo No‘eau* # 1481

The following *‘ōlelo no‘eau* all pertain to the same area called Kama‘oma‘o. This place was famous for it‘s connection to wandering spirits.

Kama‘oma‘o, ka ‘āina huli hana.

At Kama‘oma‘o, land of activities.

Ghosts who do not go to the pō of their ancestors often wander about in certain areas. Kama‘oma‘o, Maui is such a place. The activities of such ghosts usually annoy the living. [Pukui 1983:160]

3.3.5 *‘Ōlelo No‘eau* # 1514

Ka ‘ōlohe puka awakea o Kama‘oma‘o.

The bare one of Kama‘oma‘o that appears at noonday.

The plain of Kama‘oma‘o, Maui, is said to be the haunt of ghosts (‘ōlohe) who appear at night or at noon. Also a play on ‘ōlohe (nude), applied to one who appears unclothed. [Pukui 1983:164]

3.3.6 *‘Ōlelo No‘eau* # 1761

Ka ‘ōlohe puka awakea o Kama‘oma‘o.

The bare one of Kama‘oma‘o that appears at noonday.

The plain of Kama‘oma‘o, Maui, is said to be the haunt of ghosts (‘ōlohe) who appear at night or at noon. Also a play on ‘ōlohe (nude), applied to one who appears unclothed. [Pukui 1983:164]

3.4 *Oli* (Chants)

Oli, according to Mary Kawena Pukui (Pukui 1995:xvi–xvii) are often grouped according to content. Chants often were imbued with *mana* (divine power); such *mana* was made manifest through the use of themes and *kaona*. According to Pukui, chants for the gods (prayers) came first, and chants for the *ali‘i*, “the descendants of the gods,” came second in significance. Chants “concerning the activities of the earth peopled by common humans,” were last in this hierarchy (Pukui 1995:xvi–xvii). Emerson conversely states:

> In its most familiar form the Hawaiians–many of whom [were lyrical masters]–used the oli not only for the songful expression of joy and affection, but as the vehicle of humorous or sarcastic narrative in the entertainment of their comrades. The dividing line, then, between the oli and those other weightier forms of the mele, the inoa, the kanikau (threnody), the pule, and that unnamed variety of mele in which the poet dealt with historic or mythologic subjects, is to be found almost wholly in the mood of the singer. [Emerson 1965:254]

While *oli* may vary thematically, subject to the perspective of the *ho‘opa‘a* (chanter), it was undoubtedly a valued art form used to preserve oral histories, genealogies, and traditions, to recall special places and events, and to offer prayers to *akua* and *‘aumākua* alike. Perhaps most importantly, as Alameida (1993:26) writes, “chants […] created a mystic beauty […] confirming the special feeling for the environment among Hawaiians: their *one hānau* (birthplace), their *kula iwi* (land of their ancestors).”

3.4.1 A Travel Chant

Pau ‘ole ko‘u mahalo i ka laulā o Kama‘oma‘o	My admiration is endless for the expanse of Kama‘oma‘o
Ka hālana maika‘i a Keālia	The fine rising of the waters of Keālia
Ka hemolele o ka ua ‘Ulalena	The perfection of the ‘Ulalena rain
Lena ka pua o ka māmane pala luhiehu i ka lā	Yellow are the blossoms of the māmane, soft and lovely in the sun

[Akana and Gonzalez 2015:267]

3.4.2 A *Kapa* Chant for Lili‘uokalani (also known at Kamaka‘eha)

‘A‘ahu ‘o Kamaka‘eha i ke kapa kūkai	Kamaka‘eha wears the kapa dipped frequently in the sea
He kapa no ka po‘e ‘akuku o Lele	A kapa of the kapa-beating people of Lele
Pua ma‘o ke kapa, he moe ‘ao‘ao kilohana	Kapa dyed with ma‘o blossoms, the kilohana layer for a bed
Kaula‘i ana i ka ua Līlīlehua	Hanging in the Līlīlehua rain
I ka ua Pa‘ūpili o Kahana	In the Pa‘upili rain of Kahana

[Akana and Gonzalez 2015:156–157]

3.4.3 *Oli Aloha* by Keaulumoku

Born of Kauakahiakuanui and Naohaku, Keaulumoku was a great composer of war chants, love chants, and genealogical chants in the days of Kalani‘opu‘u (Kamakau 1992:112). The following *oli* was composed after he returned to Hawai‘i with Kalani‘opu‘u. His thoughts returned to Maui as he longed dearly for his homeland and this *oli* was written:

Alo—ha, alo—ha--	Affectionate longing, affectionate longing ,
Aloha wale o‘u maku—a la—e o‘u makua,	Affection for my (foster) parents, my parents,
Aloha wale o‘u makua	Affection for my parents
Mai na ‘aina Hamakua,	Who belong to Hamakua,
He mau ‘aina Hamakua elua,	The two districts of Hamakua,
No‘u mua kaikua‘ana i noho ai.	Where my elder brothers live.
He ala pali na‘u he mau ali‘i ia,	My hillside trails are theirs to rule,
O ka hanai ana komo ke aloha,	They nurtured me until I loved them;
Lele hewa au i he mau kaikua‘ana—e	I find myself with other elder brothers
‘A‘ole—he mau mea ‘e wale no o laua.	Who are not the same to me.
He ua i pono –e—pono ia ua.	Let the rain fall, for rain is good.
A he ua i halaka‘, he mahala,	It patters down, it pelts down,
Pehi hewa i ka nahele,	It crushes the forest growth,
Kua‘oa kanikani i ka pua lehua.	It sprinkles musically on the lehua.
Ua ua lehua, he lehua hala,	The lehua trees blossom, the yellow lehua,
Ua i ka lehua o Kailua.	When the rain comes to the lehua of Kailua.
Lehua maka konunu i ka wai,	The lehua petals are heavy with raindrops,
Konunu konunu oha‘ha‘.	Heavy, heavy and full-blown.
Halana makapehu wale no kie ia,	They know not the pangs of thirst
Pehu, ua mae ka maka mua o ka hinalo ho‘i.	That wilt the first-blown pandanus bloom.
Ho‘i ka ua ma Haneho‘i,	The rain returns by way of Haneho‘i,

Ma ka lae o Pu‘umaile i Hoalua,	Along the brow of Pu‘umaile to Hoalua,
Ma kahakua o Pu‘ukoa‘e,	Over the ridge of Puukoa‘e,
Ma ke alo pali o Huelo.	Before the face of the cliff to Huelo.
Ua poha‘ Kaumealani,	There it pours down on Kaumealani,
Ua ko ia e ka pua nui	The rain that brings out the full-blown flowers
Hukia aku la lilo i kai	And draws them close down to the shore.
Lilo aku la ua i ka moana,	The rain goes out to sea,
He maka o Hawini ia ua,	It falls on Hawini like teardrops,
He ua ‘alo ma ka lae,	It passes along over the capes,
Nihi pali nihi lae.	It creeps by the cliffs and capes,
Nihi i ka lae o Mokupapa.	Creeps by the cape of Mokupapa.
Hele wale ka ua a kipa wale,	The rain comes uninvited,
Ka ua pe‘e hala huna kai o--	The rain that hides in the hala groves below,
O—huna huna lauki.	Whose fine drops water the ti plant.
Huna ke kupa i ka hala mua a kau.	The native-born hides away the first hala fruit of the summer.
U-u-e ua wahia e ka ua o ka ho‘oilo.	And weeps over the stormy rains of winter.
E ke kuawa kahi o kau	Oh! For the light summer showers
Nana i ho‘oko‘o nei ka pua!	That brought forth the blossoms!
Aui ka pua noho ‘ao‘ao i ke ka,	The blossoms droop with stem half-broken,
Aui e noho e na pua polo pe‘a;	The blossoms hang wilted and uncared-for;
Pala ka‘ao, ka‘ao ka pola,	The fruit clusters, ripened above,
Loli helele‘i ahu ilalo;	Mildew and fall in heaps to the ground;
Loli ka‘ao ka hala me ka hinalo.	Both fruit and flowers are mildewed.
O ka hala o ka ‘ohi‘a lana i ka wai	The hala fruit and the mountain apples drop into the stream
I ka‘ i ke kahawai o Kakipi,	And are washed down in the stream of Kakipi,
Ilina iluna o ka mau‘u kuku‘,	Washed up on thorny weeds,
I ka pua po‘o o ka mau‘u pu‘uko‘a	Up on the flowers of coarse grasses
I kahi a maua e hele ai,	Where we two have wandred,
Me ku‘u wahine i ka ua hala o Kulo—li,	My wife and I, to the rain-wet hala grove of Kuloli,
A ‘oia loli ke ala iho ma ka lau,	Fragrant among the leaves,
Lauhala—e a ke ‘o‘i‘o‘ina ‘oe i Ko‘olahale,	The hala leaves over the resting place of Ko‘olahale,
‘Ike aku i ka mahina hiki‘alo‘alo	Where we watched for the belated moon

One ku a ki‘i ke kaha o Malama,	To rise over the cinder cone of Malama.
Malamalama ke one kea ke hele ia,	The white sands are plainly to be seen if we wish to go there,
Kipa ke alanui mauka o Waiakuna,	Over the upland trail of Waiakuna
He kuna—e.	Winding like the fresh-water eel.
Me he kuna kuhe la ke oho o ke kukui,	The *kukui* leaves look dark like the gobey fish,
I ka ho‘olu‘u lupekolo ia e ke hau	When overshadowed by the twining *hau* trees
A lipo a ‘ele‘ele i ka waokoa	Deep in the dusky koa forest.
He ‘ele‘ele ko ke kukui noho malu,	Dark are the leaves of the *kukui* in the shade,
He lena ho‘i ka lau o kekahi kukui	The leaves are pale yellowish green
O ke kukui aku i waho i ka la,	In the full light of the sun,
I ka ua ia e ka ua ‘ulalena.	Watered by the rainbow-tinted rain.

[Kamakau 1992:112–115]

3.5 *Mele* (Songs)

The following section draws from the Hawaiian art of *mele*, poetic song.

> Words and word combinations were studied to see whether they were auspicious or not. There were always two things to consider the literal meaning and the *kaona*, or ‘inner meaning.’ The inner meaning was sometimes so veiled that only the people to whom the chant belonged understood it, and sometimes so obvious that anyone who knew the figurative speech of old Hawai‘i could see it very plainly. There are but two meanings: the literal and the *kaona*, or inner meaning. The literal is like the body and the inner meaning is like the spirit of the poem. [Pukui 1949:247]

> The Hawaiians were lovers of poetry and keen observers of nature. Every phase of nature was noted and expressions of this love and observation woven into poems of praise, of satire, of resentment, of love and of celebration for any occasion that might arise. The ancient poets carefully selected men worthy of carrying on their art. These young men were taught the old *meles* and the technique of fashioning new ones. [Pukui 1949:247]

There are few late nineteenth, twentieth, and twenty-first century *mele* concern or mention Pūlehunui Ahupua‘a. These particular *mele* may also be classified as *mele wahi pana* (songs for legendary or historic places). *Mele wahi pana* such as those presented here may or may not be accompanied by *hula* (dance) or *hula wahi pana* (dance for legendary or historic places). As the Hula Preservation Society notes,

> Hula Wahi Pana comprise a large class of dances that honor places of such emotional, spiritual, historical, or cultural significance that chants were composed for them. Only the composers of the chants could know the deepest meanings, as they would be reflections of their feelings and experiences […] Since the subjects of Wahi Pana compositions are extremely varied, their implementation through

> hula are as well. Coupled with the differences from one hula style and tradition to the next, Hula Wahi Pana can be exceptionally diverse. They can be done sitting or standing, with limited body movement or wide free movement; with or without the use of implements or instruments; with the dancers themselves chanting and/or playing an implement or being accompanied by the *ho‘opa‘a* [drummer and *hula* chanter (memorizer)]. Beyond the particular hula tradition, what ultimately determines the manner in which a Hula Wahi Pana is performed are the specific place involved, why it is significant, the story being shared about it, and its importance in the composer’s view. [Hula Preservation Society 2014]

3.5.1 Maui Nani (Beautiful Maui)

Composed for James Kaupena Wong by Johanna Koana Wilcox, this song describes the beauty that makes up the island of Maui. James Kaupena Wong was well known for his art in hawaiian chanting and as a hula dancer.

Hanohano ‘o Maui mai kinohi mai	Regal has Maui been from its
Kuahiwiw kilakila o Haleakalā	With majestic Haleakalā, an imposing sight
Maika‘i na hono a‘o Pi‘ilani	And the charming bays of Pi‘ilani
Ha‘aheo ‘o Maui nani Lanikēhau	Maui is stately with sublime beauty
Uluwehi ka hi‘ona o nā wai ‘ehā	Lush with verdure are four towns
Nā wai kaulana ma ke komohana	Well known towns of West Maui
Wai mililani ‘ia e ka malu o ke ao	Towns fondly caressed by sheltering skies
Ha‘aheo ‘o Maui ‘āina kamaha‘o	Maui is stately with wonders untold
Kaulana e ka ua Laniha‘aha‘a	Famous is the rain pouring from low skies
Ke kupa aiwaiwa nani lā a‘o Hana	Ethereal native of Hana
‘Ano‘ai Ka‘uiki au i ke kai	Greetings to Ka‘uiki reaching into the sea
Ha‘aheo ‘o Maui ka wai ‘anapanapa	Maui is famed for the waters that sparkle
Puana ka wehi ho‘ohenoheno	Now ends my song of adulation
No ka pua miulana nani i ka hano	To the lovely miulana hereby honored
Me ‘oe ka welina o ku‘u aloha	To you, my warm greetings
Ha‘aheo ‘o Maui nani Lanikeha	Maui, you are stately and supremely beautiful

[Huapala n.d.]

3.5.2 Lovely Sunrise Haleakalā

This song, written by John Kameaaloha Almeida, glorifies the beauty of Haleakalā, the most prominent mountain on the island of Maui. The composer, John Almeida, was well-known, not only for the music he composed, but for the fact that the was blind and carried his talent through this disability.

He nani he beauty maoli nō	Beauty, true beauty,
Oh, lovely sunrise Haleakalā	Oh, lovely sunrise Haleakalā
Kuahiwi nani a he kū kilakila	Beautiful mountain so majestic,
Kehakeha i ka maka la o ka ‘ōpua	So prominent in the midst of the clouds.
Kaulana ko inoa puni ka hōnua	Your name famous around the world,
Māka‘ika‘i la e nā malihini	Visitors come to look at you.
Moani ke ‘ala ma ka hikina	Gentle breeze from the east brings,
No ka pua roselani leo onaona	The fragrance of the rose lei.
Kaulana nā Hono a Pi‘ilani	Famous are the bays of Pi‘ilani,
Ho‘oheno pū me nā wai ‘ehā	Cherished together by the four wai named lands,
Puana he beauty maoli nō,	Tell of the true beauty,
Oh, lovely sunrise Haleakalā	Oh, lovely sunrise, Haleakalā.

[Huapala n.d.]

3.5.3 Waikapū/‘Iniki Mālie

This song describes the winds of the four water-lands in Maui: Waikapū, Wailuku, Waiehu, and Waihe‘e. The meaning of each name is described below by Pukui (1974). Waikapū, water of the conch. A conch found in a cave in this area could be heard anywhere througout the Hawaiian Islands. It was stolen by a supernatural dog named Puapualenalena whose name meant yelow tail feathers. Wailuku, water of destruction. Wailuku was the battle site where Kalani‘ōpu‘u‘s army was nearly annihilated by Kahekili. Waiehu, meaning water spray and Waihe‘e, meaning slipping water.

Waikapū makani Kokololio,	Waikapū wind in gusts,
He makani houhou ‘ili ‘inisinisi (‘inikiniki) mālie.	Skin-stinging wind gently pinching.
Wailuku makani Lawemālie,	Wailuku wind becoming gentle,
He makani houhou ‘ili ‘inisinisi (‘inikiniki) mālie.	Skin-stinging wind gently pinching.
Waiehu makani Hō‘eha‘ili	Waiehu wind paining the skin,
He makani houhou ‘ili ‘inisinisi (‘inikiniki) mālie.	Sking-stinging wind gently pinching
Waihe‘e makani Kili‘o‘opu	Waihe‘e graceful wind,
He makani houhou ‘ili ‘inisinisi (‘inikiniki) mālie.	Sking-stinging wind gently pinching.
Ha‘ina mai ana ka puana,	Tell the refrain,
He makani houhou ‘ili ‘inisinisi (‘inikiniki) mālie.	Sking-stinging wind gently pinching.

[Huapala n.d.]

Section 4 Historic Background

The division of Maui's lands into political districts occurred during the rule of Kaka‘alaneo, under the direction of his *kahuna* (priest), Kalaiha‘ōhi‘a (Beckwith 1970:383). This division resulted in twelve districts, or *moku*, during traditional times: Kula, Honua‘ula, Kahikinui, Kaupō, Kīpahulu, Hāna, Ko‘olau, Hāmākualoa, Hāmākuapoko, Wailuku, Kā‘anapali, and Lāhainā. The current project area is located on the western flank of Haleakalā in the *moku* of Kula and *ahupua‘a* of Pūlehunui. Overall, Pūlehunui Ahupua‘a begins at Kilohana Peak, on the summit ridge of Haleakalā, and ends at a mid-point on the west shore of the central plains at a shared boundary with Waikapū Ahupua‘a, encompassing a total area of 16,687.78 acres (McCully 1879).

4.1 Pre-Contact to Early Post Contact

While the mythological and traditional accounts of the area are relatively scarce, an analysis of the *wahi pana* meanings for the region may yield some insight into the patterns of life in the area prior to Western contact (Table 2). In *Native Planters in Old Hawaii,* E. S. C. Handy et al. (1991:23–24, 42) summarizes the relationship that traditional Hawaiians have had with the natural environment best in the following passage:

> The sky, sea, and earth, and all in and on them are alive with meaning indelibly impressed upon every fiber of the unconscious as well as the conscious psyche. Hawaiian poetry and folklore reveal this intimate rapport with the elements [Handy et al. 1991:23–24]
>
> (T)he relationship which existed from very early times between the Hawaiian people … is abundantly exemplified in traditional mele (songs), in pule (prayer chants), and in genealogical records which associate the ancestors, primordial and more recent, with their individual homelands, celebrating always the outstanding qualities and features of those lands. [Handy et al. 1991:42]

The provided place names, together with the environmental data, suggest that the lands of coastal Pūlehunui were rich in marine resources. Previous research on pre-Contact occupation in Kula District (Kolb et al. 1997) has suggested that most permanent habitations were in the uplands with a smaller permanent population located along the coastline. While a reconstruction of the coastal archaeological landscape of Kula Moku underscores the importance of the uplands as a focus of agriculture and habitation, Hawaiian traditions and the presence of four fishponds are evidence that the coastal environs were also a focus of settlement and marine resource collection.

Lands surrounding the current project area were also a site of conflict between the Hawai‘i Island chief Kalani‘ōpu‘u and Maui Island chief Kahekili and is perhaps an explanation for the origins for such place names as "Waiakoa" and "Keāhuaiwi".

Table 2. Place names documented in the vicinity of the project area from Pukui et al. (1974) unless otherwise noted

Place Name	Meaning/Translation
Alakoa	*Lit.,* “soldier’s street” (p. 9)
Kalaepohaku	*Lit.,* “the stony promontory” (p. 72–73)
Kale‘ia	*Lit.,* “the abundance”, possibly in reference to the resources available from the fishponds and offshore fishing grounds (p. 76)
Kalepolepo	*Lit.,* “the dirt” (p. 77)
Ka‘ōpala	*Lit.,* “the rubbish”; dividing line between Pūlehu Nui and Waikapū Ahupua‘a (p. 86)
Keāhuaiwi	*Lit.,* “the bone pile”; the name of a gulch immediately adjacent to and north of Waiakoa Gulch (p. 101)
Keālia	*Lit.,* “salt encrustation”; a pond near Kīhei and major salt pan location (Sterling 1998:95)
Kīhei	*Lit.,* “cape or cloak”; sandy point and boundary marker between Pūlehu Nui and Waikapu (Sterling 1998:255); commonly used place name for the South Maui area
Kīheipūko‘a	*kīhei* literally translates as “cape or cloak” and *pūko‘a* literally translates as “coral head”; Kīheipūko‘a was a place near Keālia between Kalepolepo and Ma‘alaea (Sterling 1998:257)
Kohemālamalama	*Lit.,* “bright vagina”; also the ancient name for Kaho‘olawe
Kō‘ie‘ie	*Lit.,* “a plaything for floating in the rapids”, ancient name of Kalepolepo (Sterling 1998:252)
Kolaloa	*Lit.,* “much sexual excitement”
Kula (*moku*)	*Lit.,* "plain"; always an arid region (Handy in Sterling 1998:242)
Pūlehu (gulch)	*Lit.,* “broiled”, possibly in reference to abundant sweet potato cultivation in the uplands (p. 193)
Pūlehunui (*ahupua‘a*)	*Lit.,* “large *pūlehu*”
Waiakoa	*Lit.,* “water (used) by warrior”

Other accounts involve the continuing conflict between Kahekili during the late 18th century. Following a losing battle at Kaupō in 1775, Kalani‘ōpu‘u dedicated several war *heiau* on Hawai‘i Island to aid in the defeat of Kahekili. Upon hearing this news Kahekili sent for the *kahuna* Kaleopu‘upu‘u who directed construction of the *heiau* of Kaluli and Pu‘uohala on the north side of Wailuku.

In 1776, the army of Kalani‘ōpu‘u landed at Keoneo‘o‘io, with their war canoes extending to Makena at Honua‘ula and proceeded to ravage the countryside. Kalani‘ōpu‘u landed with additional forces at Kīhepuko‘a at Kealia to Kapa‘ahu, 800 strong and eager to drink the waters of Wailuku:

> Across the plains of Pu‘u‘ainako (Can-trash-hill) and Kama‘oma‘o shone the feather cloaks of the soldiers … Ka-hekili was at Kalanihale just below Kihahale and above the plateau of Ka‘ilipoe at Pohakuaokahi … Kaleopu‘upu‘u [said] to Ka-hekili, “The fish have entered the sluice; draw in the net.” [Kamakau 1961:85]

The forces of Kahekili descended upon and destroyed the soldiers of Kalani‘ōpu‘u, slaying the Alapa (elite soldiers of Kalani‘ōpu‘u) on the sandhills at the southeast of Kalua. Only two men escaped to Kīheipuko‘a to tell Kalani‘ōpu‘u the news of their defeat. After a second day of warfare Kalani‘ōpu‘u sued for peace and was granted such by Kahekili and his messengers at Kīheipuko‘a (Kamakau 1961:88–89).

Furthermore, Kamakau recounts:

> The great battle took place between Waikapu and Wailuku. Ka-lani-‘opu‘u expected to enter Wailuku at Kakanilua, but Ka-hekili‘s men rose at dawn and occupied the sandhills of Kama‘oma‘o, and a portion of them took their stand on the side toward Waikapu turn, so that the forces of Ka-lani-‘opu‘u, who had supposed that the battle would be at Kakanilua, found a divided front from which spears, javelins, and other missiles poured like water. Death-dealing weapons poured down like a swift rainstorm beating the sides of the fisherman‘s canoe and agitating the surface of the sea like a cloudburst over the deep ocean. The terrified soldiers were surrounded and took to flight; they were driven by Ka-hekili‘s men like leaves before a whirlwind. The plains of Kama‘oma‘o became like a fishpond through whose sluice gate the sea flooded, Ka-lani-‘opu‘u‘s men [became] like the mullet driven by the sound of beating into the sluice gate of ‘Uko‘a; and the sea rose up to the walls. Like the fiery petals of the lehua blossoms of Pi‘iholo were the soldiers of Ka-hekili, red among the leaves of the *koa* trees of Liliko‘i or as one glimpses them through the *kukui* trees of Ha‘iku. Like the creeping branches of the *‘ulei,* so moved the cloaked warriors, young and middle-aged, over the *‘ilima*-covered plain of Paholei. A chill seized Ka-lani-‘opu‘u as he crouched in the canoe, mourning the dead who lay like fish stupefied by the poison spread by the great fisherman, Ka-hekili. Like grasshoppers on the plain, easily to be caught by women, so they lay in the heat of the sun snuggled close to the blossoms of the grasses. [Kamakau 1992:87]

Kalani‘ōpu‘u’s army was annihilated in what was called *Ahulau Ka Pi‘ipi‘i i Kakanilua* or Slaughter-of-the-Pi‘ipi‘i-at-Kakanilua (Kamakau 1992:86), one of the most legendary battles of pre-contact Hawai‘i.

Ms. Hōkūlani Holt Padilla, Director of *Ka Hikina O Ka Lā* at University of Hawai’i Maui College, has discussed the coastal region of Pūlehu Nui as the region referred to in Kamakau’s “Ruling Chiefs of Hawaii” as Kiheipuko‘a. She elaborated on these references to Kiheipuko‘a as a portion of the route used by the forces of Kalani‘ōpu‘u about 1776, during his planned conquest of Maui. She explained that the ruling chief of the Big Island, Kalani‘ōpu‘u, landed his army along the coastline of Maui, at Kiheipuko‘a in the Keālia area, with his war canoes visible from Kapa‘ahu (in Puna, on the island of Hawai‘i), and maneuvered his army inland across the central isthmus, possibly close to the present project area. In this way, the army of Kalani‘opu‘u crossed over the areas of Kama‘oma‘o and Pu‘u ‘ainako to engage Kahekili’s forces on the sand hills of Kalua, ending in a slaughter of the Big Island army known as “Ahulau ka Pi‘ipi‘i i Kakanilua” (Hokulani Holt Padilla, in Hill et al. 2007).

According to Ms. Holt-Padilla, the outcome of the battle for Kakanilua was not decided on the first day. The day following the “Slaughter of the Pi‘ipi‘i at Kakanilua”, the remaining forces of Kalani‘ōpu‘u were again sent to battle Kahekili’s forces, which were expected to be in Wailuku. The Big Island army was ambushed at an area close to Waikapū, and was destroyed by the army of Kahekili on the plains of Kama‘oma‘o.

Ms. Holt-Padilla explained that the central isthmus was a dry, hot place with trails leading west toward Waikapū, and east along the Kīhei coastline. She stated that the guardian spirits of men, the *‘aumakua* spirits, were known to wander on the lower, sandy plains of Waikapū. She explained that this place was a special place for the souls of the soldiers killed at Kakanilua.

Coastal Pūlehunui also shows a few vestiges of the lifestyles and subsistence activities of the *maka‘āinana* that lived there as well as the works of powerful *ali‘i*. Keālia Pond has been known as a source of high-quality salt from the pans in its immediate vicinity. In *Ancient Sites of Maui, Moloka‘i, and Lana‘i,* author Van James (2002:71) states, in reference to Keālia Pond:

> It is also the name and site of a former fishpond. Little is known about the ancient history of Keālia fishpond, but judging from its size, it must have been an important producer of fish stock, particularly *awa* (milkfish) and *‘ama‘ama* (mullet). Ditches and sluice gates were built at least 400 years ago to let these and other nearshore fish into the pond. A *ko‘a* (fishing shrine) or possible *heiau* platform stands near the site. [James 2002:71]

Given its location on the leeward shores of the central isthmus of Maui, and its regular access to the freshwater runoff emanating from Waikapū Stream to the north and Kolaloa Gulch to the southeast, the area had access to many resources (salt, fish, irrigation, etc.) valued and utilized by the population. This wetland environment also attracts many species of waterfowl in the winter months when water levels in the pond rise with seasonal flooding. These would have also served as a potential source of nourishment for subsistence communities in the region (James 2002:72).

Further testament of resource gathering in the area comes from neighboring Kō‘ie‘ie Fishpond (Figure 6) which can still be seen along the Kīhei coastline.



Figure 6. Ko‘ie‘ie Fishpond as viewed from the shore, near former site of Kalepolepo (James 2002:73)

This fishpond was once part of a broader distribution of these types of structures along the coast. To this effect James (2002:73-74) states:

> In ancient times at least three or four *kuapā* (walled) fishponds were built along the Kīhei ("cloak") coastline. With the exception of Ko‘ie‘ie pond, the names of the other ponds have been lost, and little is known about any of their histories. In such cases it was said that *Menehune* constructed them.
>
> It [Kō‘ie‘ie] is a small pond of three arces. At low tide, another fishpond ruin can be seen just south of Kō‘ie‘ie Fishpond, and still further south along the coast is yet another nameless ancient pond wall. [James 2002:73-74]

The associations of these fish ponds to the *menehune* (legendary race of small people who worked at night, building fish ponds, roads, temples), placing their times of construction in deep antiquity, suggest that this site may have been in use in very early times. What is known regarding the fishponds here is that they had been rebuilt several times prior to, and during the first days of, Western contact. To this effect James (2002:73–74) documents that:

> It is here at Kalepolepo that Kamehameha I is said to have beached his canoes for battle against Central Maui. The beaches were black with his fleet, and the Waikapū Stream that empties into nearby Keālia Pond was declared *kapu.* Later, Kamehameha, who noticed Kō‘ie‘ie to be in disrepair, had the fishpond rebuilt. It is recorded that chief ‘Umilīloa, in the mid-1500s, also had the pond walls rebuilt. [James 2002:73–74]

Given its history of rehabilitation from conquering Hawai‘i Island chiefs, it is believed that the fishpond at Kō‘ie‘ie was "a royal pond always stocked with the best fish" (James 2002:74). Further associations between Hawaiian royalty and Kō‘ie‘ie Fishpond are also exemplified by a story from the early historic period when Kihawahine, the family *‘aumakua* of the Kamehameha line of chiefs, appeared at Kō‘ie‘ie Fishpond in saffron-yellow robes following the death of one of Kamehameha's sons at Kalepolepo in 1815 (James 2002:74).

4.1.1 The Attack at Pu‘u Nēnē

First printed in *Ka Nupepa Ku‘oko‘a* in 1866, the following account by Kamakau tells of the battle at Pu‘u Nēnē between Peleioholani and the men of Alapa‘i, led by Kalani‘ōpu‘u and Keoua. At this point, both sides suffered great losses and thus they agreed to end the war and bloodshed. Perhaps another great factor in reconciling was that Kalani‘ōpu‘u and Keoua were the actual sons of Peleioholani (Kamakau 1992:75).

> I ka hoouka kaua nui loa, oia ka la i hoouka ai ma Puunene, mamua o Napili me Honokahua ma Kaanapali. Ua hoopuni ia o Peleiholani a puni ma ke kai mai, a mauka mai hoi, a ua puni na aoao ia Alapai me kona mau alii, me Kalaniopuu me Keoua a me ko lakou mau koa. Ilaila i halawai hou ai na na maka o Alapai me Peleioholani - E hoopau i ke kaua, a e hui aloha hou, no ka mea, ua nui ka poe i make o na aoao elua. (Aole anei oia maoli ke ano o ke kaua Kristiano; ua kaua paha ma ke ano makamaka me ke aloha - pela no ke ano aloha Hawaii i ka manawa kahiko.)
>
> Eia paha kekahi kumu nui o keia mau ike aloha ana o ka Moi o Oahu me ka

Moi o Hawaii, no ka mea, no Oahu ka makuahine o Alapai, oia hoi o Kalanikauleleiaiwi Nui, ke kaikamahine a Kaneikauaiwilani, ke keiki a Kauakahikuaanauakana, ke kaikamahine a Kaihikapuakuihewa. Nolaila, ua pili mau hoahanau, a mau kaikaina na'lii o Hawaii no Peleioholani. Eia paha kekahi kumu; he mau keiki ponoi o Kalaniopuu me Keoua na Peleioholani, na laua o Kamakaimoku.

O ka wai o Alele, mauka iho o Waipahu, i Waikele, ma Ewa, kahi i loaa ai o Kalaniopuu ia Peleioholani. I ka manawa e noho Moi ana no o Kualii no Oahu. Ua holo mai o Kamakaimoku i ka makuahine ia Umiulaikaahumanu e noho ana ma Waikele, a me kona mau kaikunane. O ka lei Alii o ko Oahu mau Alii Moi, oia ka niho o ke kohola i anai ia me ka opuu niho kohola, oia hoi ka lei palaoa Alii o ko Oahu poe Alii. O ko Hawaii lei palaoa Alii, ua hana ia me ke lelo; me he makau ea la. Ua kapa aku o Peleioholani i ka inoa o kana keiki, o ka lei Alii o kona makuakane o Kualii. O Kaleiopuu, pela no hoi o Keoua, (aia paha i ka hiki i ka noho aupuni ana.)

I ka pau ana o ka haua kuikahi e hoopau i ke kaua, hoi mai la o Peleioholani me kana kakaolelo o Naili, me kona mau Alii, a me kona mau koa, ma Koolau o Molokai. Nolaila i olelo kaena iho ai ka poe kakaolelo o Hawaii, me ko Maui. "O Peleioholani, ke keiki a Ku, o Hana. O ka pua a keia Alii kipi i make ai, (oia no o W. P. Kinau opio.) I ka pau ana o ke kaua, ua noho ae o Kamehameha Nui i ka noho Alii Moi o Maui, me ka maluhia o ke aupuni, i ko Alapai noho ana aupuni ma Hawaii. A ike iho la o Alapai, ka Moi o Hawaii, ua maluhia ka noho ana aupuni o kana Alii o Kamehameha nui, i ka noho Moi o ke aupuni o Maui, hoi aku la o Alapai i kona aupuni i Hawaii.

Translation:

The hardest fighting, even compared with that at Napili and at Honokahua in Ka‘anapali, took place on the day of the attack at Pu‘unene. Pele-io-holani was surrounded on all sides, *mauka* and *makai,* by the forces of Alapa‘i, led by Ka-lani-‘opu‘u and Keoua. The two ruling chiefs met there again, face to face, to end the war and became friends again, so great had been the slaughter on both sides...

Perhaps the reason for this friendliness on the part of the two chiefs was the close relationship that existed between them. Alapa‘i‘s mother belonged to Oahu. She was Ka-lani-kau-lele-ia-iwi-nui, a dughter of Kane-i-ka-ua-iwi-lani, who was the child of Ka-ua-kahi-a-kua‘ana-au-a-kane, the daughter of Ka-‘ihi-kapu-a-Ku‘ihewa. Moreover Ka-lani-‘opu‘u and Keoua were own sons of Pele-io-holani through their mother Ka-maka‘i-moku. While Kuali‘i was still ruling Oahu, she had come to visit her mother ‘Umi-‘ula-i-ka-‘ahu-manu, who was living at Waikele with her younger brothers, and it was at the water of Alele just above Waipahu in Waikele, ‘Ewa, that Ka-lani-‘opu‘u was begotten by Pele-io-holani. The ruling chiefs of Oahu wore as a neck ornament an ivory whale‘s tooth shaped like a bud (‘opu‘u); the royal neck ornament of Hawaii was a tongue-shaped hook, like a tortoise-shell fishhook. Pele-io-holani named the child Ka-lei-‘opu‘u after the bud-shaped neck ornament of his father Kuali‘i. Thus he begot Ka-lei-‘opu‘u Keoua he probably begot after he became ruling chief.

> At the end of the war Kamehameha-nui became ruking chief of Maui. Pele-io-holani retired to Ko‘olau on Molokai with his adviser Na-‘ili and his chiefs and fighting men. The counselors of both Hawaii and Maui boasted, “Pele-io-holani, the son of Ku, belongs to Hana!” [has done his work well] W.P. Kina‘u the younger, who died recently, was a descendant of the rebel chief. Kamehameha-nui ruled Maui in peace and Alapa‘i held the rule over Hawaii, to which he returned after affairs had quieted down on Maui. He had no occasion to renew the war on Maui as in the time of Ke-kau-like, the father of Kamehameha-nui, who was an ambitious chief, a lover of war and greedy for rule over Hawaii. [Kamakau 1992:74-75]

4.2 Early Historic Period

By early 1786, Kahekili had defeated the forces of O‘ahu, and consolidated his control over all of the islands except Hawai‘i. However, in 1790, the defining battle establishing Kamehameha I’s supremacy over the army defending Maui began at Pu‘unēnē. Crossing the channel from the island of Hawai‘i with his war fleet, Kamehameha I overwhelmed the Maui forces in Hāna en route to engaging the main island defense force gathered along Maui’s northern coastline. Kamehameha I assembled his invasion forces at Kahului. With Kahekili on O‘ahu, the defense of Maui fell to his son, Kalanikupule. The Maui forces were swept across the isthmus and destroyed at ‘Īao Valley, above Wailuku. The high chiefs and royalty of Maui fled to other islands, and Kamehameha I went on to defeat the combined forces of Kahekili and Kalanikupule at Nu‘uanu, on O‘ahu in 1795.

Estimates of the early 19th century population of Wailuku are difficult to find. In regions where Protestant missionaries had been stationed, statistical records are plentiful, but the missionary out-station region of Kahului appeared to have received scant attention during the 1820’s. In 1830, Protestant missionaries recorded school attendance figures for the out-stations of Wailuku as: 612 students in Waihu [Waihe‘e], 329 students in Waikepu [Waikapū], and 103 students in Waiehu, with no mention of Kahului (Richards 1830). The use of the northern coastline landing at Kahului by early Europeans must have been difficult, for far more records exist of early explorers and merchant ships at anchor off the southern, more protected coastline of Maui than along the exposed, northern coast.

James Jarves (1844), the first editor of The Polynesian, the third English-language newspaper in the Hawaiian Islands, included news about events in Kahului. He noted a “remarkable oscillation of the ocean” that occurred at Kahului on November 7, 1837:

> At Maui, the sea retired about 20 fathoms, and returned with great speed, in one immense wave, which swept before it houses, trees, canoes, and all else exposed to its fury. At the village of Kahului, the inhabitants, as at Honolulu, followed with rapturous delight the retreating wave, when suddenly it turned upon them, rising like a steep wall, rushed forward to the shore, burying the natives in its foam, and destroying the whole hamlet. [Jarves 1844:19-20]

During the early and middle 1800s, the Hawaiian demography was affected by two dramatic factors: radical depopulation resulting from Western disease and nucleation around the developing port towns. The traditionally Hawaiian population was largely dispersed and although there were royal centers and areas of more concentrated population, these areas never came close to rivaling the populations of the historic port towns that developed on Hawai‘i‘s shorelines during the 1800s.

In this regard, Kuykendall (1938:313) notes that in the period from 1830 to 1854:

> The commercial development during this period, by magnifying the importance of a few ports, gave momentum and direction to a townward drift of population; the population of the kingdom as a whole was steadily going down, but the population of Honolulu, Lahaina and Hilo was growing.[Kuykendall 1938:313]

Kuykendall's observation likely captures the demographic pattern at the Kalepolepo entrepot, a hub of early historic activity for Kīhei and eventually all of Kula Moku (Kolb et al. 1997:69). The development of Kalepolepo as an entrepot and a focus of Christian life in the 1840s and 1850s most likely increased the population in the immediate vicinity above the pre-Contact population figures, contrary to the island-wide trend of depopulation. That the population and areal extent of the Kalepolepo community reached its zenith during the mid-1800s, appears to be supported by Kolb et al. (1997:68):

> The ancient village of Kalepolepo was relatively small, and was built around an economy primarily based upon the exploitation of ocean resources--primarily the excellent fishing grounds as well as three large fishponds. However, as the number of visiting ships increased, Kalepolepo soon became an important provisioning area. By 1850 we know that the economic opportunities were attracting a number of European entrepreneurs. [Kolb et al. 1997:68]

In 1820, the whaling industry was introduced in Hawai‘i. Although the whaling trade centered on Lāhainā, mainly affecting the Kula/Kīhei area through agricultural demands, Clark (1980:47) notes that "From the 1840s to the 1860s a small whaling station was maintained at Kalepolepo [Kīhei]." The introduction of whaling to the Maui community brought with it an increased demand for foodstuffs and in particular the long-lasting Irish potato.

After 1830, dryland agriculture in the old Kula District expanded with a focus on Irish potato cultivation. The California Gold Rush of 1849 further intensified the demand as a California-Hawai‘i potato trade began to flourish. Kula became the area of highest potato production and was known as "the potato district" (the area between 2000 and 5000 ft elevation). During this time, sugar cultivation and ranching were established in the Kula region. According to Helen Wong Smith, sugar was present prior to 1846, with six sugar producers operating on the slopes of Haleakalā, and ranching occurred in the area prior to the 1840s (Brown and Haun 1989:C-7 and C-6). Much of the produce, sugar, and livestock moved down the Kalepolepo and Kekuawaha‘ula‘ula Trails to the landing at Kalepolepo, just south of the project area. (Donham 1992:5) notes that the inundation of land clearing and cultivation associated with the Gold Rush resulted in "deforestation [which] adversely affect[ed] the amount of rainfall in the district, and periods of drought became more common."

David Malo created a balance for the boisterous whaling crowd by constructing the Kilolani Church at Kalepolepo around 1852. Potato production thrived in Kula from 1830-1850 until successful potato cultivation and production in California and Oregon resulted in a decline in the Hawai‘i trade (Burgett and Spear 1995:6-7).

4.3 Mid to Late 1800s

4.3.1 The Māhele and the Kuleana Act

The most significant change in land-use patterns and allocation came with the Māhele of 1848 and the privatization of land in Hawai‘i. This action hastened the shift of the Hawaiian economy from that of a subsistence-based economy to that of a market-based economy. During the Māhele, all of the lands in the Kingdom of Hawai‘i were divided between *mō‘ī* (king), *ali‘i*, *konohiki* (overseer of an *ahupua‘a*), and *maka‘āinana* and passed into the Western land tenure model of private ownership. On 8 March 1848, Kauikeaouli (Kamehameha III) further divided his personal holdings into lands he would retain as private holdings and parcels he would give to the government. This act paved the way for government land sales to foreigners, and in 1850 the legislature granted resident aliens the right to acquire fee simple land rights (Moffat and Fitzpatrick 1995:41–51).

Native Hawaiians who desired to claim the lands on which they resided were required to present testimony before the Board of Commissioners to Quiet Land Titles. Upon acceptance of a claim the Board granted a Land Commission Award (LCA) to the individual. The awardee was then required to pay in cash an amount equal to one-third of the total land value or to pay in unused land. Following this payment, a Royal Patent was issued that gave full title of ownership to the tenant. But by 1850, the government of Hawai‘i was offering land for sale to both Native Hawaiians and foreigners. Such lands were referred to as Royal Patent Grants or as Grants.

A total of 13 land commission claims were made in Pūlehunui, and nine were awarded (LCAs 0327B, 9671, 9019, 4672, 9672, 9673, 8866, 4567, and 5230). Only one of these awards, LCA 5230, is immediately surrounding and inclusive of the current project area (Figure 7 and Figure 8). Supporting testimony given to the land commissioners indicate that the 1668.78 acres of LCA 5230 were awarded to Keaweamahi by the King in 1843 and never disputed. The testimony given by Kaauwai and Kaiakekaua additionally maintained that there were a great many natives that lived within the *ahupua‘a* of Pūlehunui. The majority of the lands awarded were *kula* (pasture) used for potato (both sweet potato and Irish potato) cultivation and were primarily located along the upper elevations of Kula Moku (Waihona ‘Aina 2000).

In 1879, following the initial division of lands during the Māhele, the western boundary of Pūlehunui was disputed by the owners of adjacent lands in Waikapū. The western boundary of Pūlehunui that was specified by the Commissioner of Boundaries and surveyed included approximately 2,000 feet along the coastline from a sand spit known as Kīhei to a point of rocks called Kalaepōhaku. The eastern boundary line that was being claimed for Waikapū, however, would cut Pūlehunui off from the ocean, this being the more specific issue in the boundary dispute. Testimony was given by *kama‘āina* (Native Hawaiian residents) of Pūlehunui and/or lands next to it regarding their familiarity with the boundaries of Pūlehunui Ahupua‘a. All witnesses, with the exception of one, consistently stated the line between Pūlehunui and ‘Ōma‘opio was along a ravine or *kahawai*. The line carried along this *kahawai* and continued to follow the same natural boundary to Ka‘opala at the bottom of the East Maui slope. Ka‘opala meets the bottom of the West Maui slope and creates a depression and this is where the boundary turns Mid- to course, following the natural depression or shallow *kahawai* to the sea. The court agreed that the boundary likely followed this natural line and concurred with the findings of the Commissioner of Boundaries. As

a result, the original 2,000 feet of coastline from Kīhei to Kalaepohaku that was attributed to Pūlehunui Ahupua‘a was upheld (McCully J Court Opinion, in Sterling 1998:254–257).

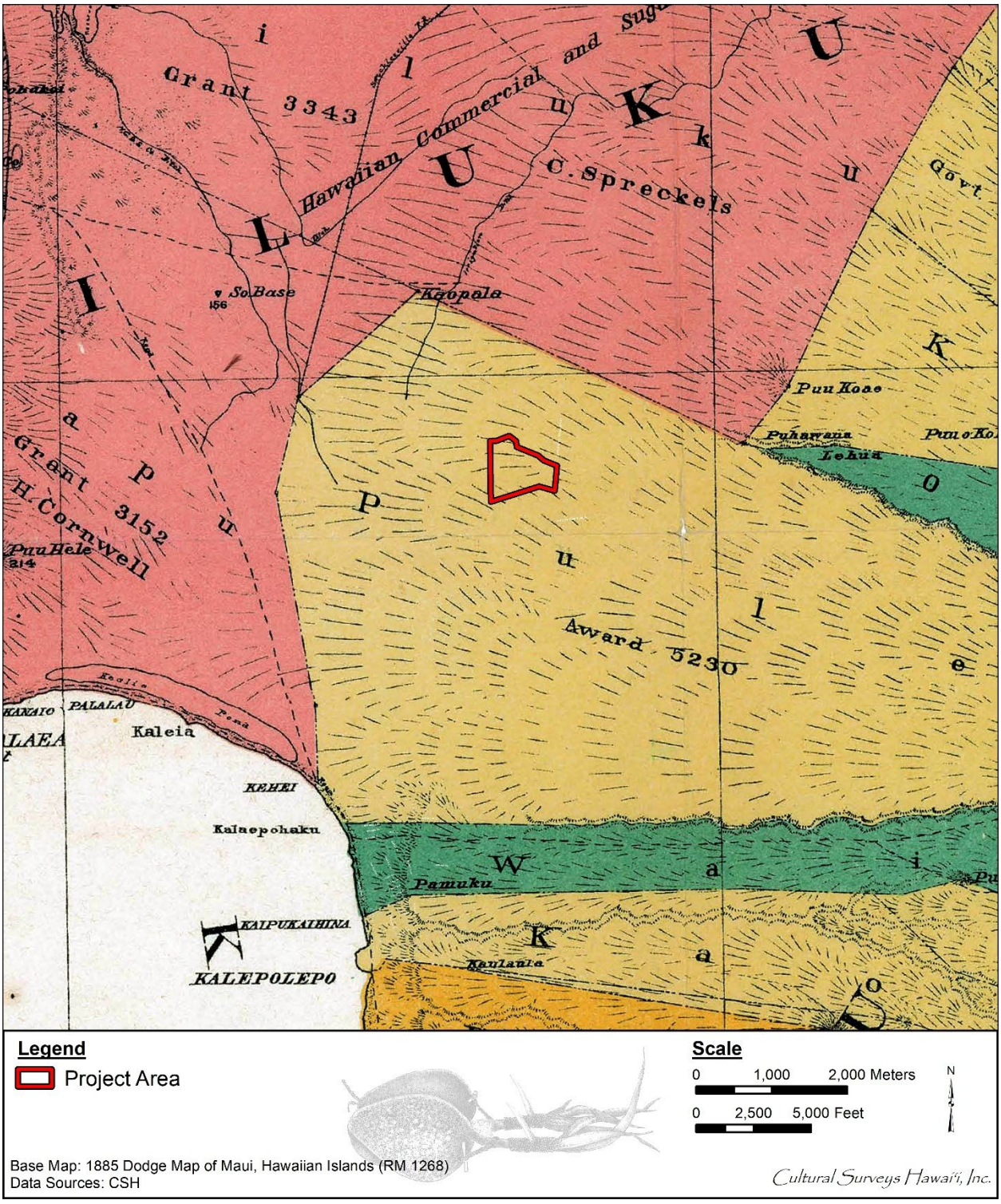


Figure 7. Portion of the Dodge (1885) map of Maui (RM 1268) showing the location of the project area within Award 5230

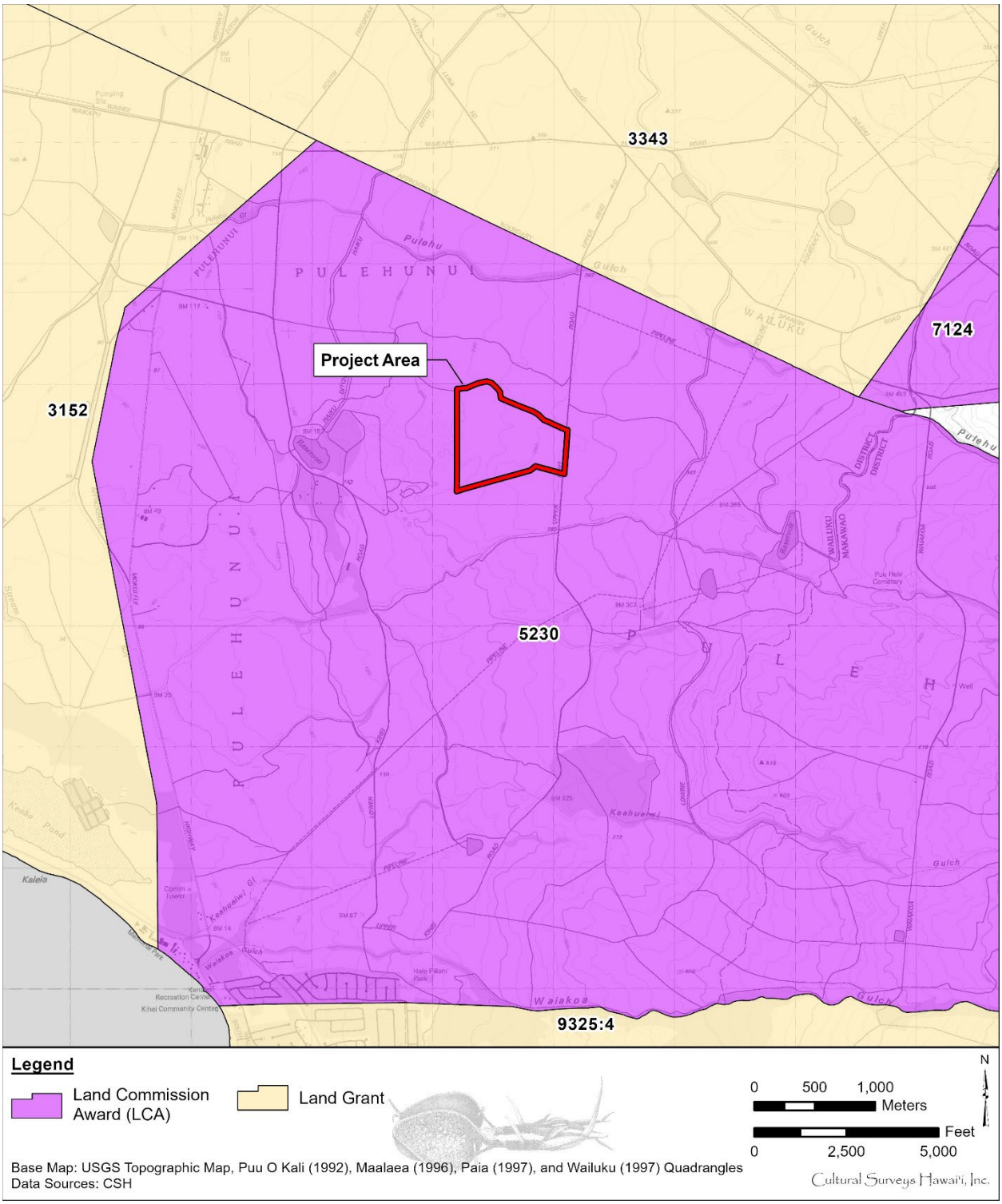


Figure 8. USGS topographic quadrangle map with an overlay of Land Commission Awards and Land Grants recorded in the vicinity of the project area (U.S. Geological Survey 1992, 1996, 1997a, 1997b)

4.4 Late 1800s to Early 1900s

4.4.1 The Sugar Industry

A common crop on nearly all major Hawaiian Islands was sugar cane. Among the early government grants in the upland area of Wailuku Ahupua‘a were lands set aside for the Wailuku Sugar Company, a plantation first organized in 1862 by James Robinson & Company, Thomas Cummins, J. Fuller, and agent C. Brewer & Company. The success of sugar grown in the region resulted in a second large plantation, in Waihe‘e, producing over 757 tons of sugar and 45,000 gallons of molasses in 1865. The Waihe‘e mill manager was Samuel T. Alexander, and the mill’s head foreman was Henry P. Baldwin, both of whom would resign in the late 1860’s to establish a small sugar enterprise of their own in upper Pā‘ia (Gilmore 1936).

In 1869, on land located just west of Pā‘ia, a small kuleana of 11.94 acres was purchased by S.T. Alexander and his business partner, H.P. Baldwin, both descended from Lāhainā missionary families, who were eager to apply their agricultural experience to their own plantation. This initial land purchase was the beginning of the development of the entire central isthmus for sugar cultivation. In rapid succession, Alexander & Baldwin expanded its operations by purchasing other small kuleanas, setting up a mill, and attracting more investment capital (Dean 1950).

In 1876, a treaty was signed between the Kingdom of Hawai‘i and the United States, which opened larger and more lucrative markets for Hawaiian sugar. Plans were immediately drawn up by Alexander & Baldwin to finance a ditch to bring water from the Hāna region of East Maui to the arid plains of Pā‘ia. The Kingdom of Hawai‘i issued a lease for the construction right-of-way, and in 1879, the successful venture delivered millions of gallons of water to the Pā‘ia region via the Hamakua Ditch (Wilcox 1996).

Competition was supplied by Claus Spreckels who engineered a similar irrigation ditch from Honomanū in East Maui to lands located just inland of Kahului, where the Spreckelsville mill and plantation camp were built. Spreckels invested three million dollars in the Hawaiian Commercial & Sugar Company, and competed for sugar lands, wharf and warehouse space, railway lines, and shipping schedules with Alexander & Baldwin (Dorrance 2000).

In 1882, Spreckels, following his success in building the Honomanu Ditch linking East Maui water sources with his sugar fields in the central isthmus, further capitalized on that success to engineer the Waihe‘e Ditch [also named the Spreckels Ditch] in West Maui. The 15-mile-long ditch started at the 435 foot elevation of Waihe‘e Stream, and carried 60 million gallons of water (per 24-hour day) to the Wai‘ale Reservoir at the 214 foot elevation of Wailuku. Spreckels became the first plantation owner to irrigate his fields by water from both Haleakalā and the West Maui mountains (Wilcox 1996). By 1888, the Spreckels plantation covered 28,000 acres, making it the largest sugar plantation in the world (Meriwether 1888). Financial pressures forced Spreckels to give up control of HC&S to Alexander & Baldwin in 1898 after a long and fierce battle (Dean 1950).

4.4.2 Kihei Plantation Company

The Kihei Plantation Company, Ltd. (KPC) was organized late in 1898 with a capitalization of 60,000 shares at $50 par value. Water was the most critical component in the decision to locate sugar cultivation along the leeward shores of Maui’s arid coastline. The discovery of an ample

supply of irrigation water early in 1898 led to the drilling of a large, successful well, but the supply of water was limited (Stearns 1942). Over the next four years, two ditches were developed to supplement the water needs of the 4,873 acres of sugar under cultivation at Kīhei (Gilmore 1936).

The history of the Kihei Plantation Company begins with the annexation of the Hawaiian Islands by the United States in 1898. With annexation came political stability for Hawai‘i. Worldwide sugar prices were rising due to the outbreak of war between the United States and Spain over her colonies in Cuba, Puerto Rico and the Philippines. Henry P. Baldwin, of the Maui plantation of HC&S, entered into a partnership with O‘ahu businessman Benjamin F. Dillingham to convert Lorrin A. Thurston’s landholdings in Kīhei into a sugar enterprise.

Up to that time, sugar cultivation within the central isthmus of Maui was centered around the main towns of Wailuku and Kahului. Water tunneled from springs in the West Maui Mountains flowed through ditches in Wailuku to irrigate fields as far away as Mā‘alaea. Water from the windward rain belt of Kailua ran through a network of ditches from East Maui to Pā‘ia, to irrigate fields in Pu‘unēnē.

A well-drilling company from Honolulu, The McCandless Brothers, drilled a successful Maui-Type well (U.S.Geological Survey Well 14 / Hawaiian Commercial & Sugar Well K1) in 1899. It was located just inland from the coast in North Kīhei, between Keālia Pond and the Waiakoa Homestead Lands. This well was drilled vertically to approximately 60 feet through the Honomanū basalts, and tunneled laterally over 1,500 feet in order to skim 10 million gallons of fresh irrigation water per day from sources beneath the Kīhei plains (McCandless 1936).

The Kihei Plantation Company had the McCandless Brothers drill two or three additional Maui-Type wells on the north side of reservoir K2 at the discharge end of the existing pipeline of Well 14. The plantation in Kīhei failed in 1908 before the well site was able to be developed. It would have been named the HC&S K2 well, and would have included a large pumping station (Stearns 1942).

The plantation company in Kīhei built bridges to span streams and gulches flowing through the company fields. The plantation had planned the construction of a mill in North Kīhei, and ordered a plant to be built. It was decided that the new HC&S mill under construction at Pu‘unēnē would have more than enough capacity to mill all the cane from the Kīhei fields. The order for the mill was transferred to the ‘Ōla‘a Sugar Company in Hawai‘i, in exchange for a supply of steel rails for new railway requirements at Pu‘unēnē. A large scale Kona storm hit the plantation on November 15th, 1900, and caused immense damage to both Kīhei and the HC&S fields in Pu‘unēnē (Dean 1950). Bridges were knocked out, buildings were flattened, and washouts filled irrigation ditches with silt. Repairs were effected immediately, with the new HC&S mill at Pu‘unēnē commencing operations January 29, 1902.

4.4.3 Railway Operations

The KPC planned to construct a railway to move their cane. The sugar agency of William Dimond & Company placed an order for a locomotive from the Baldwin Locomotive Works in Philadelphia. The order was placed April 1899, and the plantation locomotive “Haleakala” was built and sent on to Maui (Condé and Best 1973).

By March of 1900, the first annual report of the Kihei Sugar Company stated, “It was our intention to complete the main [rail]road only as far as Camp #2, or for about 2 miles, but as the

development of Camp #3 required pushing on of the road one and a half miles further, this has been done, having been completed the 15th of February" (Condé and Best 1973:230). An additional six miles of track connected the Kīhei wharf to the various well pumping stations, and north to meet up with HC&S track (Condé and Best 1973). Establishing the railroad at Kīhei made it possible to harvest and transport over two thousand tons of sugar in a single year (Dean 1950) (Figure 9).

The laying of the railroad and the cultivation of the sugar cane in Kīhei was performed primarily by Japanese field labor; the new Maui plantation employing a small part of some 19,908 immigrants from Japan who arrived in Hawai‘i in 1899. Kīhei's plantation Camp #1 was set up inland of the Kīhei wharf and mooring pier. Two stables and a plantation store were located at Camp #1. Hospital services were provided by HC&S in Pu‘unēnē. Kihei Camp #3 was located 2 ½ miles north of Kihei Camp 1 at Kolaloa Gulch, along the North Kīhei line of the HC&S railroad (Shoemaker 1907).

The 3-foot gauge track for the Kihei Plantation Company railroad was built to the same specifications as the railway linking the HC&S mill at Spreckelsville to its fields; and to the sugar warehouses at the Kahului wharf. By 1902, with the new Pu‘unēnē mill completed, a new milling contract with HC&S provided that all cane loaded by the Kihei Plantation Company was to be ground and manufactured into sugar by HC&S.

A 1910 map of the HC&S planation in Pu‘unēnē depicts a portion of the field and rail network surrounding the project area (Figure 10). The "Upper Main R.R. Kihei" extended across Kolaloa Gulch between Increments 2 and 4 of the project area. A spur from this line extended through Increment 4 of the project area to the "K. No 4 Reservoir Ditch. Camp K-3, labeled as "Pump 3-K" is located adjacent to the project area along Makawao Road.

When the plantation was forced to close in 1908 due to diminished returns and underdeveloped water sourcing, the entirety of the company's rolling stock was absorbed by a subsidiary of HC&S. This included a Baldwin 10-ton locomotive, two large flat cars, and approximately 235 cane cars. After this merger the rolling stock of the KPC was absorbed into the larger system that connected Kahului and Kihei to plantations further east of the central isthmus. After acquiring the locomotive, the name was changed from "Haleakala" to "Hawaiian Commercial & Sugar #4," becoming renamed again in 1910 as "Kihei" (Figure 11) (Condé and Best 1973:230-231).

4.4.4 Water Source Development

The Lowrie Ditch project, named for former HC&S manager William J. Lowrie, brought an additional source of water to the Kīhei plains. His plan was to begin the ditch at the Pāpa‘a‘ea Reservoir, at the 1,000-ft elevation, and maintain a four-foot drop per mile following the ditch's initial plunge from the Kailua reservoir. Steep mountain gulches were traversed using the force of the constant weight of water flowing in a series of siphons. The Halehaku Gulch, at 250 ft deep, and the Māliko Gulch, at over 350 ft deep, were both crossed by giant siphons fabricated of three-eighths-inch iron, and set in place by Japanese laborers. At a weir located above Pā‘ia, the allocation of water began. The first tenth of the water flow in the Lowrie Ditch was divided out to the Pā‘ia Plantation (an 11/20ths share) and the Haikū Plantation (a 9/20ths share). The distance traveled, from Kailua to the plantation's Kīhei boundary, was 21.9 miles (Thrum 1900).

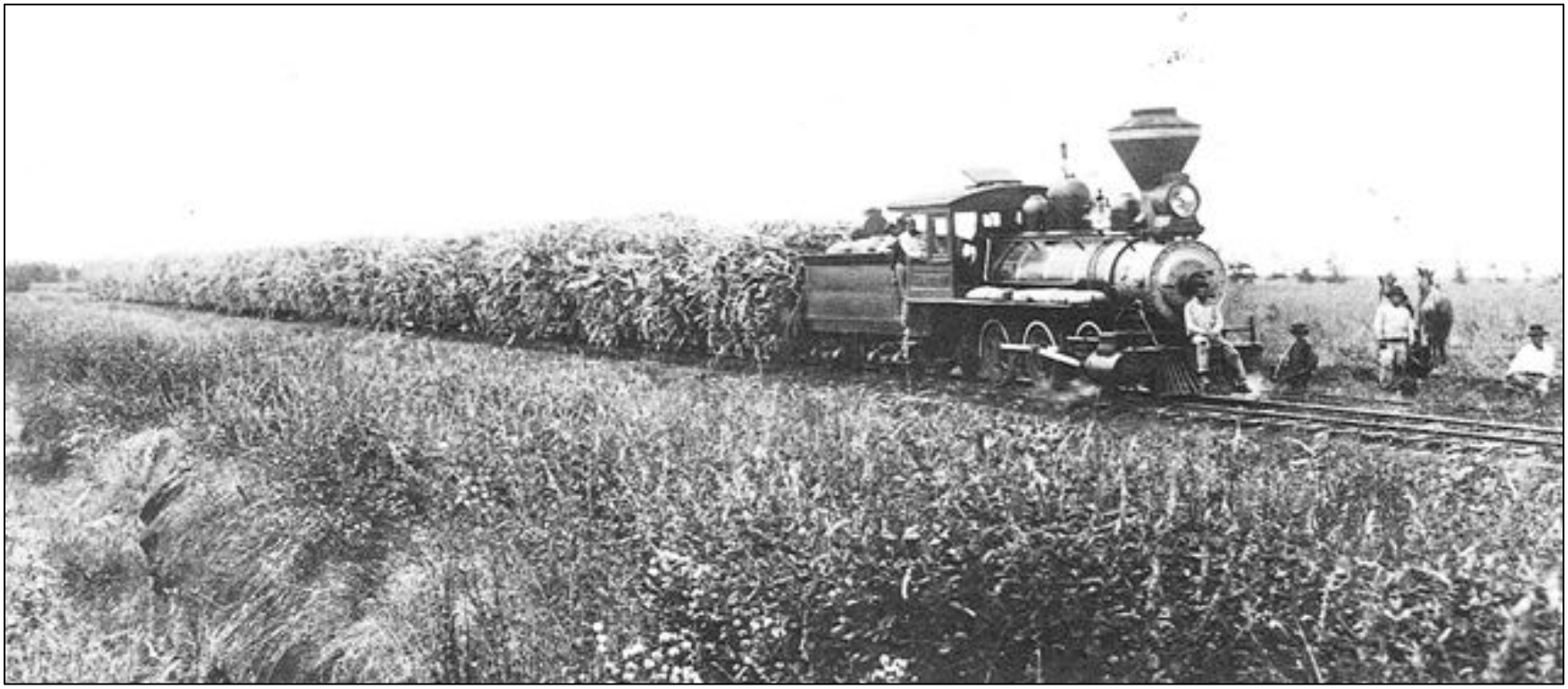


Figure 9. KPC locomotive “Haleakala” transporting cane from Kīhei fields to the mill at Pu‘unēnē, ca. 1905 (Condé and Best 1973)

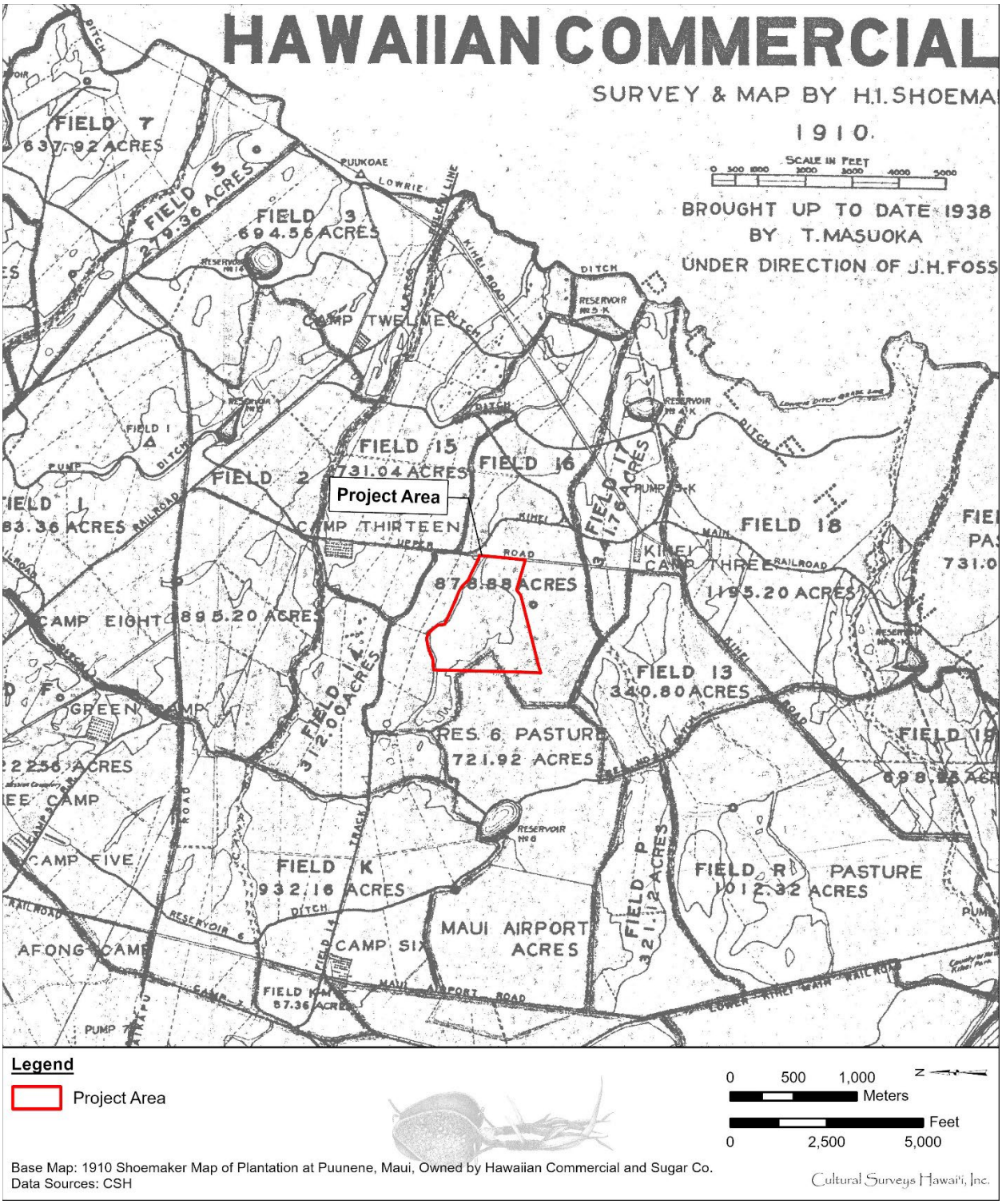


Figure 10. Portion of the Shoemaker (1910) map of the HC&S Plantation in Pu‘unēnē showing the current project area



Figure 11. KPC locomotive servicing HC&S mill as “Hawaii Commercial & Sugar No. 4” (Condé and Best 1973:231)

More water was required from wells and the East Maui watershed. The manager for the KPC, W.F. Pogue, asked the management of HC&S for an even larger allocation of water for the Kīhei lands. In 1901, Samuel T. Alexander ordered the construction of a new ditch, tapping the water sources from Nāhiku to Honomanū. It was determined that the KPC would receive 2/9ths of the capacity from the enterprise (Dean 1950) (Figure 12).

The KPC failed to live up to the expectations of its promoters with an inadequate water supply as the key difficulty. With the waters of the Ko‘olau Ditch flowing to the Kīhei fields, production appeared to have hit its peak. Although 5,609 tons of sugar was delivered in 1903, high costs required a change of managers in Kīhei, and a reduction of the HC&S milling charge to $7 per ton. The incoming HC&S manager, Frank Fowler Baldwin, determined that the best course of action was to buy out the company for $375,000 (Condé and Best 1973).

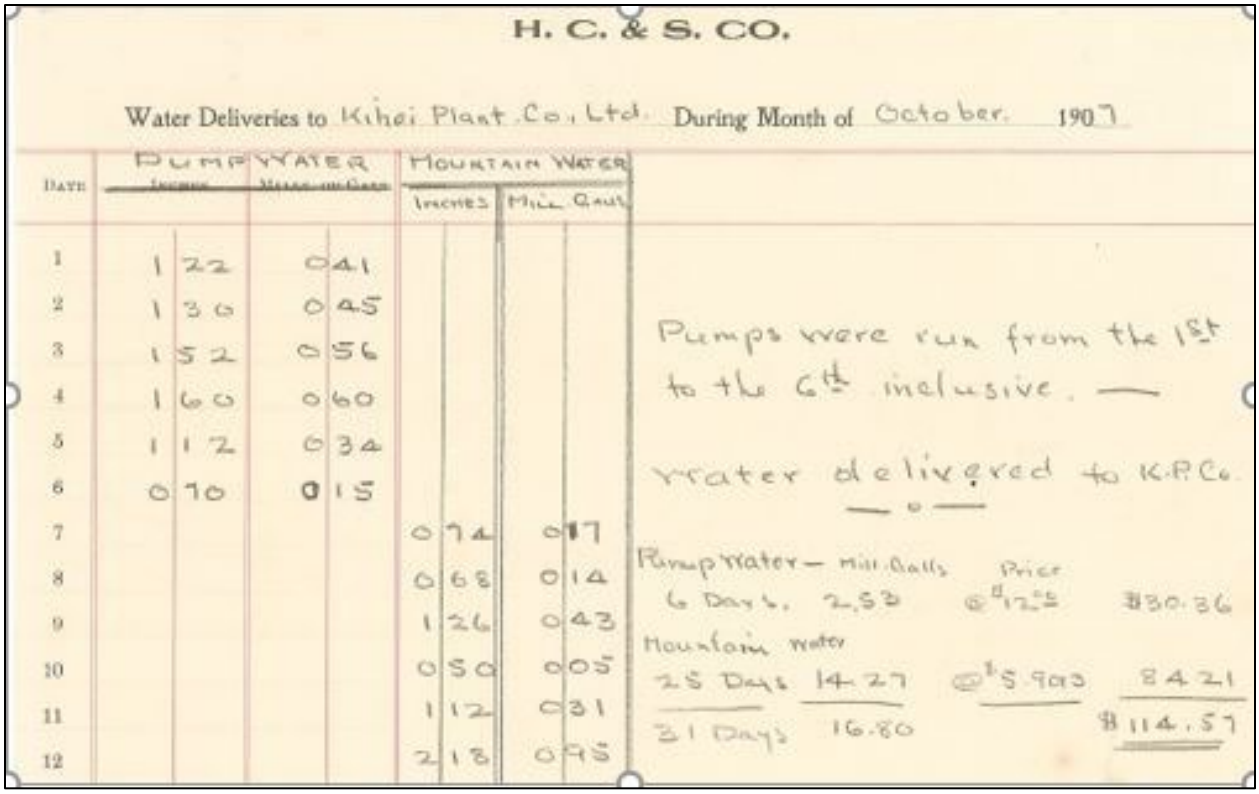
In 1908, the lands of the KPC were divided up between five new major business entities of HC&S; the Kailua Plantation Company (994 acres), the Kalialinui Plantation Company (923 acres), the Kula Plantation Company (996 acres), the Makawao Plantation Company (982 acres), and the Pulehu Plantation Company (978 acres) acquired the remaining acreage not included in the railroad right-of-way. Water rights reverted to HC&S, and were apportioned between the new plantations (Dean 1950). Sugar operations continued in North Kīhei until ca. 1968, when HC&S leased lands to a corn research farm.

4.5 Early to Mid 1900s

In 1899, HC&S was planning its new mill at Pu‘u Nēnē which processed its first cane in 1902 (Bartholomew and Bailey 1994:121). From the time it opened and for a several years after, Pu‘u Nēnē was home to the largest sugar mill in the world (Figure 13). Being the largest, at the height of its production, Pu‘u Nēnē mill covered a vast 33,000 acres. A total of 16,000 was used for sugar cane and the remaining acreage saw residential camps (Figure 14), a hospital, a grade school, a church, and recreational facilities (Figure 15) for the employees (Bartholomew and Bailey 1994:121).

The McCandless Brothers were retained by the plantation to drill 12 wells at the site. The water was to be used for the operation of the mill, as well as for irrigation. All 12 wells were successes, according to the records of the head engineer, James Sutton McCandless (1936).

In 1900, most of the port town of Kahului was burned to prevent the spread of bubonic plague. The fire jumped a canebreak and destroyed 575 acres of immature cane. The HC&S Company determined that cultivating the Pu‘unēnē plains required far more water than the original Hamakua Ditch could provide. The Lowrie Ditch project was undertaken to provide an additional source of water to the central Maui plains. The ditch was begun at the Pāpa‘a‘ea Reservoir, at 1,000 ft. elevation, and maintained a four-foot drop per mile following the ditch’s initial plunge from the Kailua reservoir. Steep mountain gulches were traversed using the force of the constant weight of water flowing in a series of siphons. The Halehaku Gulch, at 250 feet deep, and the Māliko Gulch, at over 350 feet deep, were both crossed by giant siphons fabricated of three-eighths-inch iron, and set in place by Japanese laborers. At a weir located above Pā‘ia, the allocation of water began. The first tenth of the water flow in the Lowrie Ditch was divided out to the Pā‘ia Plantation (an 11/20ths share) and the Haikū Plantation (a 9/20ths share). The distance traveled, from Kailua to the plantation’s Kīhei boundary, was 21.9 miles (Thrum 1900).



H. C. & S. CO.

Water Deliveries to Kihei Plant Co., Ltd. During Month of October. 1907

Date	Pump Water Inches	Pump Water Mill. Gals.	Mountain Water Inches	Mountain Water Mill. Gals.
1	1 22	041		
2	1 30	045		
3	1 52	056		
4	1 60	060		
5	1 12	034		
6	0 70	015		
7			0 74	017
8			0 68	014
9			1 26	043
10			0 50	005
11			1 12	031
12			2 18	095

Pumps were run from the 1st to the 6th inclusive. —

Water delivered to K.P.Co.

— o —

Pump water — mill. Gals. Price

6 Days. 2.53 @ $12.25 $30.36

Mountain water

25 Days 14.27 @ $5.903 84.21

31 Days 16.80 $114.57

Figure 12. Portion of an accounting statement for water delivered to the KPC in 1907 (CSH archives)



Figure 13. Hawaiian Commercial & Sugar Company mill (Bartholomew and Bailey 1994)



Figure 14. “Hospital Camp” at Pu‘u Nēnē (Bartholomew and Bailey (1994)

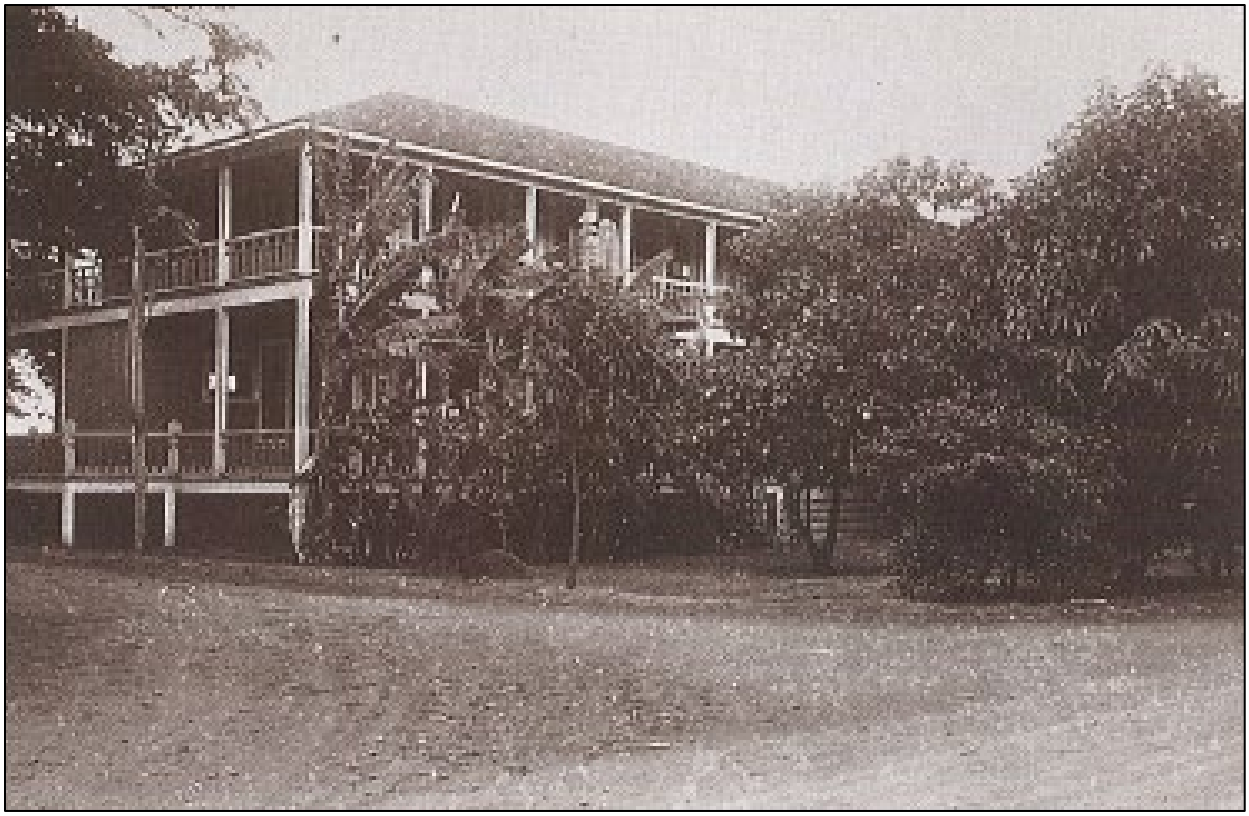


Figure 15. Pu‘u Nēnē Clubhouse. A recreational unit provided by HC&S (Bartholomew and Bailey 1994)

The Pu‘unēnē Mill was completed in 1902, supplementing the work done by the Pā‘ia Mill, which had been constructed by Alexander & Baldwin in 1880. Both mills, and the network of railroad lines connecting the company’s fields and villages, continued to grow. Between 1900 and 1905, acreage harvested doubled, from 2,484 to 4,827 acres. Tons of sugar more than doubled, from 17,857 to 39,411 and the adoption of heavier rails and a wider rail gauge caused HC&S to completely renovate the plantation railroad (Condé and Best 1973).

In 1906, an east breakwater was constructed by the Territorial Government of Hawai‘i to protect the anchorage at Kahului Harbor. The first wharf was constructed in 1910 and was followed by additional dredging and the construction of the west breakwater by the United States government. The reinforcement of both breakwaters, and the completion of Piers 1 and 2 in 1927 replaced older wharves damaged during a tidal wave in 1923.

The plantation villages of the Pu‘unēnē area grew quickly to surround the new mill. Between a huge influx of immigrant workers in 1909, and the burning of village areas of Pā‘ia and Kahului to control smallpox in 1910, changes to the camp system were in full swing. The plantation workforce continued to expand until 1917, when the United States declared war on Germany, and the accompanying draft depleted the labor pool. By 1919, postwar requirements for sugar had driven the price to $471.40 per ton: an all-time high (Burns 1991). Nine main camps were in place across the Pu‘unēnē plains by the 1920’s, including MeGerrow Camp, Yung Hee Camp, Afong Camp, Spanish B Camp, Alabama Camp, Green Camp, Camp 4, Sam Sing Camp and Camp 8.

Harold T. Stearns traversed the island of Maui between 1932 and 1942, conducting studies of the geology and ground-water resources. Between 1939 and 1940, Gordon A. MacDonald completed geologic maps for the study. Their combined work highlighted the then-recent explorations for water in Pūlehu Nui, both as a source of drinking water, and for dust control during construction of the airport (Stearns and MacDonald 1942). They reported that the isthmus of Maui “was without trees and covered with drifting sand prior to the planting of cane. Old residents report that red dust storms were nearly a daily occurrence. It seems possible that very little water existed under the Maui isthmus, prior to irrigation. If so, the annual pumpage of 45.500 million gallons [average over the 10-year period between 1928 and 1938] represents mostly return flow from the 78.271 million gallons of surface water imported for irrigation. [This measurement establishes that] recovery from wells is about 58% of surface water deliveries.”

In 1936, a schoolteacher at the Pu‘unēnē School began a competitive swimming program. Soichi Sakamoto trained promising young swimmers in the plantation ditches adjacent to the schoolyard. Although Sakamoto was a respected health and science teacher, his swimmers were not allowed to use the HC&S pool, which was reserved for plantation supervisors and their families. Sakamoto’s goal was to train his students for the 1940 Tokyo Olympics. Training was difficult, not only because Sakamoto demanded dedication from his team, but also because HC&S supervisors on horseback had been ordered to chase the swimmers out of the ditches.

In 1937, Sakamoto’s fledgling team won recognition against a team comprised of territorial champions. The harassment by the irrigation supervisors stopped, and special training hours were instituted by the plantation for the use of the supervisors’ pool. Eventually, a pool was constructed at Camp 5. In 1939, one of Sakamoto’s girls, Fujiko “Katsutani” Matsui, won the 200-meter breaststroke event at the National Amateur Athletic Union Games. Another of Sakamoto’s

swimmers, Keo Nakama, won six titles at the 1939 Australian Nationals and placed high enough to qualify for the 1940 Olympic Games.

In 1939, Pu‘u Nēnē was chosen as the primary location for the Maui Airport. As plans were put into motion, military needs turned the idea of Maui‘s airport into the Pu‘u Nēnē Naval Air Station (NAS) instead (Bartholomew and Bailey 1994:121). At the end of the war, the station was abandoned and the airport was constructed at its current location in Kahului (Bartholomew and Bailey 1994:121).

Japan’s war with China caused the 1940 Olympics to be transferred to Finland, but conditions in Europe prevented the games from taking place at all. Fujiko Matsui again won the 200-meter breaststroke event at the 1940 National Amateur Athletic Union Games and qualified for the Olympics, but the swimmer from Pu‘unēnē School was thwarted from competition by the cancellation of the Olympic Games.

In the early 1940’s, the harbor town of Kahului was transformed from a sleepy plantation merchantile area to an important military defense depot. Following the entry of the United States in World War II, the rapid construction of military defensive structures demanded the immediate use of plantation wharf space, heavy equipment, and operators. Plantation employees from Wailuku and Kahului were pressed into emergency service until military construction personnel arrived in the Hawaiian Islands. By early 1942, the Navy’s 39th Construction Battalion had reinforced the pre-war construction gangs composed of Pacific Naval Air Bases (PNAB) personnel and plantation labor. Completion of Naval Air Station was accelerated, and coastal defenses were further strengthened (Woodbury 1946).

Immediately following the end of World War II, Pu‘uunēnē NAS was completely dismantled. Over one thousand acres of fertile growing land in north Kīhei were returned to sugar cultivation by the Hawaiian Commercial & Sugar Company. On the development side, more improvements were made to the lands of Kahului NAS to create a modern civilian airport where the U.S. Navy’s second Carrier Air Service Unit (CASU) had once been based.

In the early morning on April 1, 1946, coastal residents of Kahului, Kahului NAS, Spreckelsville, Kaunoa, and Pā‘ia found themselves floundering in a quickly rising tide of ocean where their houses had once been. A tidal wave flattened the Officer’s Club at Kahului NAS, uprooted trees, and destroyed residences.

The 1946 tsunami caught the manager of the HC&S Company, Frank F. Baldwin, and his wife Harriet in their home at Spreckelsville Beach. Frank Baldwin watched the first wave wash through his garage and pick up his four cars as if they were toys. He recalled that the tidal wave of 1923 had done the same thing, and felt there was no further cause for alarm. But an unexpected second wave struck their home and washed Frank Baldwin through a glass wall. Servants helped Frank and Harriet Baldwin escape, but their house was destroyed (Burns 1991).

4.5.1 World War II (1941-1945)

With the outbreak of war between Japan and the United States, Pu‘u Nēnē NAS became the command headquarters for both Navy and Army units on the island of Maui. Plantation heavy equipment and plantation operators worked side by side with U.S. Engineering Department personnel to accelerate construction of defensive positions and immediately lengthen runways at the base. The call for an immediate extension of the runways to military specifications involved

extensive engineering to reroute miles of irrigation culverts for HC&S. The dispersion of facilities planned for Pu‘u Nēnē NAS would come to utilize over 2,500 acres of land, and involve housing for over 5,000 men (Command History 1945).

The attack on Pearl Harbor, December 7th, 1941, forced the “Project Dog” program at Pu‘u Nēnē NAS to assign its research to safer bases in the mainland United States. Wartime operations for VJ-3 would concentrate exclusively on providing radio-controlled aircraft as realistic targets for fleet anti-aircraft gunnery training exercises (Foundation 2002). Under wartime conditions, responsibilities for VJ-3 included maintaining an intense schedule of weather flights, rescue flights, and anti-submarine reconnaissance flights in the waters surrounding Maui.

Early in 1942, the first Carrier Air Service Unit, CASU-4, was commissioned, and the utility squadron personnel of VJ-3 were reinforced by Naval Air Station Officers. In June, 1942, Navy Fighting Squadron 72, the first of over 150 squadrons of U.S. Navy fighter, bomber, and scout aircraft, arrived for advanced training prior to moving into forward combat areas (Wilcox 2004). For four days in early June, 1942, as the Battle of Midway raged 600 miles to the northwest, NAS Puunene personnel were ordered into shelters and revetments, expecting bombing raids by Japanese aircraft sweeping across the Hawaiian archipelago (Vint 2000). With the success of American naval forces at Midway, the threat of imminent invasion vanished, and efforts to outfit military bases in the Hawaiian Islands for wartime training were redoubled.

Anti-aircraft gun emplacements and protective aircraft revetments were given top construction priority by the U.S. Pacific Naval Air Bases supervisors. Heavy equipment and civilian operators from Wailuku Sugar Company and Hawaiian Commercial & Sugar Company were employed at Pu‘u Nēnē NAS, with their pay charged back to the U.S. government. Milling at the plantation sugar mills was confined to daylight hours until “blackout” procedures were approved (HC&S Archives).

U.S. Engineering Department (U.S.E.D.) civilian construction contractors were entirely replaced at Pu‘u Nēnē NAS by military PNAB personnel by July, 1942. Domestic water pipelines were laid by HC&S to supply military camps being constructed at ten separate locations across the central Maui plains, including the Camp 6 location proximate to NAS Puunene. The main government road and the railroad line that served the wharf at North Kīhei were rerouted, as NAS Puunene expanded. The Army National Guard’s 108th Regiment, 27th Infantry Division, took up defensive duties along Maui’s coastlines beginning March, 1942, and occupied formal headquarters at NAS Puunene. On November 16, 1942, 400 men forming an advance echelon of the Navy’s 39th Construction Battalion arrived at NAS Puunene, to begin construction of underground fuel bunkers, bombproof buildings, ammunition magazines and an aviation ground school.

The establishment in 1943 of Pu‘u Nēnē NAS as a “Top Gun” school for fighter-aircraft tactics was based on the Navy’s use of highly-decorated veteran fighter pilots, such as Commanders Edward “Butch” O’Hare, James “Jimmy” Flatley, and James Thach; to relay the latest intelligence from the front lines to new pilots rotating into combat (Feightner 1996). “Maui Group Local Naval Defense Forces”, based at Pu‘u Nēnē NAS, controlled the training airspace over the Kaho‘olawe aerial bombing ranges, and administered the training schedule (Lundstrom 1990). Aircraft carriers were modified for combat in the Pacific Ocean at the Pearl Harbor Navy Yard, while their air

groups were flown to one of nine Navy airfields in Hawaii for advanced training – Pu‘u Nēnē NAS being the premiere airfield (Morison 1953).

Army National Guard Divisions were assigned to occupation, guard, and training stations in the Hawaiian Islands during World War II. Shoreline defenses held by the 27th Infantry Division on Maui were replaced by men of the 40th Infantry Division. As elements of both the 27th and 40th Divisions were combined and sent to the South Pacific for combat duty, they were replaced on Maui by regiments from the 33rd Infantry Division. A resident of Maui during WWII said, “It was common to see groups of soldiers wearing their unit insignias all over Maui: the “Sunshine” [40th Division], and “Golden Cross” [33rd Division], and the last ones stationed here were the “Mohawks” [98th Division]” (Sanford 2006).

As of March 6, 1943, the 48th Construction Battalion replaced the 39th “Seabees”, and immediately began construction of a new sewer and water system for Pu‘u Nēnē NAS (Turner 1946). Newsletters published by the 39th Seabees (Shore Lines) and the 48th Seabees (Trade Wind) were joined by an official Pu‘u Nēnē NAS newspaper, “To All Hands” (Later renamed “The Island Breeze”). Although military news in these papers was censored, personnel changes, “scuttlebutt” gossip columns, and sports highlights featuring teams organized within military leagues on Maui attracted the largest readership (Figure 16).

The 127th SeaBees relieved the 48th SeaBees in May of 1944, and finished an extensive network of ammunition magazines located toward Kīhei of the main air base. The completion of expanded housing areas, a second CASU area, and additional “SeaBees” housing was accomplished before the end of 1944. Two Mobile Construction Battalion Units, CBMU 563 and CBMU 575, arrived to maintain the refrigeration and water purification systems.

On July 1, 1945, Pu‘u Nēnē NAS personnel numbered 565 officers and 2,798 enlisted men, including seven Navy nurses, eight WAVES (Women Accepted for Volunteer Emergency Service) officers, and 92 WAVES enlisted personnel (Monthly Station Report of On-Board Personnel, NAS Puunene, Confidential, 1 July 1945). Total aircraft on board numbered 271 (Monthly Station Report of On-Board Aircraft, Confidential, 1 June 1945). The total number of structures built numbered over 300 (Figure 17).

Immediately following the August 1945 surrender of Japan to the military forces of the United States, facilities essential to the operation of Kahului NAS began to be removed from Pu‘unēnē. The bowling alley, bakery, and other specialized structures at Pu‘unēnē NAS were relocated to Kahului NAS, only to be partially or entirely destroyed by a series of tidal waves that struck Kahului NAS facilities April 1, 1946 (*Flyer* 1946).

During 1946, Mauians were allowed to rent residential structures in Housing Area “A”, the area closest to the Reservoir 6 known as “Airport Village”. The cost was reportedly $36.00 per month (Cabos 2000). By 1947, postwar use of the airstrip at Pu‘unēnē for civilian aviation led some Mauians to believe that the site might be further expanded (Belknap 1947). But, by the end of 1948, the site of the former Naval Air Station at Kahului had been chosen to replace the Pu‘u Nēnē site for all future civilian flight operations.

By quitclaim deed dated December 31, 1948, the lands of the former air base were transferred from the United States back to the Territory of Hawai‘i. The remaining base facilities, most of which were wooden structures, had, by that time, been abandoned or demolished.



Figure 16. Torpedo Squadron 6 (VT-6) football team, fall of 1943, Puʻu Nēnē, Maui (Photo courtesy of the Naval Historical Center, Washington Navy Yard)

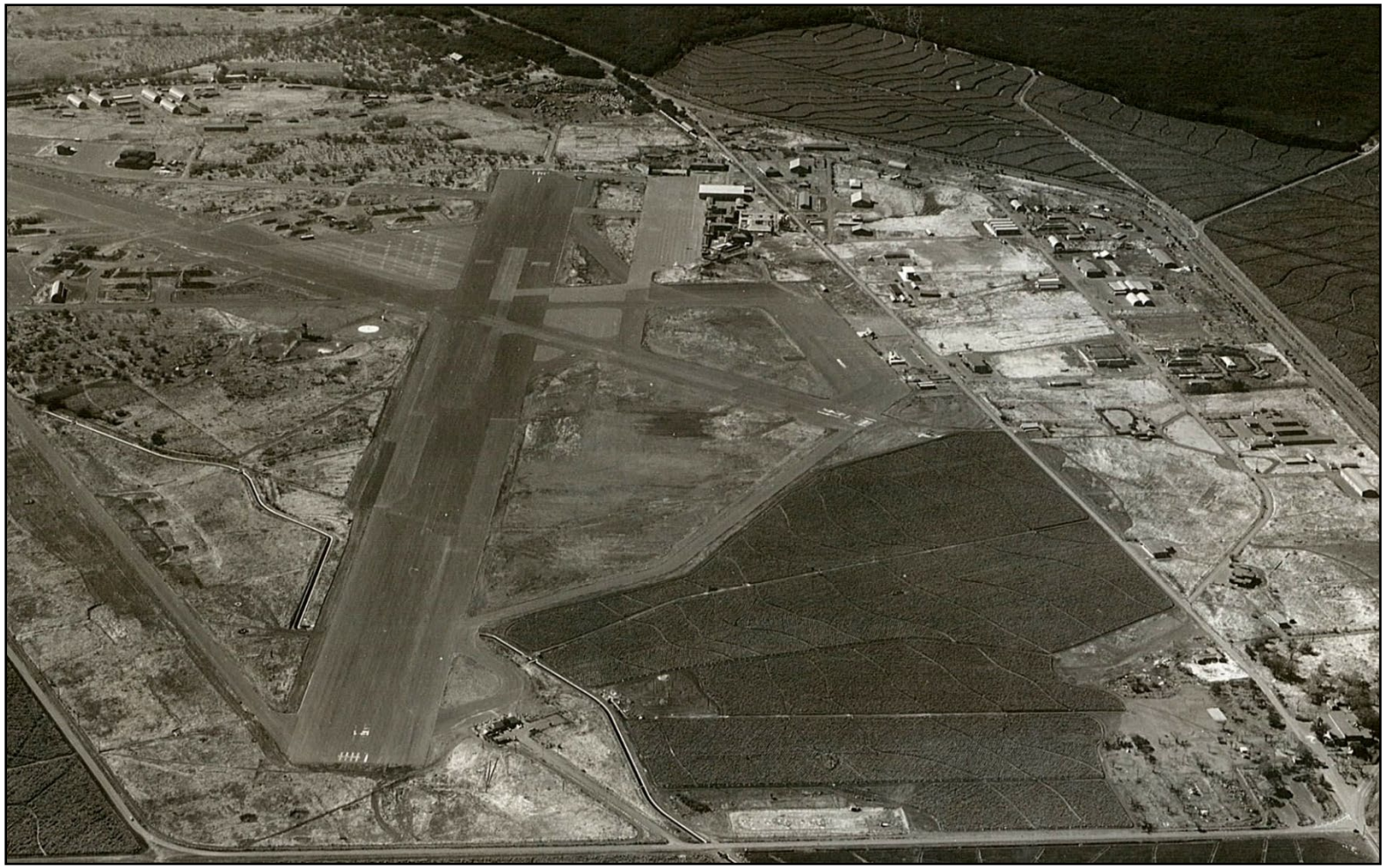


Figure 17. U.S. Air Forces oblique photograph taken 2-12-47. A number of the base buildings are dismantled, and a portion of the base is planted in sugar (photo courtesy of the Naval Historical Center, Washington Navy Yard, Washington, D.C.).

In May 1951, the operations of Hawaiian Airlines and Trans-Pacific Airlines (Aloha Airlines) were moved to the new civilian airport at Kahului, which utilized the runways of the former Naval Air Station Kahului. Thereafter, Pu‘unēnē airfield was placed on “caretaker status”, and sugar cultivation reclaimed much of the land area formerly dedicated to the aerodrome.

4.6 Contemporary Land Use

Postwar Maui saw the wholesale development of Kahului as a master-planned community providing fee-simple ownership of single-family homes. The majority of the homes, located between Baldwin High School and Pu‘unēnē Avenue, were purchased by plantation employees and servicemen returning from duty overseas. This trend continued throughout the 1950’s, with plantation camp populations falling in the outlying communities, including Pu‘unēnē, and rising in the central town site of Kahului’s new “Dream City” (Dean 1950).

The early postwar years (1946-1950) saw the construction of larger infrastructure, including projects such as the Maui Memorial Hospital in Wailuku. Areas once occupied by the military returned to cattle ranching, and pineapple and sugar cultivation. The pace of social change began to accelerate. The political power base of the County of Maui began to include Nisei, second-generation Japanese Americans, who had returned from service in Europe during WWII. Their involvement in county politics began to swing political power from the large agribusiness owners to the union leaders representing plantation workers eager for a change (Speakman 1978:148-149).

In the years during the Korean War (1950-1953), the modernization of the workforce and stronger unions brought a host of changes to the central region of Maui. Gone were the railroads of the prewar age, replaced by trucks and mechanized sugar and pineapple harvesters. The modernization of the Kahului Harbor meant that canned pineapple, bulk sugar and molasses could be loaded onto ships faster. Following statehood for Hawai‘i in 1959, mainland retail giants S.H. Kress & Co. and the National Dollar Stores Ltd. expanded their existing locations in Wailuku, and a Ben Franklin Store anchored the new Kahului Shopping Center. Manpower for the construction of new tourist resorts in the outlying leeward areas of Maui would come almost exclusively from Maui’s central district (Bartholomew and Bailey 1994:132).

Statehood also saw the establishment of the Kanahā Pond Wildlife Sanctuary (SIHP 50-50-05-1783). This project was accomplished by the State of Hawai‘i to protect the cultural remains of the original fish pond wall structure, and three endangered wetland bird species: the Hawaiian stilt (*Himantopus mexicanus knudseni*), Hawaiian coot (*Fulica alai*), and Hawaiian duck (*Anas wyvilliana*).

In 1966, what was once the quarry department of the Kahului Railroad and the ready-mix concrete and concrete products department of A&B Commercial Company combined to form Concrete Industries Inc., a wholly-owned subsidiary of Honolulu Concrete and Draying, Ltd.

By 1988, after 125 years of sugar operations, and varied attempts at diversified agriculture, the Wailuku Sugar Company mill was closed, scrapped, and the site redeveloped as an industrial park. The current land-use of the corridor connecting Kahului with Wailuku includes a mix of residential, warehousing, light industrial and commercial, with retail sales centered primarily in Kahului.

Until December 2016 when HC&S announced its closure, most of the land area of Wailuku Ahupua‘a was in sugar cultivation. HC&S was the last sugar plantation still in operation in the State of Hawai‘i.

The Hawaiian Cement Puunene Quarry started in the late-1970s with 28 acres. The quarry expanded in 1980 to 194 acres. The primary resource of the quarry is basalt that is crushed and used for road base course, concrete and pavement aggregate, railroad ballast, and many other purposes (Yanik 2018)

Section 5 Previous Archaeological Research

The earliest archaeological studies on the island of Maui were island-wide surveys conducted in the early 1900s (Stokes 1917; Walker 1931). These studies tended to focus on the generation of descriptive lists of large-scale architecture or traditional ceremonial *heiau* sites. No *heiau* or other archaeological sites were documented in the immediate vicinity of the current project area. Between 1931 and 1976, only sporadic archaeological studies were undertaken in the region and none in the vicinity of the project area. Following the passage of the National Historic Preservation Act in 1966 and HRS Chapter 6E, which established the Historic Preservation Program in 1976, archaeological studies occurred as a condition of development on a more frequent basis.

There have been six archaeological studies conducted in the vicinity of the current project, which include an archaeological reconnaissance survey and AIS investigations (Figure 18 and Table 3). These studies have identified NAS Puunene, consisting of 59 standing structures and 165 total features (SIHP # 50-50-09-04164), post-war ranching features (SIHP # 50-50-09-04801), the Kīhei Railroad bed (SIHP # 50-50-09-04802), the Haiku Ditch and reservoir (SIHP # 50-50-09-04803), and 90 other historic properties (SIHP #s 50-50-10-06693 through 10-06774) consisting of features associated with the sugar plantation, ranching, and/or WWII period (Figure 19).

5.1 Kennedy (1990)

In 1990, Archaeological Consultants of Hawaii, Inc. (ACH) completed an archaeological walk-through reconnaissance survey of the proposed Hawaiian Cement Puunene Quarry site, TMKs: [2] 3-8-004:001 and 002 pors. (Kennedy 1990). The survey included an inspection of Kolaloa Gulch and the surrounding agricultural fields. The study documented that the entire property was covered in sugarcane with the exception of Kolaloa Gulch. No historic properties were identified, and no further work was recommended.

5.2 Tomonari-Tuggle et al. (2001)

From 8 October to 4 November 1999, International Archaeological Research Institute, Inc. (IARII) conducted an intensive AIS of approximately 1,875 acres of the former NAS Puunene, TMK: [2] 2-3-008:008 (Tomonari-Tuggle et al. 2001). The study area is directly west of the current project area and was used primarily for sugarcane cultivation following the closure of NAS Puunene in 1946. The identified historic properties were categorized into five functions and summarized as follows:

> Sites and features recorded include [1] all of the existing features of NAS Puunene; [2] remains of a cattle ranch dating from the late 1940s to the 1950s; [3] the area of pre-war plantation Camp Six with surface artifacts but no surviving features; [4] abandoned features of the HC&S sugar operations such as a 1930s cane road and irrigation canals of various periods, including a possible pre-1914 section of the Haiku Ditch, and [5] remains of the Puunene Mill to Kīhei railroad line. Evidence for early 1960s Civil Defense activity and late 1980s timber processing was also identified. No pre-contact or early post-contact Hawaiian sites were identified. No human remains were found, nor were any sites or locations identified that have the potential for containing human remains. [Tomonari-Tuggle et al. 2001:iii]

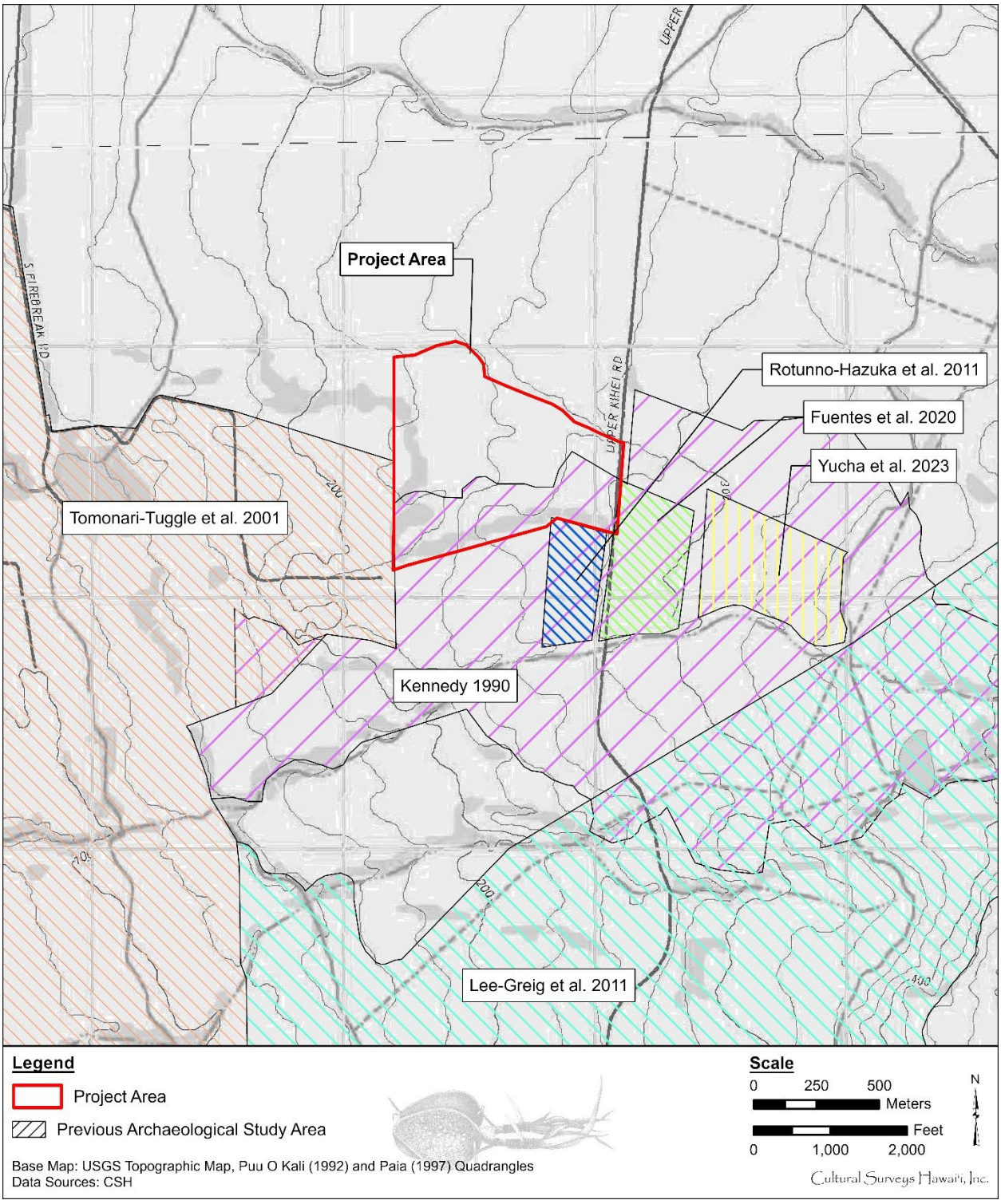


Figure 18. Portions of the 1992 Puu o Kali and 1997 Paia USGS topographic quadrangles depicting previous archaeological studies in the vicinity of the current project area (U.S. Geological Survey 1992, 1997)

Table 3. Previous archaeological studies in the vicinity of the project area

Reference	Type of Study	Location	Results (SIHP # 50-50-)
Kennedy (1990)	Archaeological reconnaissance survey	Hawaiian Cement Puunene Quarry; TMKs: [2] 3-8-004:001 and 002 pors.	No historic properties identified
Tomonari-Tuggle et al. (2001)	AIS	Former NAS Puunene; TMK: [2] 2-3-008:008	Identified 165 individual features of NAS Puunene (SIHP # 09-04164), 7 plantation features (SIHP # 09-04800), 2 postwar ranching features (SIHP # 09-04801), a railroad feature (SIHP # 09-04802) and 5 plantation irrigation features (SIHP # 09-04803)
Lee-Greig et al. (2011)	AIS	Approximately 3165 acres located northeast and extending *mauka* (toward the mountains) from the present project area	Identified 90 historic properties, SIHP #s 10-06684 through 10-06774, consisting of features associated with the sugar plantation, ranching and/or WWII period
Rotunno-Hazuka et al. (2011)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 1; TMK: [2] 3-8-001 por.	No historic properties identified
Fuentes et al. (2020)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 3; TMK: [2] 3-8-001 por.	No historic properties identified
Yucha et al. (2023)	AIS	Hawaiian Cement Puunene Quarry Expansion Increment 4; TMK: [2] 3-8-004:001 por.	No historic properties identified

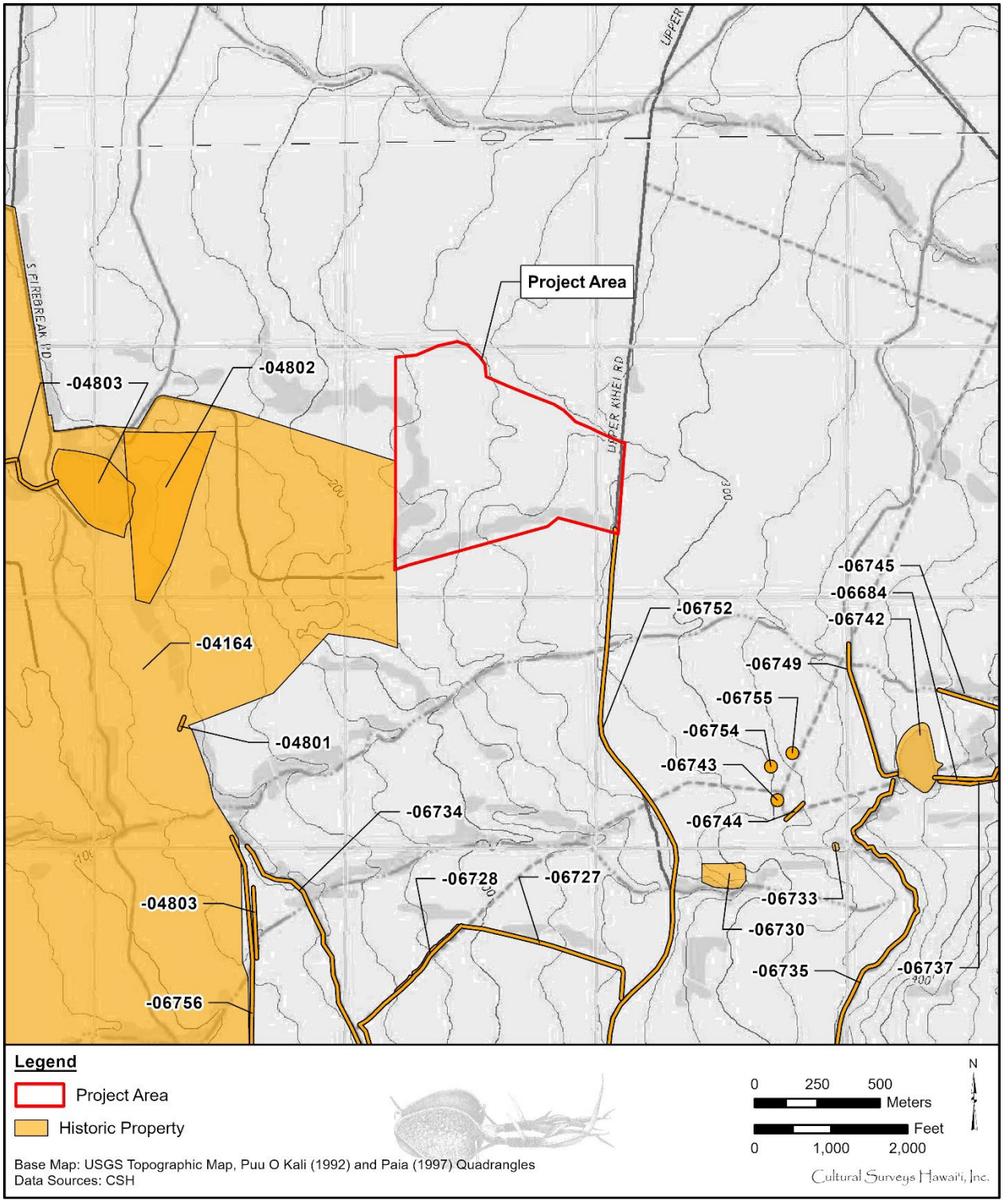


Figure 19. Portions of the 1992 Puu o Kali and 1997 Paia USGS topographic quadrangles depicting historic properties in the vicinity of the current project area (U.S. Geological Survey 1992, 1997)

The NAS Puunene was previously identified as SIHP # 50-50-09-04164. The study documented 165 features associated with SIHP # 09-04164. Four historic properties were newly identified, SIHP #s 50-50-09-04800 through 09-04803. SIHP # 09-04800 is a complex of seven sugar plantation features. SIHP # 09-04801 is a complex of ranching features (fences, corrals, watering troughs) from post-WWII. SIHP # 09-04802 is the Kīhei railroad, and SIHP # 09-04803 consists of five features relating to the Haiku ditch and reservoir.

SIHP # 09-04164, was assessed as eligible to the National and State Registers of Historic Places and significant under Criteria A (be associated with events that have made an important contribution to the broad patterns of our history), C (embody the distinctive characteristics of a type, period, or method of construction, represent the work of a master, or possess high artistic value), and D (have yielded, or is likely to yield, information important for research on prehistory or history). SIHP #s 09-04800, 09-04802, and 09-04803 were assessed as eligible to the National Register of Historic Places (NRHP) under Criteria A and D. SIHP # 09-04801 was assessed as not eligible to the NRHP as it likely dated to the early 1950s and not yet over 50 years old.

5.3 Lee-Greig et al. (2011)

From October through December 2009 and in February 2010, CSH conducted an AIS of approximately 3,165 acres in Pūlehunui for a proposed agricultural subdivision (Lee-Greig et al. 2011). Ninety historic properties (SIHP #s 50-50-10-06684 through 10-06774) were documented, consisting of features associated with the sugar plantation, ranching and/or WWII period (Table 4).

5.4 Rotunno-Hazuka et al. (2011)

In 2010, ASH conducted an AIS for the 24.476 acres for expansion within Increment 1 of the Hawaiian Cement Quarry, TMK: [2] 3-8-001 por. (Rotunno-Hazuka et al. 2011). The study included the excavation of 20 backhoe-assisted test excavations that documented the agricultural plow zone developed over eroding and solid basalt bedrock. No historic properties were identified, and the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A). No further work was recommended.

5.5 Fuentes et al. (2020)

In 2014, ASH conducted an AIS of Increment 3 of the Hawaiian Cement Quarry, TMK: [2] 3-8-001 por. (Fuentes et al. 2020). The study included the excavation of 17 backhoe-assisted test excavations with no historic properties identified. Due to negative findings, the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A).

5.6 Yucha et al. (2023)

In December 2022, CSH conducted an AIS for the Hawaiian Cement Quarry Mining Site Increment 4 Expansion Project, TMK: [2] 3-8-004:001 por. (Yucha et al. 2023). The investigation included a 100% pedestrian inspection and the excavation of 20 backhoe-assisted test excavations. No historic properties were identified, and the study was termed an “archaeological assessment” in accordance with §13-284-5(5)(A). Overall, the stratigraphy throughout the majority of the project area included a modern agricultural plow zone surface (Ap horizon) overlying natural alluvial soil and chemically eroded bedrock.

Table 4. Historic properties documented by Lee-Greig et al. (2011:64-68)

SIHP # 50-50-10-	Feature	Feature Type	Function	Probable Age	Condition
06684	None	Irrigation Pipe	Water Control	Historic Plantation	Fair to Poor
06689	None	Fence Line	Animal Husbandry	Historic Ranch	Good
06704	None	Fence Line	Animal Husbandry	Historic Ranch	Fair
06727	None	Fence Line	Indeterminate	Historic Ranch	Poor
06728	None	Irrigation Ditch	Water Control	Historic Plantation	Remnant
06729	None	C-Shape	Indeterminate	Possible Historic	Good
06730	Overall	Plantation Camp 3	Habitation	Historic Plantation	Good to Remnant
	A	Platform	Habitation	Historic Plantation	Good to Fair
	B	Wall	Indeterminate	Historic Plantation	Fair
	C	Wall	Indeterminate	Historic Plantation	Fair
	D	Depression	Indeterminate	Historic Plantation	Fair to Poor
	E	Mound	Indeterminate	Historic Plantation	Good
	F	Wall/Depression	Indeterminate	Historic Plantation	Poor
	G	U-Shape	Indeterminate	Historic Plantation	Poor
	H	Depression/Hole	Habitation	Historic Plantation	Poor
	I	Terrace	Habitation	Historic Plantation	Remnant
06733	None	Reservoir	Agriculture	Historic Plantation	Good
06734	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06735	Overall	Irrigation Ditch and Component Gates	Water Control	Historic Plantation	Good to Fair
	A	Irrigation Ditch	Water Control	Historic Plantation	Good
	B	Irrigation Gates	Water Control	Historic Plantation	Fair
06737	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06742	None	Reservoir	Agriculture	Historic Plantation	Good
06743	None	Pump House	Agriculture	Historic Plantation	Remnant

SIHP # 50-50-10-	Feature	Feature Type	Function	Probable Age	Condition
06744	None	Fence Line	Animal Husbandry	Historic Ranch	Remnant
06745	None	Fence Line	Possible Boundary Marker	Historic Plantation	Poor
06748	None	Reservoir	Agriculture	Historic Plantation	Good
06749	None	Irrigation Ditch	Water Control	Historic Plantation	Good
06752	None	Historic Road	Transportation	Historic Plantation	Good to Poor
06754	None	WWII-Era Bomb Shelter	WWII Military	WWII Military	Excellent
06755	None	Concrete Cistern	Water Control	Historic Plantation	Good
06756	None	Historic Road	Transportation	Historic Plantation	Good to Poor
06757	None	Historic Road	Transportation	Historic	Poor
06758	None	Irrigation Pipeline	Agriculture	Historic Plantation	Good to Fair
06759	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06760	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06761	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06762	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06763	None	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06764	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06765	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06766	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06767	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06768	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06769	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06770	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06771	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair

SIHP # 50-50-10-	Feature	Feature Type	Function	Probable Age	Condition
06773	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair
06774	Multiple	Field Clearing Mounds	Agriculture	Historic Plantation to Modern Era	Good to Fair

Section 6 Consultation Results

6.1 Introduction

Throughout the course of this assessment, an effort was made to contact and consult with NHO, agencies, and community members including descendants of the area, in order to identify individuals with cultural expertise and/or knowledge of the *ahupua‘a* of Pūlehunui. CSH initiated its outreach effort in December 2024 through letters, emails, and/or telephone calls.

6.2 Community Outreach Letter

Letters along with maps and aerial photographs of the project area were mailed with the following text:

> *Aloha mai kākou,*
>
> With this letter, Cultural Surveys Hawai‘i (CSH) humbly requests your *mana‘o* and *‘ike* (experience, insights, and perspectives) regarding past and ongoing cultural, practices, beliefs, and resources within the Pūlehunui Ahupua‘a.
>
> Consultation with traditional cultural practitioners, *kūpuna*, *kama‘āina*, and Hawai‘i’s diverse ethnic communities is an important and deeply valued part of our work and the environmental review process for proposed projects in Hawai‘i. Your contributions will revitalize and keep alive knowledge of cultural practices, storied places, and life experiences that will remind Hawai‘i’s children of their history for generations to come.
>
> Project Description
>
> At the request of Hawaiian Cement ,CSH is conducting a cultural impact assessment (CIA) for Hawaiian Cement’s New Mining Area Project. The project area is depicted on a portion of the 1992 Puu O Kali and 1997 Paia U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangle (Figure 1) and a detailed 2020 ESRI aerial image (Figure 2).
>
> Hawaiian Cement proposes to develop a new mining area adjacent to their existing quarry area, approximately 125 acres, within a portion of TMK [2] 3-8-004:001 CPR 2. The parcel is currently owned by Mahi Pono Central A, LLC.
>
> Purpose of this Study
>
> The purpose of a CIA is to gather information on Hawai‘i’s cultural resources, practices, or beliefs that have occurred or still occur within the proposed project area and Pūlehunui Ahupua‘a. This is accomplished through consultation and background research using previously written documents, studies, and interviews. This information is used to assess potential impacts by the proposed project to the specific identified resources, practices, and beliefs in the project area and throughout Pūlehunui Ahupua‘a. As a traditional cultural practitioner and holder of long-term knowledge, your insight, input, and perspective provide a valuable

contribution to the assessment of potential effects of this project and an understanding of how to protect these resources and practices.

Insights focused on the following topics in the project area (shown on the attached Figures 1 and 2) are especially helpful and appreciated:

- Your knowledge of traditional cultural practices of the past within the proposed project area and Pūlehunui Ahupua‘a
- Your specific traditional cultural practice and its connection to the proposed project area and Pūlehunui Ahupua‘a
- The different natural resources associated with your specific traditional cultural practice
- Legends, stories, or chants associated with your specific traditional cultural practices and their relationships to the proposed project area and Pūlehunui Ahupua‘a
- Referrals to other kūpuna, kama‘āīna, and traditional cultural practitioners knowledgeable about the proposed project area and Pūlehunui Ahupua‘a
- Your comments or thoughts on the potential impacts the proposed project may have on your ongoing traditional cultural practices and natural resources within the proposed project area and Pūlehunui Ahupua‘a
- Your knowledge of cultural sites and wahi pana (storied places) within the proposed project area and Pūlehunui Ahupua‘a
- Your comments or thoughts on the potential impacts the proposed project may have on cultural sites and wahi pana within the proposed project area and Pūlehunui Ahupua‘a

Consultation Information

Consultation is an important and deeply valued part of the CIA and environmental review process. Your contributions will revitalize and keep alive our combined knowledge of past and ongoing cultural practices, historic places, and experiences, reminding our children of their history generation after generation.

With your agreement to participate in this study, your contributions will become part of the comprehensive understanding of traditions of the area, and part of the public record. As part of this process, your knowledge may be used to inform future CIAs and other heritage studies of cultural practices and resources that need protection from impacts of proposed future projects. If you engage in consultation, and the *mana‘o* and *‘ike* you provide appears in the study, we would like to recognize your contribution by including your name. If you prefer not to allow your name to be included, your information can be attributed to an anonymous source.

The consultation interview structure and format are flexible. We will accommodate your preference on how to get together; talk story, over the phone, by email

correspondence, remotely via Zoom, MS Teams, Google Chat or other remote meeting platforms.

Your knowledge of the resources and potential effect of the project on traditional practices in the project area and Pūlehunui Ahupua‘a focusing on the topics in the bullet points above can also be submitted in a written statement. CSH will provide return postage of your written statement on request. CSH is happy to provide a list of topics for discussion, a more structured questionnaire of interview questions, or any other assistance that might be helpful.

[…]

Mahalo a nui,

[…]

6.3 Community Outreach Table

Below in Table 5 are names, affiliations, dates of contact, and comments from NHOs, individuals, organizations, and agencies contacted for this project. Results are presented below in alphabetical order.

Table 5. Community Outreach Table

Name	Affiliation	Comments
Ahia, Jennifer Noelani	Malama Kakanilua	Letter and figures sent via email 5 December 2024 Second round letter and figures sent via email 12 February 2025
Ampong, Foster	*Kama‘āina*	Letter and figures sent via email 5 December 2024 Second round letter and figures sent via email 12 February 2025
Apana, Clare	Cultural Practitioner; Malama Kakanilua; Aha Moku Council Burial Committee	Letter and figures sent via email 12 February 2025
Bisgard, Bill	Former engineer, Hawaiian Commercial and Sugar Company (HC&S)	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Buland, Holly	Assistant Director, Alexander & Baldwin Sugar Museum	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via email 12 February 2025

Name	Affiliation	Comments
Butler, Kelly	District Manager, Maui County Soil and Water Conservation District	Letter and figures sent via email 12 February 2025
Eaton, Antoinette “Toni”	Maui District Office Supervisor, Department of Hawaiian Home Lands	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Feiteira, Blossom	Advocacy Director, Kū Pono Ka Leo o Ka ‘Āina (KPKOA)	Letter and figures sent via email 12 February 2025 Email invalid
Ferreira, Stacy	Ka Pouhana, OHA	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via email 12 February 2025
Fisher, Scott	Director of ‘Āina Stewardship, Hawaiian Islands Land Trust (HILT)	Letter and figures sent via email 12 February 2025
Freeland, Denby	*Kapa* Artist	Letter and figures sent via email 12 February 2025
Gomes, Noah	Ethnographer, SHPD	Letter and figures sent via email 12 February 2025 Mr. Gomes replied to CSH: *Mahalo for reaching out. I do not have any recommendations for this project at this time. If something does come up, or comes my way, I will be sure to let you know.* CSH replied with thanks.
Hall, Dana	Hui Alanui o Makena	Letter and figures sent via email 12 February 2025
Hokoana, Lui	President, Central Maui Hawaiian Civic Club	Letters and figures sent via USPS 4 December 2024 Returned to sender
Holt-Padilla, Hokulani	Kumu Hula, Pā‘ū o Hi‘iaka/Cultural Specialist/Chancellor of Maui College	Letter and figures sent via email 12 February 2025
Ho‘opi‘i, Michelle	Maui/Lana‘i Island Burial Council, Wailuku Rep	Letter and figures sent via email 12 February 2025

Name	Affiliation	Comments
Iaukea, Lesley	Acting History & Culture Branch Chief, SHPD	Letter and figures sent via email 12 February 2025
Kahalehau, Clyde	Aha Moku, Maui – Na Hono A‘o Pi‘ilani - Wailuku Moku	Letter and figures sent via email 12 February 2025
Kalanikau, Paula	*Kama‘āina/Kupuna*	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Kalili, Dre	*Pelekikena* (President), Association of Hawaiian Civic Clubs	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Kaluna-Palafox, Vicky	Wailuku Representative, Wai ‘Aha Moku O Maui Committee	Letter and figures sent via email 12 February 2025
Kamaunu, Johanna	Former Maui/Lana‘i Burial Council - Wailuku	Letter and figures sent via email 12 February 2025
Kamaunu, Kaniloa	Aha Moku Council Wailuku Representative; Aha Moku Council Burial Committee	Letter and figures sent via email 12 February 2025
Kamekona, Carol Lee	Ahahui Kaahumanu - Wailuku	Letter and figures sent via email 12 February 2025
Kapahulehua, Leonard Kimokeo	Founder, Kimokeo Foundation	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Kapu, Ke‘eaumoku	CEO, Aha Moku o Maui/Koani Foundation (501C3)	Letter and figures sent via email 12 February 2025
Kapu, Uilani	Treasurer, Na Aikane o Maui	Letter and figures sent via email 12 February 2025
Kawaihae, Niniau	Community Engagement Director, OHA	Letter and figures sent via email 12 February 2025 Email invalid
Lake-Farm, Sissy	Executive Director, Maui Museum/ Kumu Hula, Nā Hanona Kūlike ‘o Pi‘ilani	Letters and figures sent via USPS 4 December 2024 Second round letters and figures sent via email 12 February 2025

Name	Affiliation	Comments
Lee, Carol-Marie Kaonohi‘okala	*Kama‘āina*	Letter and figures sent via email 12 February 2025
Lu‘uwai, Kalei	*Kama‘āina*	Letters and figures sent via USPS 4 December 2024
Maluo-Pearson, Kahulu	*Kumu Hula*, Hālau Kamaluokaleihulu	Letter and figures sent via email 12 February 2025
Nakahashi, Ikaika	Cultural Historian, SHPD	Letter and figures sent via email 12 February 2025 Mr. Nakahashi responded 20 February 2025 with recommendations to consult with Ke‘eaumoku Kapu and the County of Maui Department of ‘Ōiwi Resources. Outreach letters were sent to all parties.
Nakihei, Sarah	Maui Homestead Farmers and Ranchers Association	Letter and figures sent via email 12 February 2025
Pellegrino, Hokuao	Nohoana Farm Owner; Manager and Land Education Specialist for Kamehameha Schools Maui	Letter and figures sent via email 12 February 2025
Phillips, Kealana	Burial Sites Specialist (Maui, Molokai, and Lanai)	Letter and figures sent via email 12 February 2025 Mr. Phillips responded 14 February 2025 informing CSH that he forwarded our outreach letter to the Department of ‘Ōiwi. CSH responded with thanks.
Pundyke, Kawewehi	Wailuku Representative, ‘Āina ‘Aha Moku O Maui Committee; Program Director, Loiloa	Letter and figures sent via email 12 February 2025
Purdy, Malia	Executive Director, Hui No Ke Ola Pono	Letter and figures sent via email 12 February 2025
Pyle, Bill	Former HC&S employee	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Raymond, Ki‘ope	Hawaiian Studies Teacher, UH Maui	Letter and figures sent via email 12 February 2025

Name	Affiliation	Comments
		Mr. Raymond responded: *I have no comments at this time.* CSH replied with thanks.
Schattenburg-Raymond, Lisa	Horticulturalist/Former Executive Director, Maui Nui Botanical Gardens	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Smith, Jade Alohalani	Representative; Moku o Kaupo	Letters and figures sent via USPS 4 December 2024 Second round letter and figures sent via USPS 12 February 2025
Tanahy, Dalani	Kapa Maker	Letter and figures sent via email 12 February 2025

To date, there has been no responses to include in this CIA report. It should be noted that this does not suggest the community is against or in favor of the project, but simply that they did not respond to the invitation for consultation.

Section 7 Traditional Cultural Practices

Timothy R. Pauketat succinctly describes the importance of traditions, especially in regard to the active manifestation of one's culture or aspects thereof. According to Pauketat,

> People have always had traditions, practiced traditions, resisted traditions, or created traditions […] Power, plurality, and human agency are all a part of how traditions come about. Traditions do not simply exist without people and their struggles involved every step of the way. [Pauketat 2001:1]

It is understood that traditional practices are developed within the group, in this case, within the Hawaiian culture. These traditions are meant to mark or represent aspects of Hawaiian culture that have been practiced since ancient times. As with most human constructs, traditions are evolving and prone to change, resulting from multiple influences including modernization as well as other cultures. It is well known that within Hawai‘i, a "broader 'local' multicultural perspective exists" (Kawelu 2015:3). While this "local" multicultural mix is deservedly celebrated, it must be noted that it often comes into contact with "traditional Hawaiian culture." This contact among cultures and traditions has undoubtedly resulted in numerous cultural entanglements. These cultural entanglements have prompted questions regarding the legitimacy of newly evolved traditional practices. The influences of "local" culture are well noted throughout this section and understood to represent survival or "the active sense of presence, the continuance of native stories, not a mere reaction, or a survivable name. Native survivance stories are renunciations of dominance, tragedy and victimry" (Vizenor 1999:vii). Acknowledgement of these "local" influences helps to inform nuanced understandings of entanglement and of a "living [Hawaiian] contemporary culture" (Kawelu 2015:3). This section strives to articulate traditional Hawaiian cultural practices practiced within the *ahupua‘a* in ancient times, and the aspects of these traditional practices that continue to be practiced today; however, this section also challenges "tropes of authenticity" (Cipolla 2013) and acknowledges the multicultural influences and entanglements that may "change" or "create" a tradition.

This section integrates information from Sections 1–4 in examining cultural resources and practices identified within or in proximity of the project area in the broader context of the encompassing Pūlehunui landscape.

7.1 Agricultural and Gathering Practices

A total of 13 land commission claims were made in Pūlehunui, and nine were awarded (LCAs 0327B, 9671, 9019, 4672, 9672, 9673, 8866, 4567, and 5230). The majority of the lands awarded were *kula* used for potato (both sweet potato and Irish potato) cultivation and were primarily located along the upper elevations of Kula Moku (Waihona ‘Aina 2000).

In H. Kuihelani's testimony submitted to the Boundary Commission in 1862, recalled gathering *ma‘o* at Kama‘oma‘o for use in making *kapa* (Maly and Maly 2003:357–358).

The introduction of whaling to the Maui community brought with it an increased demand for foodstuffs and in particular the long-lasting Irish potato. Although the whaling trade centered on Lāhainā, mainly affecting the Kula/Kīhei area through agricultural demands, Clark (1980:47) notes that "From the 1840s to the 1860s a small whaling station was maintained at Kalepolepo [Kīhei]."

After 1830, dryland agriculture in the old Kula District expanded with a focus on Irish potato cultivation. Kula became the area of highest potato production and was known as “the potato district” (the area between 2000 and 5000 ft elevation). Potato production thrived in Kula from 1830-1850 until successful potato cultivation and production in California and Oregon resulted in a decline in the Hawai‘i trade (Burgett and Spear 1995:6–7). During this time, sugar cultivation and ranching were established in the Kula region (Brown and Haun 1989:C-7 and C-6). Much of the produce, sugar, and livestock moved down the Kalepolepo and Kekuawaha‘ula‘ula Trails to the landing at Kalepolepo, just south of the project area.

As the demand for locally produced agriculture dropped with the closure of the nearby entrepot at Kalepolepo, upland agricultural pursuits gradually gave way to ranching activities. Lower Kula consisted primarily of pastureland for ranching (Wong Smith in Donham 1992:B-6). The *kiawe* tree was imported and cultivated around 1840 as a source of cattle feed, and the low plains of Pulehunui were soon covered in *kiawe* forests (Handy and Handy 1972:510–511).

In 1898, KPC was organized. Water was the most critical component in sugar cultivation along the arid coastline of Maui’s leeward shores. Two ditches were developed to supplement the water needs of the 4,873 acres of sugar under cultivation at Kīhei (Gilmore 1936). Water tunneled from springs in the West Maui Mountains flowed through ditches in Wailuku to irrigate fields as far away as Mā‘alaea. Water from the windward rain belt of Kailua ran through a network of ditches from East Maui to Pā‘ia, to irrigate fields in Pu‘unēnē (Wilcox 1996). In 1908, the lands of the KPC were divided up between five new major business entities of HC&S; the Kailua Plantation Company (994 acres), the Kalialinui Plantation Company (923 acres), the Kula Plantation Company (996 acres), the Makawao Plantation Company (982 acres), and the Pulehu Plantation Company (978 acres). Sugar operations continued in North Kīhei until ca. 1968, when HC&S leased lands to a corn research farm.

7.2 Coastal and Marine Resources

The lands of coastal Pūlehunui were rich in marine resources. Hawaiian traditions and the presence of four fishponds are evidence that the coastal environs were also a focus of settlement and marine resource collection (Kolb et al. 1997).

Kolb et al. (1997:68) noted that the “ancient village of Kalepolepo was relatively small, and was built around an economy primarily based upon the exploitation of ocean resources--primarily the excellent fishing grounds as well as three large fishponds.”

Keālia Pond has been known as a source of high-quality salt from the pans in its immediate vicinity (James 2002:71). James (2002:71) also states that Keālia Pond “must have been an important producer of fish stock, particularly *awa* (milkfish) and *‘ama‘ama* (mullet)” and noted that a “*ko‘a* (fishing shrine) or possible *heiau* platform stands near the site.”

James (2002:74) noted the belief that Kō‘ie‘ie Fishpond was “a royal pond always stocked with the best fish.”

In H. Kuihelani’s testimony submitted to the Boundary Commission in 1862, he discussed his family’s *kuleana* as overseers of Mau‘oni and Kanahā fishpond, which belonged to the *ali‘i* at the time, Kauikeaouli. He also noted tha salt that was also gathered there was given to the *ali‘i* (Maly and Maly 2003:357–358).

The wetland environment of coastal Pūlehunui attracts many species of waterfowl in the winter months when water levels in the pond rise with seasonal flooding. These would have also served as a potential source of nourishment for subsistence communities in the region (James 2002:72).

Kanahā is a wetland sanctuary that is home to a large population of native Hawaiian stilts (*ā'eo*). Over fifty species of birds have been observed here, including herons, geese, ducks, owls, plovers, sandpipers, tattlers, coots, pheasants and doves (Pukui et al. 1974:83).

7.3 *Mo‘olelo* and *Wahi Pana*

Ke Kula o Kama'oma'o, or the Plains of Kama‘oma‘o, is a region of the central Maui isthmus. In traditional times, Kama‘oma‘o was known as a wandering place of the souls (Beckwith 1970). It was on this plain that souls waited to be ushered to their next life, to eternity. Hoyt (1976) mentions that Kama‘oma‘o was a place known for the "Marchers of the Night." Perhaps this could explain why this region was not populated at all but give insight as to its purpose as a battle field.

> These plains are home owl deities, considered one of the oldest guardian gods in Hawaiian mythology. Pueo-nui-akea was the name of owl who traversed these plains and restored life to wandering souls (Beckwith 1970:124).

Fornander (1919) recalls the story of Pumaia who was a heroic young man that fell to the hands of a spirit. This spirit, Puukolea, had a dual body, capable of shape-shifting in ways the mere human, Pumaia, could not. After falling to Puukolea, Pumaia's spirit returned home but continued to be chased by Puukolea. Pumaia fled till he reached the plains of Kama‘oma‘o. There an owl by the name of Pueonuiokona began battling Puukolea and ultimately killed him, his entrails were scattered about the plains.

Pu‘u Nēnē is easily noticeable as a cinder cone protruding from the plains of Kama‘oma‘o. Pu‘u Nēnē, is literally translated as "goose hill" according to Pukui and others (1974:49). The hill, named for the Hawaiian goose or *nēnē*, was a cinder cone built by lavas of the Kula series (Stearns and MacDonald 1942:83), elevation 187 feet (56 meters), that was located some 4 miles northeast of the Pu‘u Nēnē Mill.

Mau‘oni and Kanahā fishponds are located on the north shore of the central isthmus. According to *mo‘olelo*, Kanahā is named for Kanahaokalani, the brother of Kahamaluihiikeaoihilani, a high chiefess who broke the *kapu* of the ponds by walking on the center *kuapa* of the ponds. Mau‘oni is named for the identity she travelled by to protect her status as a chiefess of the highest rank (Sterling 1998: 87–88) .

Two *heiau* were known to be erected in Pūlehunui: Haleokane Heiau (Walker Site 221) and Niniwai Heiau (Walker Site 222 and 223) (Walker in Sterling 1998:253).

Section 8 Summary and Recommendations

8.1 Results of Background Research

Background research for this project yielded the following information (presented in approximate chronological order):

1. The current project area is located on the western flank of Haleakalā in the *moku* of Kula and *ahupua‘a* of Pūlehunui. Overall, Pūlehunui Ahupua‘a begins at Kilohana Peak, on the summit ridge of Haleakalā, and ends at a mid-point on the west shore of the central plains at a shared boundary with Waikapū Ahupua‘a, encompassing a total area of 16,687.78 acres (McCully 1879).
2. The lands of coastal Pūlehunui were rich in marine resources. Hawaiian traditions and the presence of four fishponds are evidence that the coastal environs were also a focus of settlement and marine resource collection (Kolb et al. 1997).
3. Ke Kula o Kama‘oma‘o, or the Plains of Kama‘oma‘o, is a region of the central Maui isthmus close to the present project area that was known by Hawaiians in traditional times as a wandering place of the souls (Beckwith 1970).
4. About the year 1776, Kama‘oma‘o Plain saw the battle of Kakanilua between Kalani‘ōpu‘u and Kahekili. Kalani‘ōpu‘u‘s army was annihilated in what was recognized as one of the most legendary battles of pre-contact Hawai‘i (Kamakau 1992:85).
5. During the early and middle 1800’s, the Hawaiian demography was affected by two dramatic factors: radical depopulation resulting from Western disease and nucleation around the developing port towns (Kuykendall 1938:312–313).
6. A total of 13 land commission claims were made in Pūlehunui, and nine were awarded (LCAs 0327B, 9671, 9019, 4672, 9672, 9673, 8866, 4567, and 5230). Only one of these awards, LCA 5230, is immediately surrounding and inclusive of the current project area.
7. The introduction of whaling to the Maui community brought with it an increased demand for foodstuffs and in particular the long-lasting Irish potato. Kula became the area of highest potato production and was known as “the potato district” (the area between 2000 and 5000 ft elevation). During this time, sugar cultivation and ranching were established in the Kula region (Brown and Haun 1989:C-7 and C-6).
8. During World War II, Pu‘u Nēnē Naval Air Station became the command headquarters for both Navy and Army units on the island of Maui (Command History 1945).
9. The Hawaiian Cement Puunene Quarry started in the late-1970s with 28 acres. The quarry was further expended in 1980 to 194 acres. The primary resource of the quarry is basalt that is crushed and used for road base course, concrete and pavement aggregate, railroad ballast, and many other purposes (Yanik 2018).

8.2 Summary of Community Consultation

CSH attempted to contact Hawaiian organizations, agencies, and community members as well as cultural and lineal descendants in order to identify individuals with cultural expertise and/or knowledge of the project area and vicinity. Community outreach letters were sent to 43 individuals

or groups; two responded, none provided written testimony, and none of these *kama‘āina* and/or *kūpuna* met with CSH for more in-depth interview(s).

8.3 Impacts and Mitigations

8.3.1 Identification of Cultural Resources and Practices

Based on the results of community consultation and background research conducted as part of this CIA, CSH has identified the following cultural resources and practices within Pūlehunui Ahupua‘a:

1. Agricultural and gathering practices
2. Coastal and marine resources
3. *Mo‘olelo* and *wahi pana*

8.3.2 Identification of Impacts to Cultural Resources and Practices

No impacts to ongoing cultural resources and practices were identified within the project area during background research and community consultation for this CIA.

8.3.3 Mitigation Possibilities Identified During Background Research and Consultation

The results of community consultation, underscored by background research conducted for this CIA, inform the following mitigation possibilities promoting and preserving cultural beliefs, practices, and resources of Native Hawaiians and other ethnic groups:

1. Project construction workers and all other personnel involved in the construction and related activities of the project should be informed of the possibility of inadvertent cultural finds, including human remains. In the event that any potential historic properties are identified during construction activities, all activities will cease and the SHPD will be notified pursuant to HAR §13-280-3. In the event that *iwi kūpuna* (Native Hawaiian skeletal remains) are identified, all earth moving activities in the area will stop, the area will be cordoned off, and the SHPD and Police Department will be notified pursuant to HAR §13-300-40. In addition, in the event of an inadvertent discovery of human remains, the completion of a burial treatment plan, in compliance with HAR §13-300 and HRS §6E-43, is recommended.
2. In the event that *iwi kūpuna* and/or cultural finds are encountered during construction, project proponents should consult with cultural and lineal descendants of the area to develop a reinterment plan and cultural preservation plan for proper cultural protocol, curation, and long-term maintenance.

Section 9 References Cited

Akana, Collette Leimomi and Kiele Gonzalez
2015 *Hanau Ka Ua: Hawaiian Rain Names*. Kamehameha Publishing, Honolulu.

Alameida, Roy Kakulu
1993 Land Tenure and Land Use in Kawaihapai, O‘ahu. Master’s thesis in History. University of Hawai‘i at Mānoa, Honolulu.

Allen, Gwenfread
1950 *Hawaii’s War Years, 1941 -1945*. The Advertiser Publishing Company, University of Hawai‘i Press, Honolulu, Hawai‘i.

Army, U. S.
1947 *40th Infantry Division, the Years of World War II*. Army and Navy Publishing Company, 234 Main Street, Baton Rouge, Louisiana.

1948 *27th Infantry Division Official 1948 Yearbook*. Raymond L. Balasny, Yearbooks Publishing Company, 222 East 46th Street, New York.

Ava Konohiki
2015 Ancestral Visions of ‘Āina website. Available online at http://www.avakonohiki.org/.

Balch, D. F.
1938 *Maui Airport, Maui, Territory of Hawai‘i.* Proposed airport layout in Maui's central isthmus, along the Government Road to Kīhei., 1"=300' (1 inch equals 300 feet). Territory of Hawai‘i Airport Engineers in cooperation with E. L. Yacavich, Chief Airline Inspector, Foreign, Bureau of Air Commerce. Honolulu, Hawai‘i.

Bartholomew, Gail and Bren Bailey

1994 *Maui Remembers, A Local History*. Mutual Publishing, Honolulu, Hawai‘i.

Beckwith, Martha W.
1970 *Hawaiian Mythology*. University of Hawai‘i Press, Honolulu.

Belknap, William "Jazz, " Sr.
1947 Puunene Air Station Now Ghost Town; NASKA Faces Same Fate. *The Maui News* May 28, 1947. Wailuku, Hawai‘i.

Brown, Roderick S., and Alan Haun
1989 Draft: Archaeological Inventory Survey, Keokea and Waiohului Subdivisions, Lands of Keokea and Waiohuli, Makawao, Island of Maui. Paul H. Rosedahl, Inc., Hilo, Hawai‘i.

Burgett, Berdena, and Robert L. Spear
1995 *An Archaeological Inventory Survey of 22.25 acres of Land in Kula, Kaonoulu Ahupua‘a Makawao District, Island of Maui (TMK 2-2-06:105)*. Scientific Consultant Services, Inc., Kaneohe, Hawai‘i.

Burns, Irma Gerner
1991 Maui’s Mittee and the General, A glimpse into the lives of Mr. And Mrs. Frank

Fowler Baldwin, Ku Pa‘a Inc., Honolulu.

Cabos, August
2000 Personal communication (Reunion, 48th Seabees, Maui Lu Resort, Kihei)

Cipolla, Craig N.
2013 Native American Historical Archaeology and the Trope of Authenticity. *Historical Archaeology.* Vol. 47, ed. 3:12–22.

Clark, John R. K.
1980 *The Beaches of the Maui County*. University of Hawai'i Press, Honolulu, Hawai'i.

Command, Naval History and Heritage
1947 (K-17-APO 959/S)(4)(7OF)(2-12-47)(21 48'N - 156 28'W)(PUU NENE FIELD)(MAUI, T.H.)(RESTRICTED). Vol. Oblique. U. S. Air Forces vols. Base Photo Lab APO 959, 2-6-1C.

Command History
1945 *History, Naval Air Station Puunene, Maui, T.H., CONFIDENTIAL, May 1940 to 1 July 1945*, Transmitted by Commander J.L. Cotton to the CNO, U.S. Navy, 7 July, 1945. Supplement to History transmitted 26 October, 1945.

Condé, Jesse C., and Gerald M. Best
1973 *Sugar Trains: Narrow Gauge Rails of Hawaii*. Glenwood Publishers, Felton, California.

Cotten, Commander J. L.
1945 *NAS Puunene Unit History*. Submitted to Department of the Navy, Serial G132, San Francisco.

County of Maui
n.d. *Fallout Shelters County of Maui*. County of Maui.

Cressy, Commander F. B.
1944 39th C.B. Censor's Office. *39th N.C.B. Shore Lines* January 31, 1944. "Island X".

Dean, Arthur L.
1950 *Alexander & Baldwin, Ltd. and the Predecessor Partnerships*. Alexander & Baldwin Ltd. and Advertiser Publishing Company, Honolulu.

Dodge, F.S.
1885 *Maui, Hawaiian Islands. Registered Map 1268*, 1:90,000. Hawaiian Government Survey. Library of Congress Geography and Map Division Washington, D.C. 20540-4650.

Donham, Theresa K.
1992 *Surface Survey of the Koyanagi Subdivision, Omaopio, Kula, Maui TMK 2-3-03:129*. State of Hawai‘i Department of Land and Natural Resources, State Historic Preservation Division, Wailuku, Hawai‘i

Dorrance, William H., and Francis S. Morgan
2000 *Sugar Islands: The 165-Year Story of Sugar in Hawai‘i.* Mutual Publishing, Honolulu, Hawai‘i.

EagleView Technologies Inc.
2023 *Aerial Image*. EagleView Technologies, Inc. Bellevue, WA.

Emerson, Nathaniel B.
1965 *The Unwritten Literature of Hawaii: The Sacred Songs of the Hula*. Collected by Nathaniel B. Emerson. Charles E. Tuttle Company, Rutland, Vermont and Tokyo.

Environmental Council, State of Hawai‘i
1997 *Guidelines for Assessing Cultural Impacts Adopted by the Environmental Council, State of Hawai‘i, November 19, 1997*. Office of Environmental Quality Control, Hawai‘i.

Fahrney, USN Ret., Rear Admiral D. S.
1982 Guided Missiles: U.S. Navy The Pioneer. *American Aviation Historical Society AAHS Journal* 27(1):15-28.

Feightner, Rear Admiral Edward L. "Whitey"
1997 Naval aviation combat training at NAS Puunene under the instruction of Edward "Butch" O'Hare edited by Robert Hill. appears in CSH reports PULEH-1 to date, regarding the history of NAS Puunene during WWII, originally interviewed on behalf of the Maui Military Museum, in Pensacola, Florida. ed.

Flyer, The
1946 Base newspaper NAS Kahului, published every second Saturday. Originally published as "*The Fly Paper*", it was renamed "*The Flyer*" September 29, 1945.

Foote, Donald E., Elmer L. Hill, Sakuichi Nakamura, and Floyd Stephens
1972 *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii*. Soil Conservation Service, United States Department of Agriculture, Washington, D.C.

Fornander, Abraham
1916-1919 *Fornanders Collection of Hawaiian Antiquities and Folk-Lore*. Bishop Museum Memoirs IV, V, and VI. Bishop Museum Press, Honolulu. 1918-1919 *Fornander Collection of Hawaiian Antiquities and Folklore*. T.G. Thrum editor, Memoirs of the Bernice Pauahi Bishop Museum. Bishop Museum Press, Honolulu.

Fuentes, Reynaldo, Lisa Rotunno-Hazuka, Jenny O‘Claray-Nu, and Jeffrey Pantaleo
2020 *Archaeological Assessment Report for Hawaiian Cement Quarry Expansion Located at TMK: [2] 3-8-001 pors., Pulehu Nui Ahupua'a, Kula Moku; Wailuku District Island of Maui*. Copies available from LLC. Archaeological Services Hawaii, Wailuku, Hawai'i.

Giambelluca, Thomas W., Q. Chen, A.G. Frazier, J.P. Price, Y.L. Chen, P.S. Chu, J.K. Eischeid, and D.M. Delparte
2013 Online The Rainfall Atlas of Hawai‘i. In *Bull. Amer.Meteor. Soc.*, pp. 313-316. Vol. 94. University of Hawai‘i at Mānoa, Honolulu.

Giambelluca, Thomas W., X. Shuai, M.L. Barnes, R.J. Alliss, R.J. Longman, T. Miura, Q. Chen, A.G. Frazier, R.G. Mudd, L. Cuo, and A.D. Businger

2014 Evapotranspiration of Hawai‘i. Final report submitted to the U.S. Army Corps of Engineers—Honolulu District, and the Commission on Water Resource Management, State of Hawai‘i. University of Hawai‘i at Mānoa, Honolulu.

Giambelluca, T. W., M. A. Nullet and T. A. Schroeder

1986 *Rainfall Atlas of Hawai‘i*. Report: Division of Water and Land Development R76. Department of Land and Natural Resources, Division of Water and Land Development, Honolulu, HI.

Gilmore, A. B.

1936 *The Hawaii Sugar Manual*. New Orleans, Louisiana.

Handy, E.S. Craighill, and Elizabeth G. Handy

1972 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Handy, E.S. Craighill, Elizabeth Green Handy, and Mary Kawena Pukui

1991 *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Revised ed. Bernice P. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Handy, E.S. Craighill, and Mary Kawena Pukui

1977 *The Polynesian Family System in Kau, Hawaii.* Charles E. Tuttle Company, Inc.

Hawaii TMK Service

2014 *Tax Map Key [2] 3-8-004* [map]. Hawaii TMK Service.

Hawaiian Commercial & Sugar Company, Ltd.

2006 Archives, Mr. Gaylord Kubota (HC&S Sugar Museum), Mr. Randall Moore, (Water and Engineering Services Manager).

Helber, Larry E., Mark H. Hastert, and Thomas A. Fee

1995 *Puunene Airport Area Master Plan/MEO Transportation Facility Concept Plan, Pūlehu Nui, Maui, Hawai`i*, edited by County of Maui Planning Department. Helber Hastert and Fee, Planners, Inc., Honolulu, Hawai`i.

Hill, Robert R., Tanya L. Lee-Greig, and Hallett H. Hammatt

2007 An Archaeological Literature Review and Field Inspection Report for an 81.50-Acre Parcel located at Pūlehu Nui and Waikapū Ahupua‘a, Wailuku District, Maui Island TMK (2) 3-8-008: 7 por., 8 por. Cultural Surveys Hawai‘i, Inc., Wailuku, Hawai‘i.

Hoyt, Helen P.

1976 *The Night Marchers*. Vol. 13, 14 Vols. The Hawaiian Bicentennial Library. Island Heritage Limited, Norfolk Island, Australia.

Huapala

n.d. *Maui Nani (Beautiful Maui),* Electronic document, http://www.huapala.org/Mau/Maui_Nani.html.

n.d. *Lovely Sunrise Haleakalā,* Electronic document, http://www.huapala.org/Lo/Lovely_Sunrise_Haleakala.html

n.d. *Waikapū/‘Iniki Mālie,* Electronid document, http://www.huapala.org/Wai/Waikapu.html

Hula Preservation Society
2014 Hula Preservation Society website. Available online at http://hulapreservation.org.

James, Van
2002 *Ancient Sites of Maui, Moloka‘i and Lāna‘i: Archaeological Places of Interest in the Hawaiian Islands*. Mutual Publishing, Honolulu.

Janion, Aubrey P.
1977 *The Olowalu Massacre and Other Hawaiian Tales*. Island Heritage, Australia, Norfolk Island.

Jarves, James J.
1844 *Scenes & Scenery in the Sandwich Islands . . . during the Years 1837–1842.* James Munroe and Company, Boston

Journal, Infantry
1948 *A History of the 33rd Infantry Division*. Infantry Journal, Inc., 1115 17th Street, Washington, D.C.

Kamakau, Samuel Mānaiakalani
1961 *Ruling Chiefs of Hawaii*. Kamehameha Schools Press, Honolulu.
1992 *Ruling Chiefs of Hawaii*. Revised ed. The Kamehameha Schools Press, Honolulu, Hawai'i.

Kawelu, Kathleen L.
2015 *Kuleana and Commitment: Working Toward a Collaborative Hawaiian Archaeology.* University of Hawai‘i Press, Honolulu.

Kennedy, Joseph
1990 *Archaeological Walk-Through Reconnaissance Survey of the Proposed Hawaiian Cement Puunene Quarry, Located at Pulehunui, Wailuku, (Kula), Maui, TMK: 3-8-04:01 (por.) and 3-8-04:02 (por.).* Copies available from Inc. Archaeological Consultants of Hawaii, Haleiwa, Hawai‘i.
1992 Archaeological Inventory Survey with Subsurface Testing Report for a Property at TMK: 3-9-04:76,77,78 in Kama‘ole Ahupua`a, Wailuku District, Island of Maui. Archaeological Consultants of Hawai‘i, Hale‘iwa, Hawai‘i.

Kennedy, Stanley C.
1937 America's Most Westerly Domestic Airline *Pan-Pacific*: 17-18.

Kolb, Michael J., Patty J. Conte, and Ross Cordy
1997 Kula: The Archaeology of Upcountry Maui in Waiohuli and Keokea, An Archaeological and Historical Settlement Survey in the Kingdom of Maui. Translated by State of Hawaii Department of Land and Natural Resources State Historic Preservation Division. State of Hawaii Department of Land and Natural Resources, State Historic Preservation Division, Honolulu.

Kuykendall, R.S.
1938 *The Hawaiian Kingdom: 1778-1854, Foundation and Transformation*. University of Hawaii Press, Honolulu.

Lacouture, USN (Ret.), Captain John E.
1989 A Brief History of NAS Puunene, NAS Kahului, and Alexis Von Tempsky Zabriskie *Wings of Gold*.

Lee-Greig, Tanya L., Katie Sprouse, Michael Willman, Todd McCurdy, and Hallet H. Hammatt
2011 An Archaeological Inventory Survey Report for an Agricultural Subdivision of Approximately 3165 Acres Pulehu Nui Ahupua'a, Wailuku District, Maui Island TMKs: (2) 3-8-04:002, 020, and 024, Volume 2 of 2. Cultural Surveys Hawaii, Inc., Wailuku, Hawai'i.

Leopold, L.B.
1949 The Interaction of Trade Wind and Sea Breeze, Hawaii. *Journal of Meteorology* 6:312-320.

Lundstrom, John B., and Steve Ewing
1990 *The First Team, Pacific Naval Air Combat from Pearl Harbor to Midway*. Naval Institute Press, Annapolis, Maryland.

Maly, Kepa and Onaona Maly
2003 *Ka Hana Lawai‘a A Me Nā Ko‘a O Na Kai ‘Ewalu A History of Fishing Practices and Marine Fisheries of the Hawaiian Islands*. Prepared for The Nature Conservancy, Honolulu, HI. Kumu Pono Associates, Hilo, HI.

2006 *He Mo'olelo No Maui Hikina - Kalialinui I Uka A Me Nā ‘Āina O Lalo: A Cultural-Historical Study of East Maui - The Uplands of Kalialinui, and the Lands that Lie Below, Island of Maui "The Waikamoi Preserve"*. Prepared for The Nature Conservancy of Hawai'i - Maui Program, Makawao, HI. Kumu Pono Associates, Hilo, HI.

McCandless, James Sutton
1936 *Development of Artesian Well Water in the Hawaiian Islands, 1880-1936*. Advertiser Publishing Company, Honolulu.

McCully, J.
1879 In the Matter of the Boundaries of Pulehunui, Supreme Court of the Hawaiian Kingdom. *Hawaiian Journal of Law and Politics*.

McGregor, Davianna Pomaika‘i
1996 *An Introduction to the Hoaaina and Their Rights.* The Hawaiian Journal of History, Volume 30: 1-28. University of Hawai‘i Press, Honolulu.

Moffat, Riley M., and Gary L. Fitzpatrick
1995 *Surveying the Mahele: Mapping the Hawaiian Land Revolution*. Palapala‘āina. Editions Limited, Honolulu.

Morison, Samuel Eliot
1951 *The Rising Sun in the Pacific, 1931 - April 1942*. First ed. History of United States Naval Operations in World War II, Vol. Volume III. Little, Brown & Co., Boston.

1953 *Coral Sea, Midway, and Submarine Actions, May 1942 - August 1942*. History of United States Naval Operations in World War II. Little, Brown & Co., Boston.

Nakuina, Moses

1902 *Moolelo Hawaii o Pakaa a me Ku-a-Pakaa*. Kalamakū Press, Honolulu.

1992 *The Wind Gourd of La‘amaomao*. First edition. Esther T. Mookini and Sarah Nākoa, translators. Kalamakū Press, Honolulu.

Navy, Department of the

1947 *Building the Navy's Bases in World War II, History of the Bureau of Yards and Docks and the Civil Engineer Corps 1940-1946*. U.S. Government Printing Office, Washington, D.C.

Office of Hawaiian Affairs

2015 *Papakilo Database.* Office of Hawaiian Affairs cultural and historical database. Electronic document, http://papakilodatabase.com/main/index.php.

Pauketat, Timothy R.

2001 *The Archaeology of Traditions*. University Press of Florida, Gainesville, Florida.

Peterson, C.M.

1966 The Trade Wind Regime of Central and Western Maui(Technical Memo NWS PR NO. 1).

Pratt, Linda W. and Samuel M. III Gon

1998 Terrestrial Ecosystems. In *Atlas of Hawai‘i Third Edition.*, edited by S. P. Juvik and J. O. Juvik, pp. 121-129. University of Hawaii Press., Honolulu, Hawai‘i.

Priestman, Captain Frederic W.

1946 $114,000 Damages Done by Tidal Wave Here. *The Flyer, NAS Kahului Maui* April 13, 1946 Vol. II, No. 21:8. Kahului, Hawai‘i.

Pukui, Mary Kawena

1949 Songs (Meles) of Old Ka‘u, Hawaii. *Journal of American Folklore*, July-September: 247–258.

1983 *‘Olelo No‘eau : Hawaiian Proverbs & Poetical Sayings*. Bernice P. Bishop Museum special publication no. 71. Bishop Museum Press, Honolulu, Hawaii.

1995 *Na Mele Welo: Songs of Our Heritage.* University of Hawai‘i Press, Honolulu.

Pukui, Mary Kawena and Laura Green

1995 *Folktales of Hawai‘i. He Mau Ka‘ao Hawai‘i.* Collected and translated by Mary Kawena Pukui with Laura C.S. Green. Bishop Museum Press, Honolulu.

Pukui, Mary Kawena and Samuel H. Elbert

1986 *Hawaiian dictionary : Hawaiian-English, English-Hawaiian*. Rev. and enl. ed. University of Hawaii Press, Honolulu.

Pukui, Mary Kawena, Samuel H. Elbert and Esther K. Mookini

1974 *Place Names of Hawaii*. Revised and Enlarged ed. University Press of Hawaii, Honolulu, Hawai‘i.

Rogers II, USN, Captain E. Earle

2002 Declassified *Foundation Magazine*: 56-60.

Rotunno-Hazuka, Lisa, Reynaldo Fuentes, Jenny O‘Claray, and Jeffrey Pantaleo
2011 *Archaeological Assessment Report for Hawaiian Cement Quarry Expansion Located at TMK: [2] 3-8-001 pors., Pulehu Nui Ahupua'a, Kula Moku; Wailuku District Island of Maui*. Copies available from LLC. Archaeological Services Hawaii, Wailuku, Hawai'i.

Saito, Norman
2008 Maalaea Airport. Cultural Surveys Hawaii, Inc., Wailuku, Maui.

Sanford, Mary Cameron
2006 Civilian interaction with military forces on Maui during WWII., edited by Robert Hill. Cultural Surveys Hawaii, Makawao.

Speakman Jr., Cummins E.
1978 *Mowee: An Informal History of the Hawaiian Island.* Nimrod Press, Boston.

Stearns, Harold T. and Gordon A. MacDonald
1942 *Geology and Ground-Water Resources of the Island of Maui, Hawaii (Including Haleakala Section, Hawaii National Park).* Territory of Hawaii, Division of Hyrdrography in cooperation with the Geological Survey, United States Department of the Interior, Honolulu, HI.

Sterling, Elspeth P.
1998 *Sites of Maui*. Bishop Museum Press, Honolulu.

Stokes, John F. G.
1917 Report on the Heiau of Maui. In *Hawaiian Alamanac and Annual for 1913 The Reference Book of Information and Statistics Relating to the Territory of Hawaii, of Value to Merchants, Tourists and Others.*, edited by T. G. Thrum, pp. 125. Thos. G. Thrum, Honolulu, HI.

Shettle Jr. , M. L.
1997 NAS Puunene, Hawaii. In *U.S. Naval Air Stations of World War II*, Vol Volume 2: Western States, pp. 190-191. Schaertel Publishing Co., Bowersville, Georgia.

Shoemaker, H.I.
1910 *Map of Sugar Plantation at Puunene, Maui, T.H., Owned by Hawaiian Commercial and Sugar Company*, 1:1200.

Shoemaker, H.J.
1907 *Approximate Map of Kihei Plantation Compiled from various Sources*, 500=1". Puunene, Hawai‘i.

Stokes, John F. G.
1917 Report on the Heiau of Maui. In *Hawaiian Alamanac and Annual for 1913 The Reference Book of Information and Statistics Relating to the Territory of Hawaii, of Value to Merchants, Tourists and Others.*, edited by T. G. Thrum, pp. 125. Thos. G. Thrum, Honolulu, HI.

Thrum, Thomas G.
1900 Lowrie Irrigating Canal. In *Hawaiian Almanac and Annual for 1901*. Hawaiian Gazzette Company, Honolulu.

1938 *Heiau and Heiau Sites Throughout the Hawaiian Islands and other articles on Maui Heiau 1907 - 1938*. Hawaiian Annual.

Tomonari-Tuggle, M.J., H. David Tuggle, Dawn Deunsing, Coral Magnuson, and Usha Prasad

2001 *Fire on the Land: Archaeology, Architecture, and Oral History of Former Naval Air Station Pu‘unene, Pulehunui, Maui*. International Archaeological Research Institute, Inc., Honolulu.

Turner, Jack W.

1945 Souvenir Edition Tradewinds. *48th U. S. Naval Construction Battalion* 60.

Ulukau

2014 *Māhele Database.* Hawaiian Electronic Library, http://ulukau.org/cgi-bin/vicki?l=en..

U.S. Army

1947 *40th Infantry Division, the Years of World War II*. Army and Navy Publishing Company, Baton Rouge, Louisiana.

U.S. Department of Agriculture, Natural Resources Conservation Service

2001 Soil Survey Geographic (SSURGO) database for Island of Maui, Hawaii (hi980). U.S. Department of Agriculture, Natural Resources Conservation Service.

U.S. Geological Survey

1976 Puu o Kali Orthophoto Quadrangle. United States Department of the Interior, USGS, Reston, Virginia.

1992 *Puu o Kali Quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston.

1996 *Maalaea Quadrangle, Hawaii [map]*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

1997a *Paia quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston.

1997b *Wailuku quadrangle, Hawaii*, 1:24,000. United State Department of the Interior, USGS. Reston, Virginia.

2017a *Paia Quadrangle, Hawaii*. United States Department of the Interior.

2017b *Puu O Kali Quadrangle, Hawaii*. United States Department of the Interior.

University of Hawai'i

2009 Native Plants Hawai'i, pp. Native Hawaiian plants database managed by the University of Hawai'i. vol. 2017. University of Hawai'i, Honolulu.

Walker, Winslow

1931 Archaeology of Maui. Manuscript. Bernice Pauahi Bishop Museum. Honolulu, Hawai‘i.

Vint, Paul

2000 Personal communication (Reunion, 48th Seabees, Maui Lu Resort, Kihei)

Vizenor, Gerald
1999 *Manifest Manners: Narratives on Postindian Survivance*. University of Oklahoma Press, Lincoln, Oklahoma.

Waihona ‘Aina
2000 *The Māhele Database*. Electronic document, http://waihona.com

Walker, Winslow
1931 Archaeology of Maui. Manuscript. Bernice Pauahi Bishop Museum. Honolulu, Hawai‘i.

Western Regional Climate Center (WRCC)
2010 1961-1990 Monthly Climate Summary for Kawailoa.

Westervelt, William D.
1910 *Legends of Maui - A Demi-God of Polynesia and of His Mother Hina.* George Robertson & Co.

Wilcox, Carol
1996 *Sugar Water: Hawaii’s Plantation Ditches*, A Kolowalu Book, University of Hawai‘i Press, Honolulu.

Wilcox, Robert K.
2004 *First Blue: The Story of WWII Ace Butch Voris and the Creation of the Blue Angels*, Thomas Dunne Books, St. Thomas Press, New York.

Woodbury, David O.
1946 *Builders for Battle.* E.P. Dutton and Co., New York.

Yanik, Kevin
2018 Hawaii operation overcomes waste coarse aggregate issue *Pit&Quarry*.

Yoklavich, Ann, Myra J. Tomonari-Tuggle, and David J. Welch
1997 Architecture and Archaeology at Naval Air Station Kahului, Kahului Airport, Island of Maui. Spencer Mason Architects and International Archaeological Research Institute, Inc., Honolulu, Hawai‘i.

Young, Charles.
1950 Land, Water Discussed at Meetings Here. *The Maui News* August 23, 1950. Wailuku.

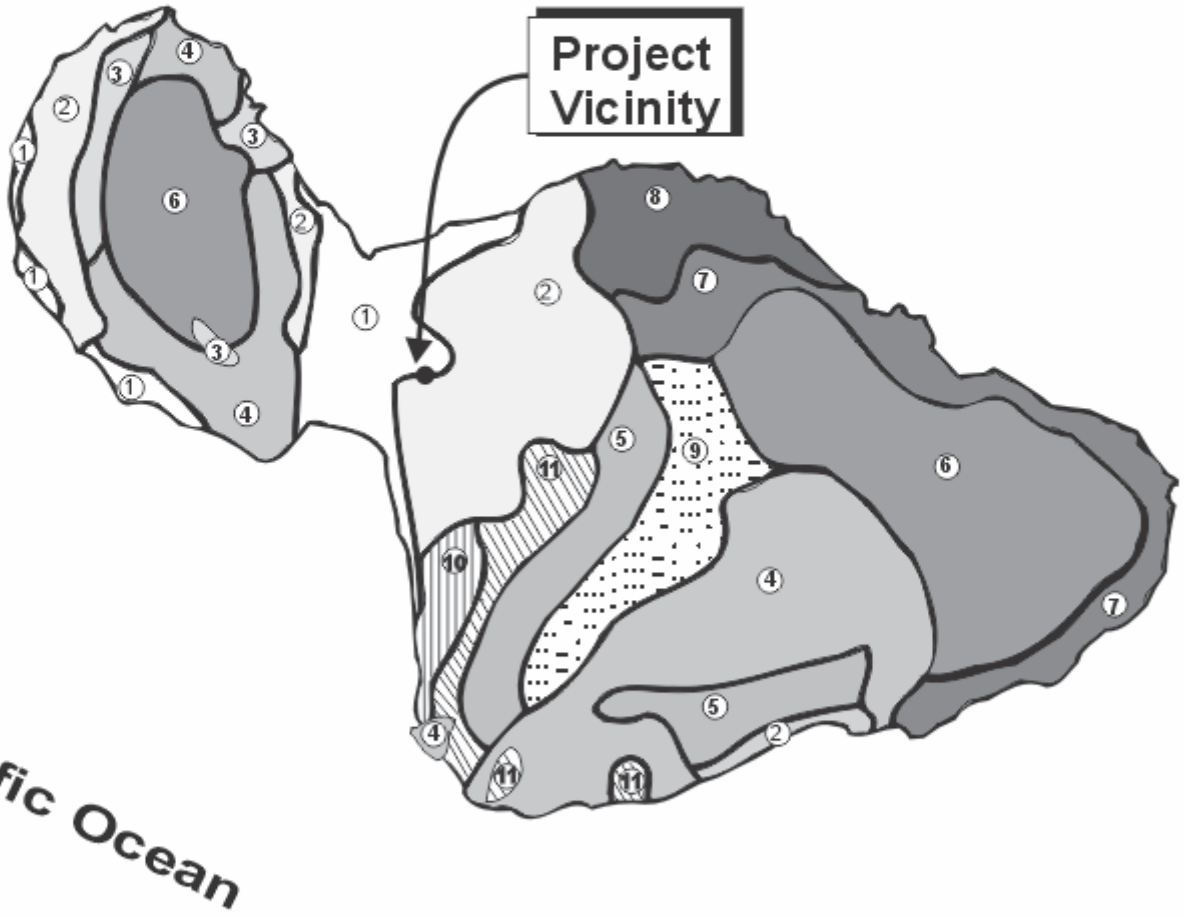
Yucha, Trevor M., Josephine M. Yucha, and Hallett H. Hammatt
2023 Archaeological Assessment Report for the Hawaiian Cement Quarry Mining Site Increment 4 Expansion Project, Pūlehunui Ahupua‘a, Pū‘ali Komohana District, Maui Island, TMK: (2) 3-8-004:001 por. . Cultural Surveys Hawai‘i, Inc., Wailuku, Hawai‘i.

EXHIBIT 29

Soil Association and Classification Maps

LEGEND

- ① Pulehu-Ewa-Jaucas association
- ② Waiakoa-Keahua-Molokai association
- ③ Honolua-Olelo association
- ④ Rock land-Rough mountainous land association
- ⑤ Puu Pa-Kula-Pane association
- ⑥ Hydrandepts-Tropaquods association
- ⑦ Hana-Makaalae-Kailua association
- ⑧ Pauwela-Haiku association
- ⑨ Laumaia-Kaipoipoi-Olinda association
- ⑩ Keawakapu-Makena association
- ⑪ Kamaole-Oanapuka association



Source: USDA, Soil Conservation Service

Figure 8 Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry Soil Association Map

NOT TO SCALE

Prepared for: Hawaiian Cement

MUNEKIYO HIRAGA

HawnCem\PuuneneSupplemental\Soil Assoc.

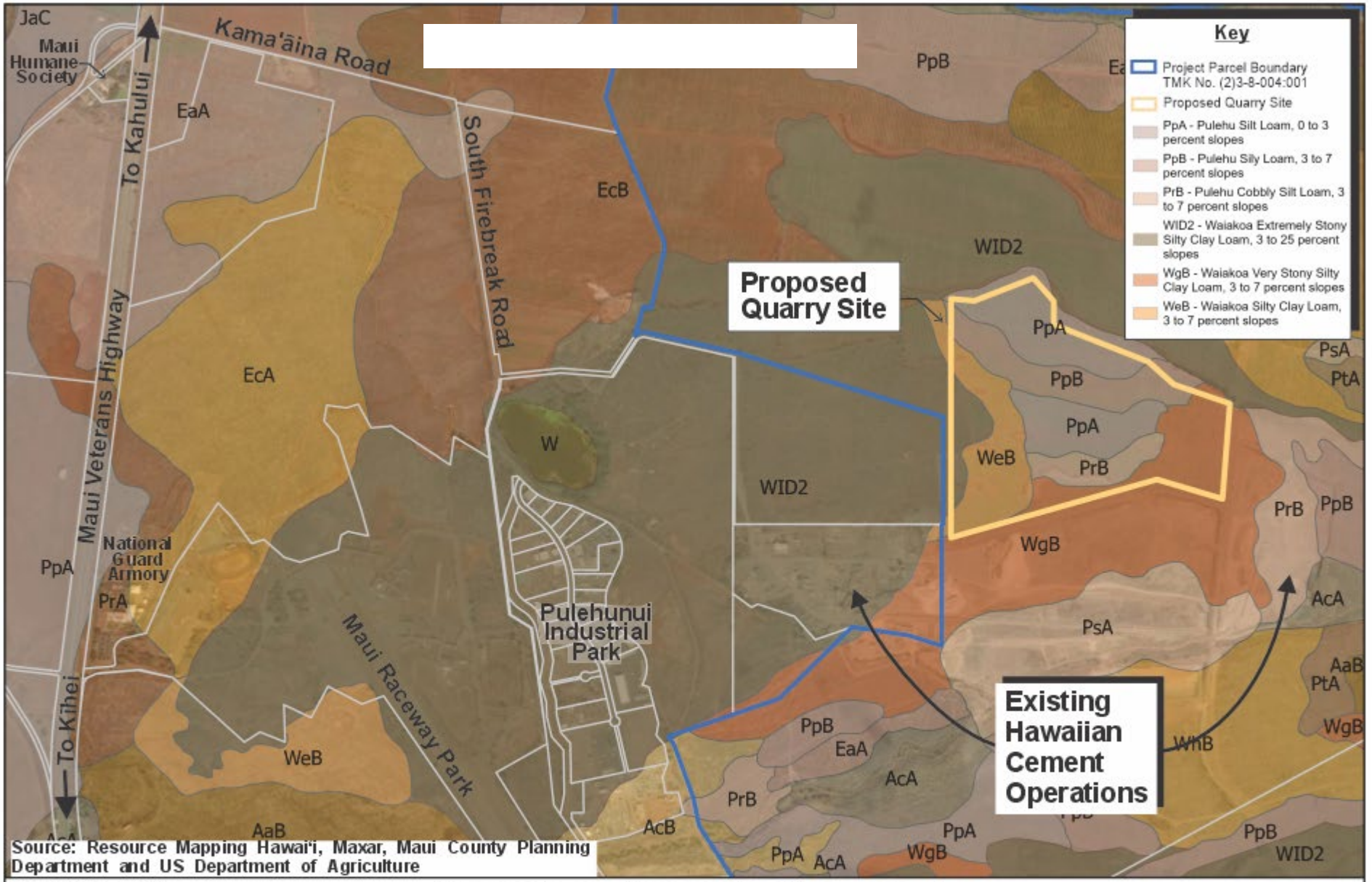


Figure 9

Hawaiian Cement Proposed Pu'unēnē Supplemental Quarry Soil Classification Map

0 750 1,500
Feet

MUNEKIYO HIRAGA

Prepared for: Hawaiian Cement

K:\DATA\HawnCem\PuuneneSupplQuarry\Apps\Figs\Soils

EXHIBIT 30

Agricultural Lands of Importance to the State of Hawai‘i Map

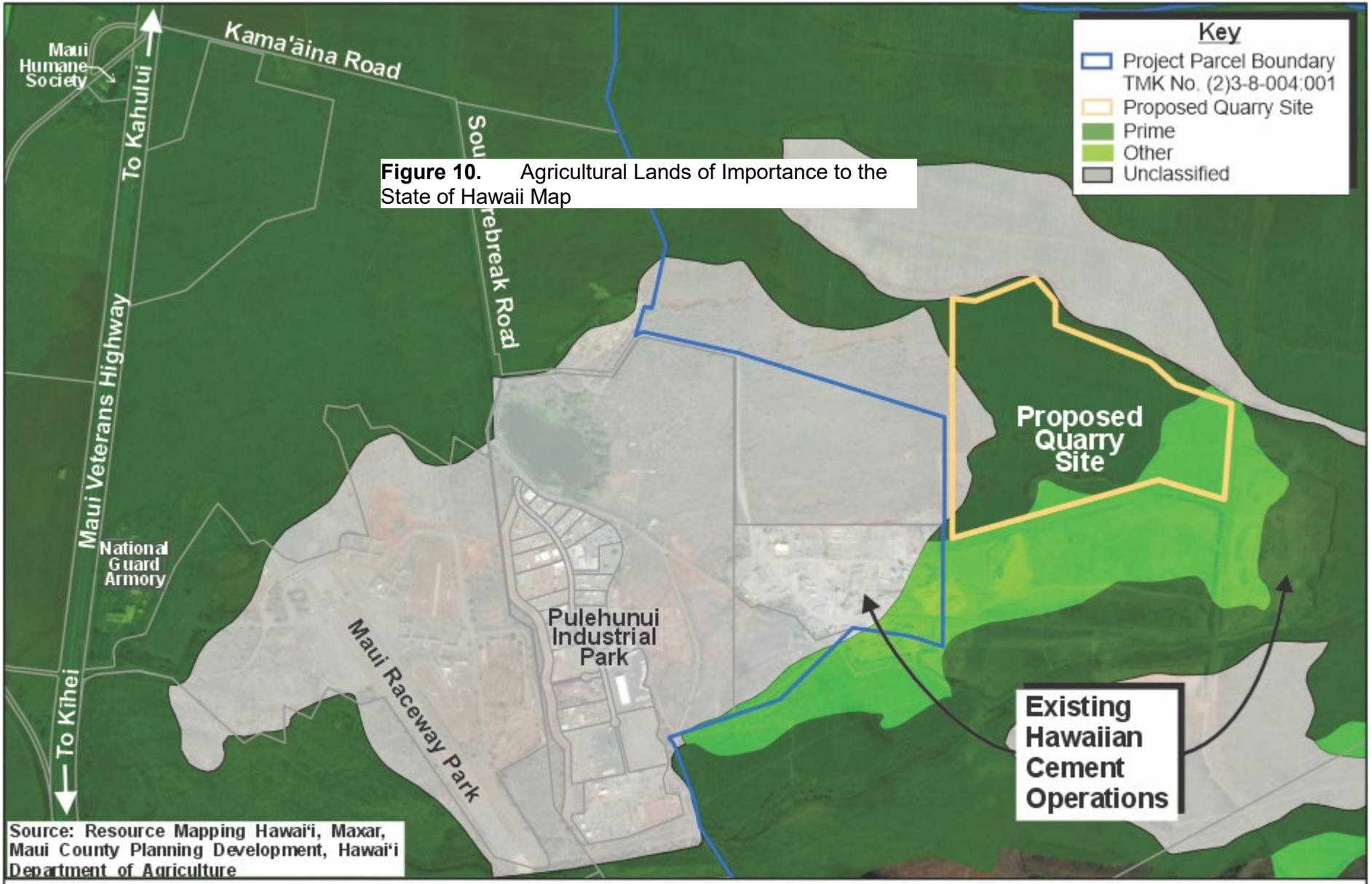


Figure 10. Agricultural Lands of Importance to the State of Hawaii Map

EXHIBIT 31

Preliminary Drainage and Soil Erosion Control Study

PRELIMINARY DRAINAGE & SOIL EROSION CONTROL STUDY

FOR

PROPOSED NEW QUARRY SITE

AT PULEHUNUI, WAILUKU, MAUI, HAWAII

TAX MAP KEY: (2) 3-8-04:01 (PORTION)

PREPARED FOR:

HAWAIIAN CEMENT
P. O. BOX 488
KAHULUI, HAWAII - 96732

PREPARED BY:

Tanaka
ENGINEERS, INC.
CIVIL ENGINEERING ● LAND SURVEYING ● CONSTRUCTION MANAGEMENT & INSPECTIONAL SERVICES

871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII - 96793

JOB 24-021

OCTOBER 2024
REVISED: OCTOBER 28, 2024

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I. INTRODUCTION:

Hawaiian Cement plans to lease additional lands for quarrying purposes to replace its existing quarry sites which is anticipated to be completely mined out shortly.

The proposed quarry site (125 acres) is located about 2 miles east (mauka) of Mokulele Highway in Pulehunui, Wailuku, Maui, Hawaii. The site is part of Parcel 1 of Tax Map Key (2) 3-8-04. The land is presently a citrus tree orchard. The general location, vicinity and plat maps are shown on Figures 1, 2 and 3, respectively.

Quarrying is expected to be done incrementally at a maximum area of 30 acres. After mining is completed for each increment, the exposed areas will be stabilized and suitable fill will be installed for the intended agricultural use.

The existing crusher and batching plants and related accessories at the present quarry site will be used in conjunction with the proposed mining operations at the proposed new quarry site.

II. PURPOSE:

The purpose of this preliminary study are as follows:

A. To determine the effect of this project on drainage conditions;

B. To determine the requirements for grading and Best Management Practices (BMPs) to control soil erosion during quarry operations.

III. BASIS OF STUDY:

The Drainage Calculations are based on the design criteria as set forth by the "Rules of the Design of Storm Drainage Facilities" in the County of Maui [1] hereinafter referred to as "Maui County Drainage Standards".

The proposed quarrying operations are regulated by the Department of Labor, Mine Safety and Health Administration.

IV. EXISTING ONSITE SOIL:

The predominant type of soil at the site belongs to Waiakoa and Pulehu Series [2]. The Waiakoa Series Soils include Waiakoa Extremely Stony Silty Clay Loam (WID2) on 3 to 25 percent slopes, Waiakoa Silty Clay Loam (WeB) and Waiakoa Very Stony Silty Clay Loam (WgB) on 3 to 7 percent slopes. Pulehu Series include Pulehu Silt Loam (PpA and PpB) on 0 to 7 percent slopes, Pulehu Cobbly Clay Loam (PtA) on 0 to 3 percent slopes and Pulehu Cobbly Silt Loam (PrB) on 3 to 7 percent slopes. All these types of soils are characterized by moderate to rapid permeability, slow runoff and slight to no more than slight erosion hazard. See Figure 4 for Soils Map.

V. ONSITE DRAINAGE:

A. Existing Conditions:

The proposed quarry site was fallow former sugar cane lands that have been planted as a citrus tree orchard. This site has an average slope of about 2 percent. The ground elevation ranges from approximately 220 to 290 feet above mean sea level.

The proposed site lies to the north of Kolaloa Gulch. Another existing drainageway lies to the north of and adjacent to the proposed project site.

Runoff from the southern half of the proposed quarry site flows in an east to west direction towards an adjoining parcel owned by the State of Hawaii [TMK: (2) 3-8-08:01].

Runoff from the northern portion of the site flows from east to west where it flows towards the previously mentioned drainageway immediately to the north of the proposed project site.

Existing storm runoff from mauka (east) lands is diverted by Upper Kihei Road into the adjacent drainageway along the north boundary of the project site and the storm runoff from lands to the north are diverted by said drainageway and do not affect the proposed project site.

Existing storm runoff from previously quarried lands to the south that are lower in elevation also do not affect the proposed project site.

The proposed mining operations will result in a large depression in the project area that will contain storm runoff in the project area after quarrying operations are completed.

B. Onsite Runoff:

The proposed new quarry site encompassing 125 acres of leased land will be mined in increments. Areas not in active quarrying will remain as citrus tree orchards. Therefore, for hydrologic analysis, a typical area of 30 acres with an overland flow of 1,600 feet long will be considered.

The rational method was used to determine runoff rate and volume for a 10-year and 50-year storm intensity, respectively. It was estimated that a typical 30-acre area in active quarry operations will increase the existing 10-year (1 hour) runoff rate by 21.9 c.f.s., from 26.1 c.f.s. to 48.0 c.f.s., while the increase of 50-year runoff volume is about 23,898 c.f. or 797 c.f. for each acre of grading area. The 50-year runoff volume increase will be the minimum volume to be retained onsite in order to attain a zero runoff increase during mining operations.

The onsite retention basins created at the low corners of the new quarry will remain in place after quarrying operations have ceased. Maintenance of these basins (low spots) will not be needed as no onsite runoff will escape this large quarry depression.

Drainage calculations are shown in the attached Preliminary Drainage Calculations.

VI. PROPOSED DRAINAGE FACILITIES AND GRADING:

The proposed mining operations is anticipated to increase the storm runoff especially during active excavation when the ground is bare.

Increase in runoff volume (50-year, 1-hr. storm) due to mining operations will be retained onsite by means of retention ponds to be constructed at the downstream end of the grading area(s). The ponds will be sized to contain at least the 50 year, 1-hour runoff volume increase. Aside from keeping the runoff at pre-quarrying levels, the retention ponds will also have the effect of reducing

or precluding the potential for sediment contained in the runoff from entering downstream properties.

A typical cut section of the graded area is shown on Figure 7. Each incremental grading will be limited to 30 acres maximum.

When quarrying is completed on each increment, the exposed areas will be stabilized with suitable fill for the intended agricultural use.

The exact depth of the final quarry is not known. Hawaiian Cement will quarry the rock out of the project area until the useable rock is exhausted and move horizontally to the next quarry phase, when the previously mined area will be stabilized. Past quarrying operations have yielded a mining depth of approximately 20 feet. Since the quarrying operations leaves a large depression in the land, onsite storm runoff generated by the project area is not anticipated to leave the site.

VII. FLOODING HAZARD:

The proposed new quarry site is located within Zone X as plotted on Panel 1500030580F of the Flood Insurance Rate Map for the County of Maui. Zone X is designated as areas of minimal flooding. Refer to Figure 6.

VIII. BEST MANAGEMENT PRACTICES:

Generally, the control of soil erosion and sediment will be in conformance with the applicable sections of the County of Maui Construction Best Management Practices [6].

The following are some of the measures to control soil erosion during quarrying operations.

A. Control dust with water from water wagons as needed, including week-ends and holidays, as necessary.

B. Mine area incrementally to extent possible. Exposed area at any given time should not be larger than 30 acres.

C. Areas where mining is completed should be stabilized.

IX. CONCLUSION:

Based on this preliminary study, the proposed mining operation will slightly increase the existing runoff quantities, however it is not anticipated to have adverse drainage effects on adjacent and downstream properties. The retention pond(s) to be constructed at the lower reaches of each incremental grading will keep or lower pre-quarrying runoff levels. The retention basin will also have the effect of reducing the potential for sediment contained in the runoff from entering neighboring properties.

Further, after mining is completed in each increment, the area will be stabilized with suitable fill for the intended agricultural use.

There will be no appreciable offsite runoff that will flow into or out of the the quarry area. Most of the offsite flows will be intercepted by Upper Kihei Road and the adjacent drainageway to the north.

X. REFERENCES:

1. Rules for the Design of Storm Drainage Facilities in the County of Maui, Title MC-15, Department of Public Works and Waste Management, County of Maui, Chapter 4.

2. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, August 1972.

3. Flood Insurance Rate Maps for the County of Maui, September 19, 2012.

4. Rainfall-Frequency Atlas of the Hawaiian Islands, Technical Paper No. 43, U. S. Department of Commerce, Weather Bureau, 1962.

5. Erosion and Sediment Control Guide for Hawaii, prepared by U. S. Department of Agriculture, Soil Conservation Service, March 1981.

6. Construction Best Management Practices (BMPs) for the County of Maui, Dept. of Public Works and Waste Management, County of Maui, May 2001.

7. Guide for Obtaining and Developing Base (100-Year) Flood Elevations, prepared by Federal Emergency Management (FEMA), April, 1995.

PRELIMINARY DRAINAGE CALCULATIONS

I. Onsite

A. Reference: Rules for the Design of Storm Drainage Facilities in the County of Maui

B. Methodology: Rational Method

Recurrence Interval: 10-year, 1-hour rainfall (runoff rate)
50-year, 1-hour rainfall (runoff volume)

Drainage Area: 30 acres

Time of Concentration, Tc: Determined from Plate 1

Runoff Coefficient, C:

Existing Condition: C = 0.30 (unimproved)

New Condition: C = 0.50 (bare soil)

C. Runoff Rate

10 Year (1-Hour) Storm:

1. Existing Condition:

I_{10} = 2"

L = 1,600 Ft.

S = 2% (Poor Grass)

Tc = 27 min. (Plate 3)

i = 2.9 in./hr. (Plate 4)

Q = CiA

= 0.30 x 2.9 x 30 = 26.1 c.f.s.

2. New Condition (During Quarrying):

I_{10} = 2"

L = 1,600 Ft.

S = 2% (Bare Soil)

Tc = 21 min. (Plate 3)

i = 3.2 in./hr. (Plate 4)

Q = CiA

= 0.50 x 3.2 x 30 = 48.0 c.f.s.

3. Increase of Runoff Rate During Active Quarry Operations for Each Incremental Area of 30 Acres:

Increase = 48.0 - 26.1

= 21.9 c.f.s. (10-Year, 1-Hour Storm)

D. Runoff Volume:

1. Existing Conditions:

Anticipated 50 Yr. (1-Hr.) Runoff

Volume = 53,548 c.f. (See attached Hydrograph 1)

2. Quarrying Conditions:

Anticipated 50 Yr. (1-Hr.) Runoff

Volume = 77,446 c.f. (See attached Hydrograph 2)

3. Therefore; 50 Year (1 Hour) Storm Volume Increase:

Volume Increase = 77,446 - 53,548

= 23,898 c.f.

4. Minimum Runoff Volume to be Retained Onsite

$$\frac{\text{Increase}}{\text{Acre}} = \frac{23{,}898}{30}$$

= 797 c.f. for each acre of grading area

Hydrograph Plot

Hydraflow Hydrographs by Intelisolve | Thursday, Oct 10 2024, 3:38 PM

Hyd. No. 1

Hawaiian Cement New Quarry (EXIST. CONDITION)

Hydrograph type	= Rational	Peak discharge	= 16.53 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 15.000 ac	Runoff coeff.	= 0.3
Intensity	= 3.673 in/hr	Tc by User	= 27.00 min
IDF Curve	= HAWAIIAN CEMENT NEW QUARRY.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 26,774 cuft



Hydrograph Plot

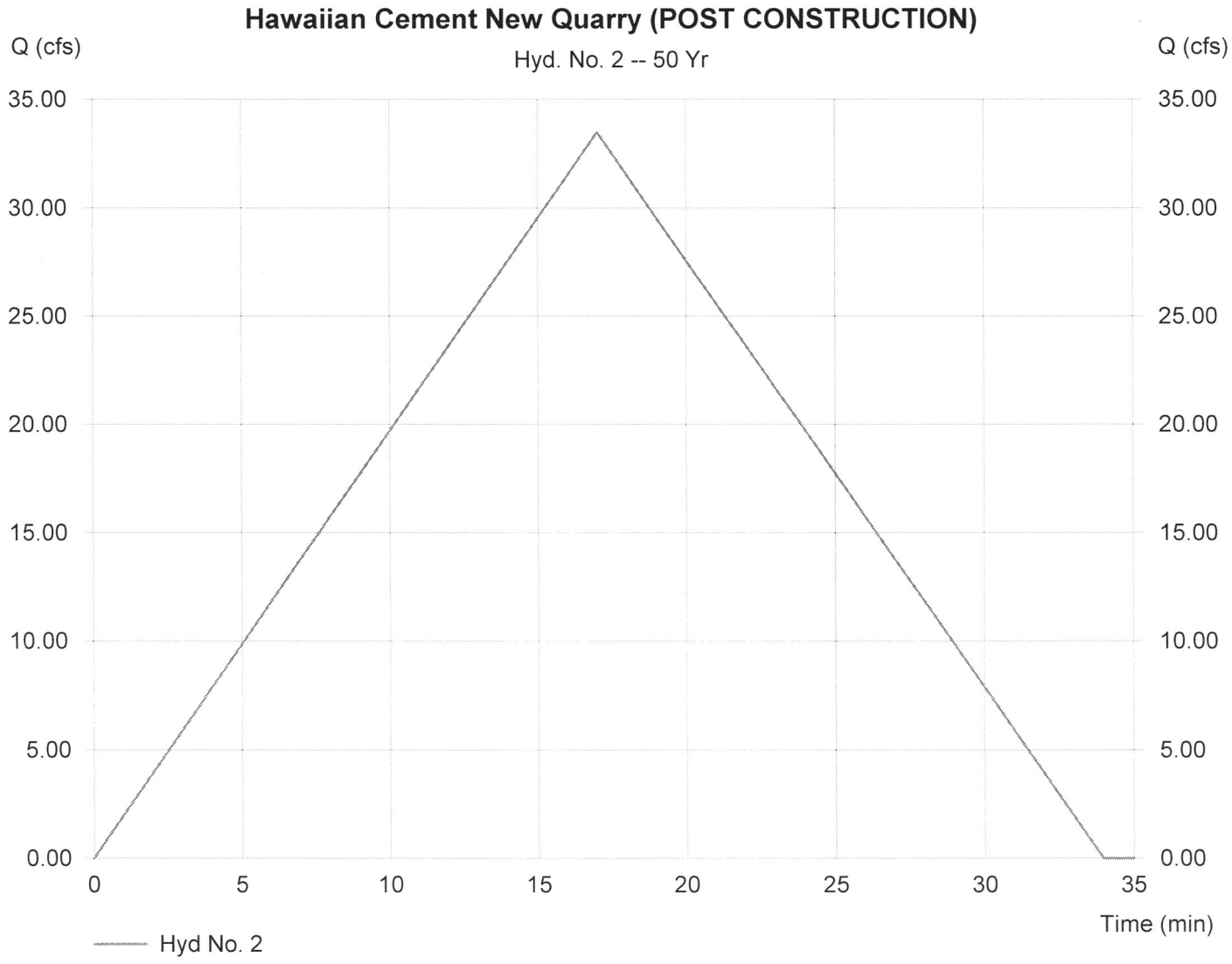
Hydraflow Hydrographs by Intelisolve | Thursday, Oct 10 2024, 3:39 PM

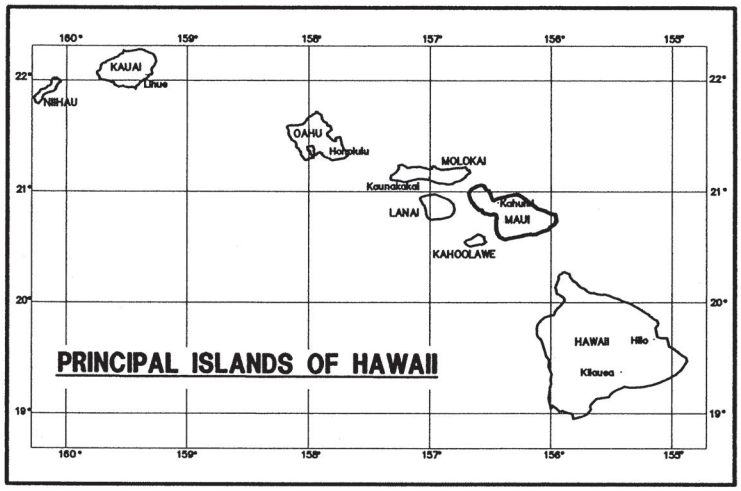
Hyd. No. 2

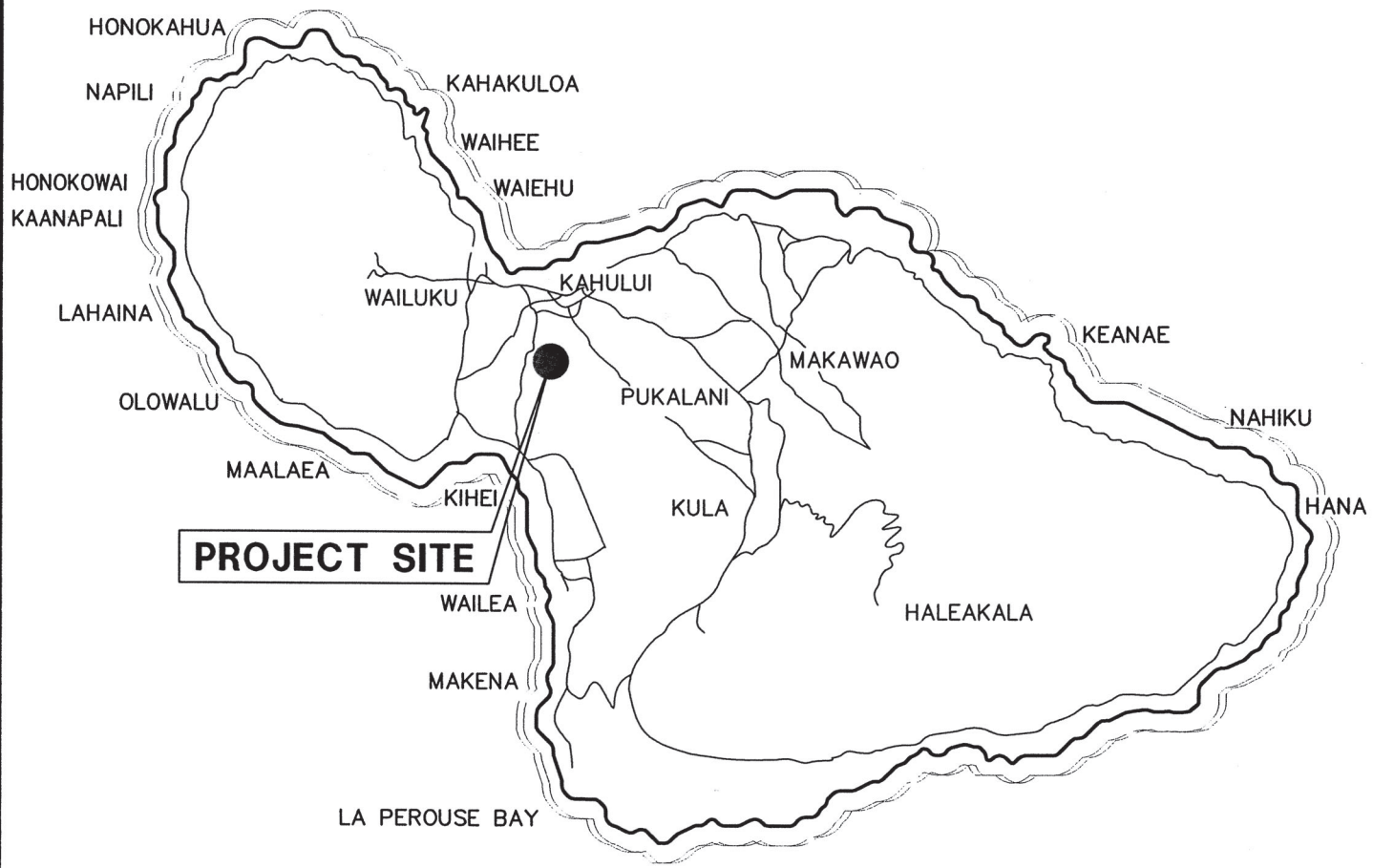
Hawaiian Cement New Quarry (POST CONSTRUCTION)

Hydrograph type	= Rational	Peak discharge	= 33.48 cfs
Storm frequency	= 50 yrs	Time interval	= 1 min
Drainage area	= 15.000 ac	Runoff coeff.	= 0.5
Intensity	= 4.464 in/hr	Tc by User	= 17.00 min
IDF Curve	= HAWAIIAN CEMENT NEW QUARRY.IDF	Asc/Rec limb fact	= 1/1

Hydrograph Volume = 34,153 cuft







N

LOCATION MAP

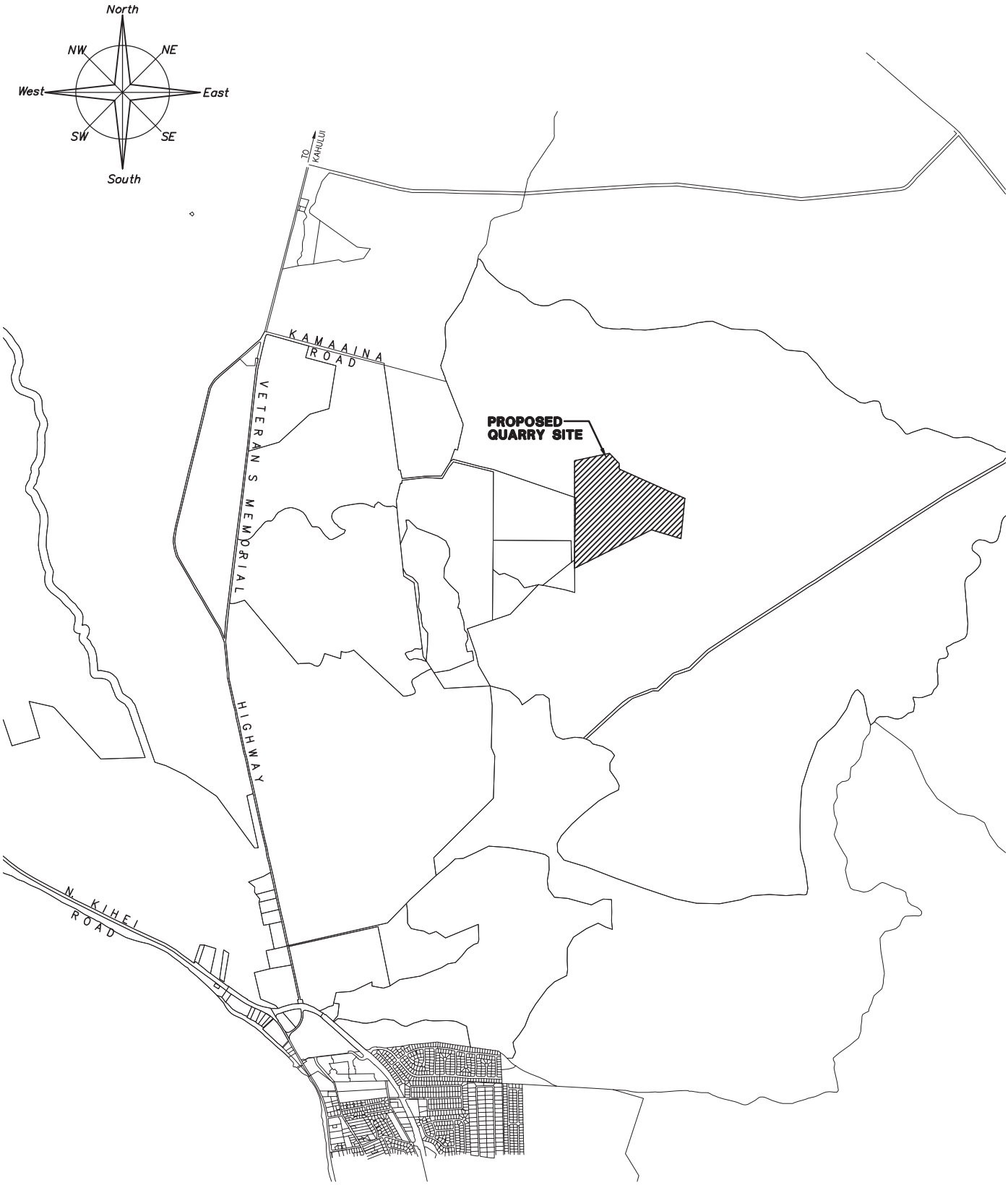
ISLAND OF MAUI

(Layout1)
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871 KOLU STREET, SUITE 201
WAILUKU, MAUI, HAWAII 96793

R. T. TANAKA ENGINEERS, INC.
LAND SURVEYORS – CIVIL & STRUCTURAL ENGINEERS

JOB NO. 05-065
FIGURE 1



VICINITY MAP

NOT TO SCALE

Tax Map Key (2) 3-8-04: 01 (Portion)

OCTOBER 2024

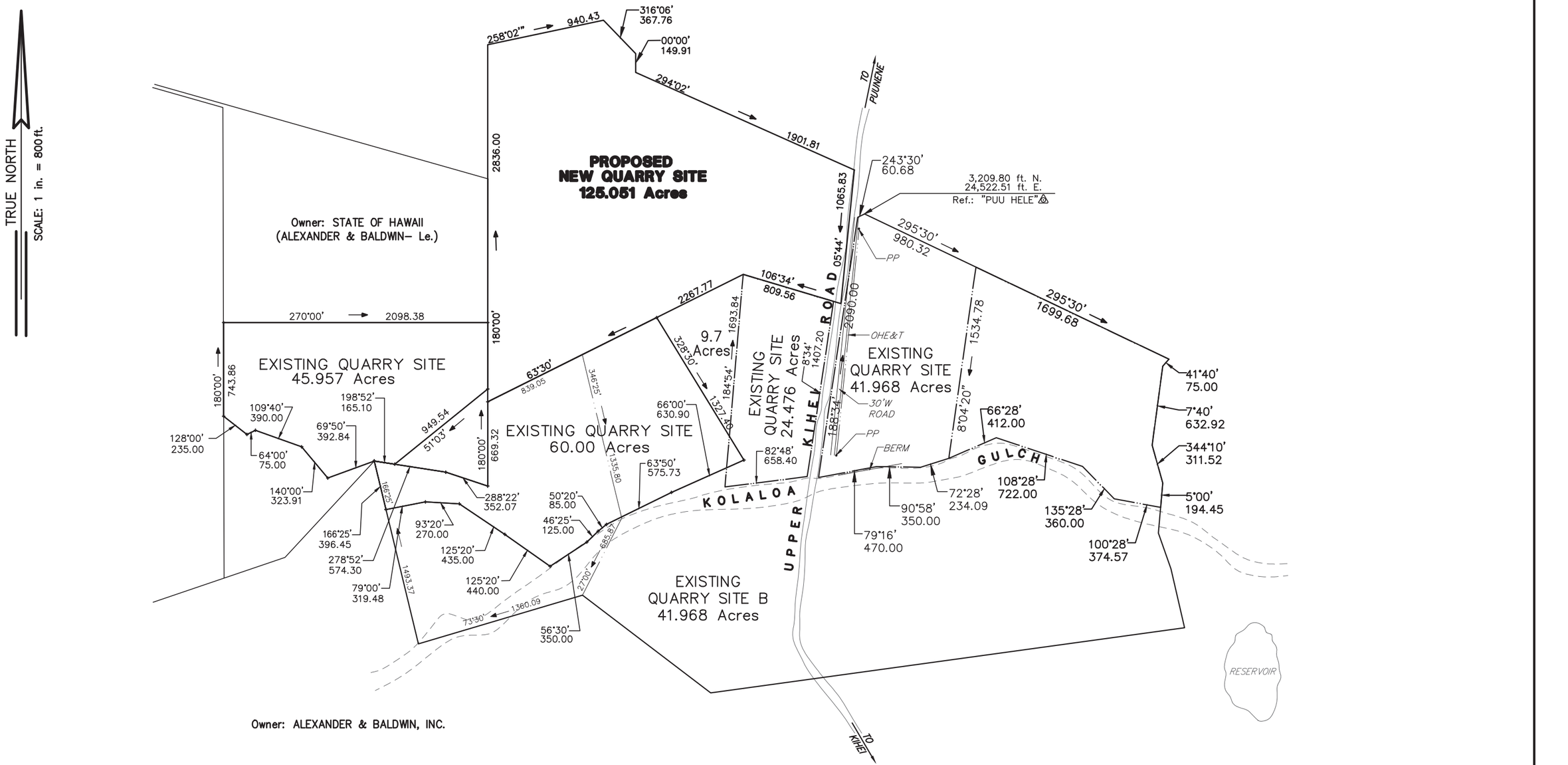
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JOB NO. 24-021

FIGURE 2

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Z:\DRAW1\2005\05-065\PROP-QUARRY-SITE-ADDITION-VICINITYMAP.dwg 05-OCT-2012 : Revised BY:Nancy



PLAN SHOWING NEW HAWAIIAN CEMENT QUARRY MINING SITE

AT PULEHUNUI, WAILUKU (KULA), MAUI, HAWAII

800 400 0 800 1600
GRAPHIC SCALE IN FEET

Prepared for:
HAWAIIAN CEMENT
P.O. BOX 488
KAHULUI, HAWAII 96733

Tax Map Key (2) 3–8–04: 01 (Portion)

FIGURE 3

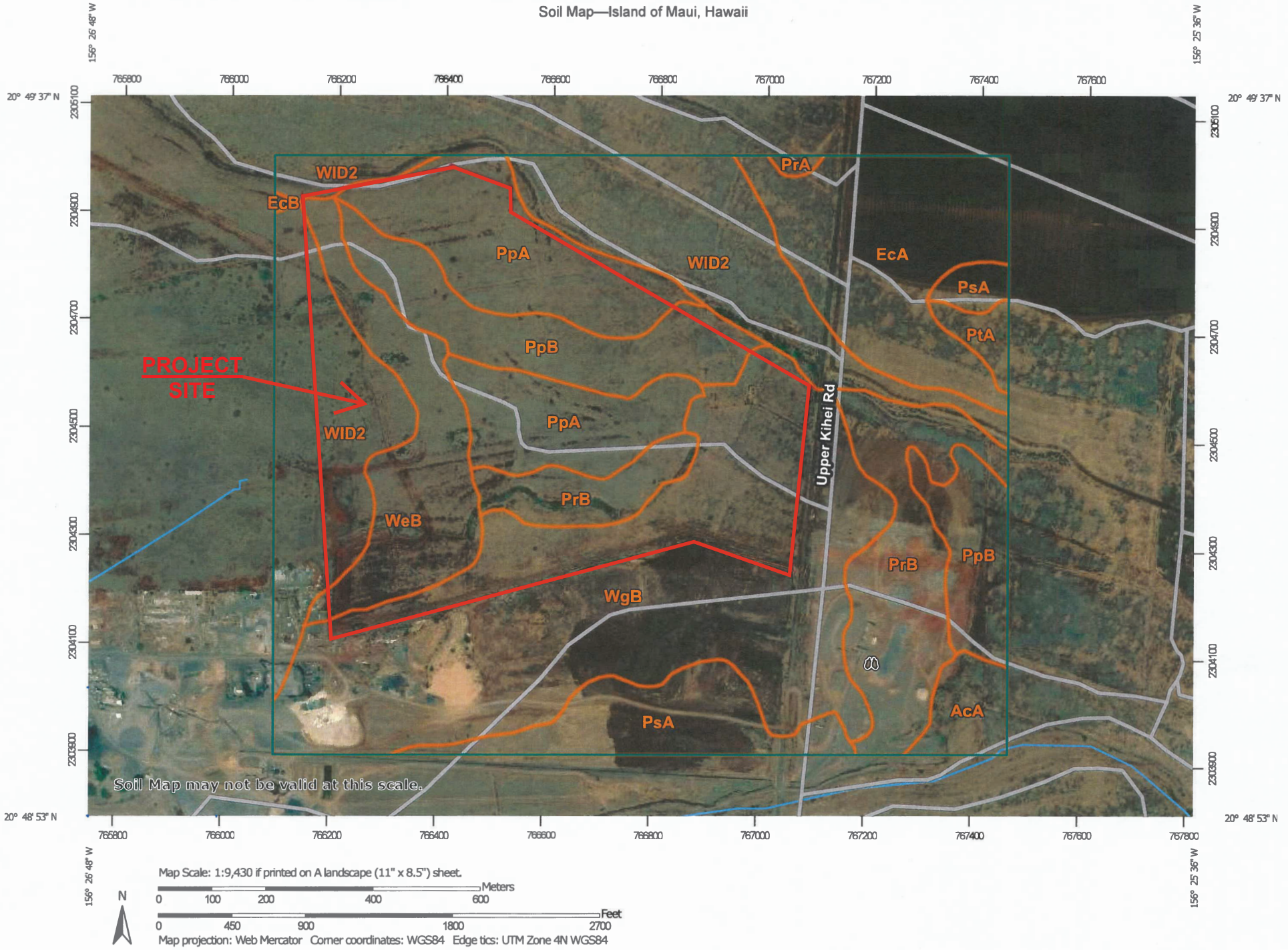
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Soil Map—Island of Maui, Hawaii



Map Scale: 1:9,430 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 450 900 1800 2700

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 4N WGS84

FIGURE 4

USDA Natural Resources Conservation Service

Web Soil Survey
National Cooperative Soil Survey

10/10/2024
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Island of Maui, Hawaii
Survey Area Data: Version 22, Sep 11, 2024

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 29, 2017—Oct 11, 2020

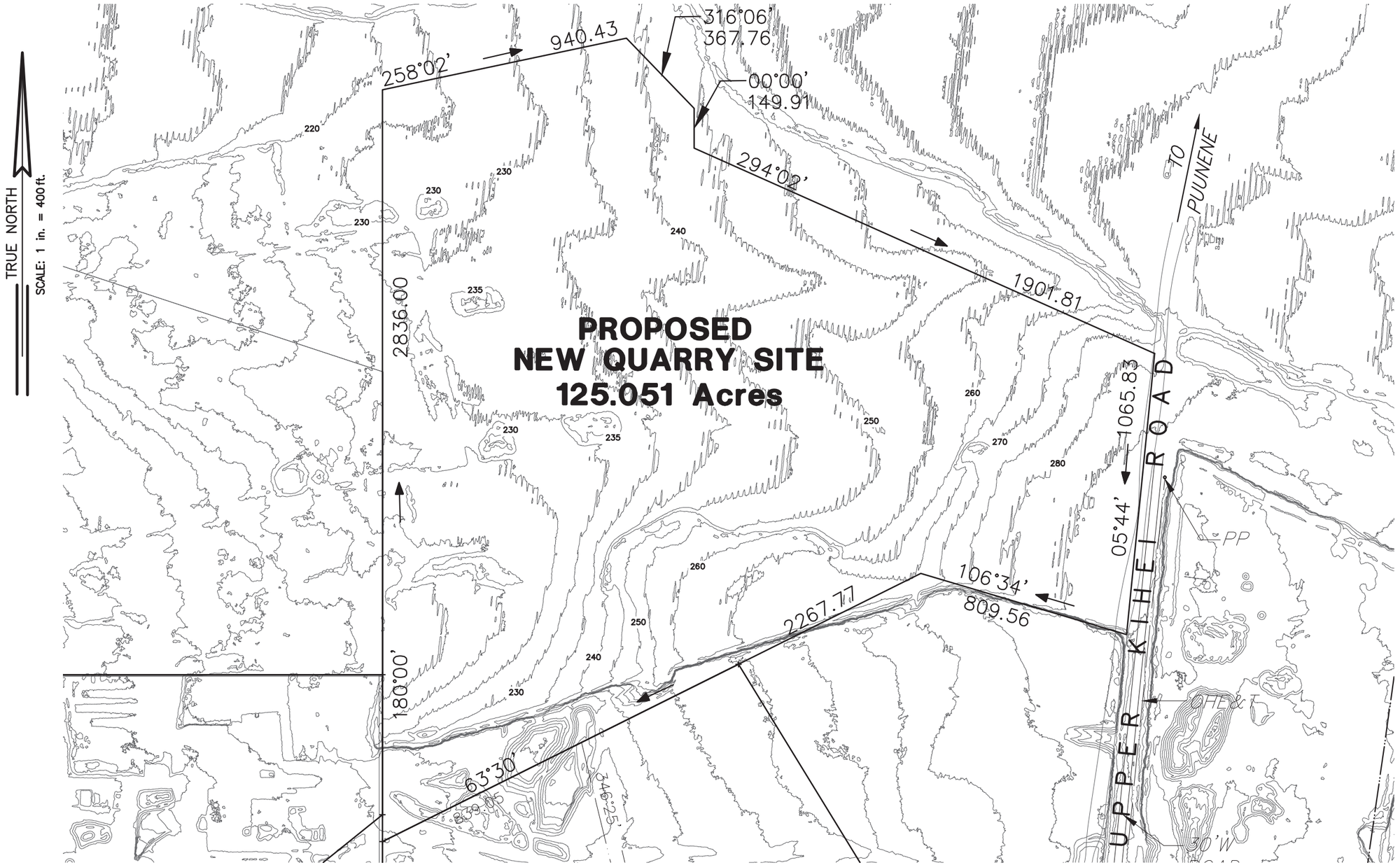
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

FIGURE 4

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AcA	Alae cobbly sandy loam, 0 to 3 percent slopes, MLRA 158	6.4	1.7%
EcA	Ewa cobbly silty clay loam, 0 to 3 percent slopes, MLRA 158	35.7	9.5%
EcB	Ewa cobbly silty clay loam, 3 to 7 percent slopes, MLRA 163	0.2	0.1%
PpA	Pulehu silt loam, 0 to 3 percent slopes	42.0	11.1%
PpB	Pulehu silt loam, 3 to 7 percent slopes	33.2	8.8%
PrA	Pulehu cobbly silt loam, 0 to 3 percent slopes	0.7	0.2%
PrB	Pulehu cobbly silt loam, 3 to 7 percent slopes	35.5	9.4%
PsA	Pulehu clay loam, 0 to 3 percent slopes , MLRA 163	20.6	5.5%
PtA	Pulehu cobbly clay loam, 0 to 3 percent slopes	3.0	0.8%
WeB	Waiakoa silty clay loam, 3 to 7 percent slopes	25.2	6.7%
WgB	Waiakoa very stony silty clay loam, 3 to 7 percent slopes, MLRA 158	106.1	28.1%
WID2	Waiakoa extremely stony silty clay loam, 3 to 25 percent slopes, eroded, MLRA 157	68.3	18.1%
Totals for Area of Interest		**377.1**	**100.0%**

FIGURE 4



EXISTING TOPOGRAPHY MAP

SCALE: 1 in. = 400 ft.

400 200 0 400 800

GRAPHIC SCALE IN FEET

Tax Map Key (2) 3-8-04: 01 (Portion)

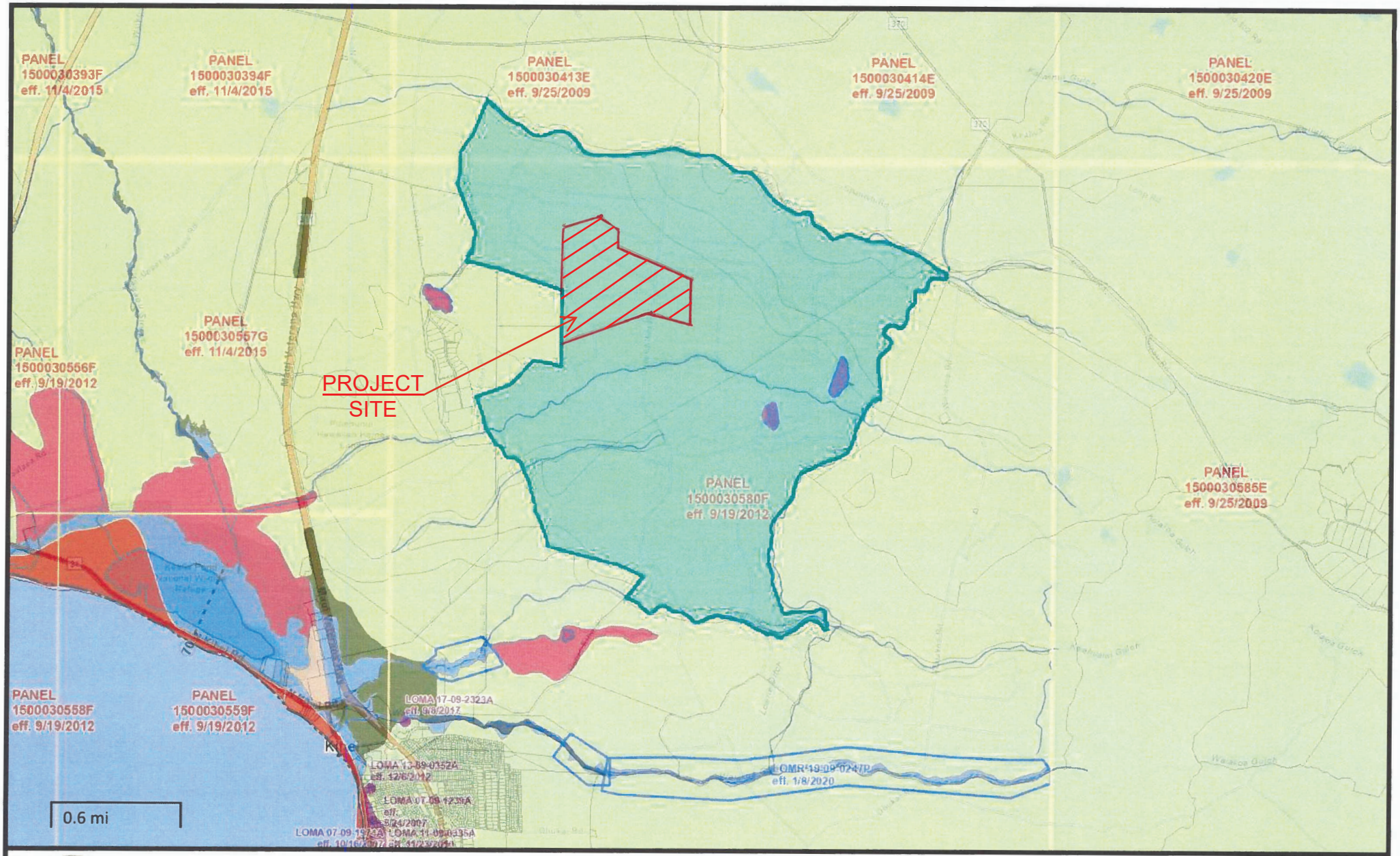
FIGURE 5

871 KOLU STREET, SUITE 201
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Flood Hazard Map

Title:

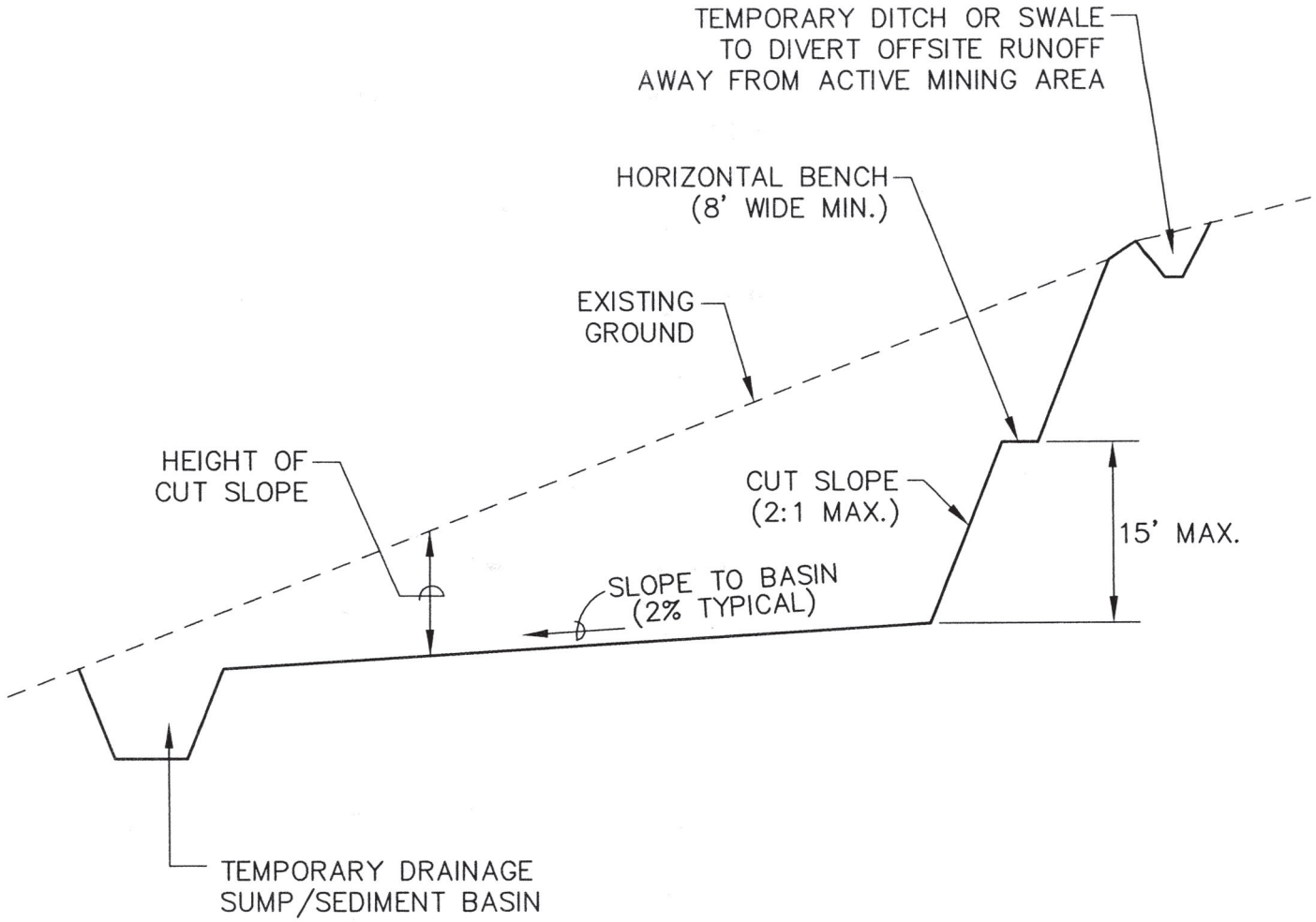
Notes:

Map generated on 10/09/2024

Map Legend

Disclaimer: The Hawaii Department of Land and Natural Resources (DLNR) assumes no responsibility arising from the use, accuracy, completeness, and timeliness of any information contained in this report. Viewers/Users are responsible for verifying the accuracy of the information and agree to indemnify the DLNR, its officers, and employees from any liability which may arise from its use of its data or information.

FIGURE 6



TYPICAL CUT SECTION

NOT TO SCALE

(Layout1)
Z:\DRAW1\2005\05-065\PROP-QUARRY-SITE-ADDITION-CUTSECTION.dwg 05-OCT-2012 : Revised BY:Nancy

Tax Map Key (2) 3-8-04: 01 (Portion)

OCTOBER 2012

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FIGURE 7