

DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR PIILANI PROMENADE

APPENDICES B- H

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June 2014





APPENDIX B

Environmental Site Assessment



MALAMA
Environmental

Environmental Site Assessment: *Phase I Investigation - Pi'ilani Promenade LLC*

Survey Area:

**Pi'ilani Highway and Kaonoulu Street
Approximately 101 acres
of vacant Ranch land**

Pi'ilani Highway and Kaonoulu Street
South of Ohukai Road
Kihei, Maui

T.M.K. (2) 3-9-001: 016, 169, 170 -174
T.M.K (2) 2-2-002:077

T.M.K. (2) 2-2-002:016 & 082 (portions)
T.M.K. (2) 3-9-001:148 & (2) 3-9-048:122

Prepared for:

Sarofim Realty Advisors

8115 Preston Road, Ste. 400
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Attention Mr. Robert Poynor, Vice President

Conducted and Compiled by:

Malama Environmental (MEV, LLC)
MEV Project Number #1307-0292
December 17, 2013

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MALAMA
Environmental

Environmental Site Assessment: *Phase I Investigation –*

Property:

Pi'ilani Highway and Kaonoulu Street

Approximately 101 acres of vacant ranch land

Pi'ilani Highway and Kaonoulu Street,

South of Ohukai Road

Kihei, Maui, Hawai'i 96753

T.M.K. (2) 3-9-001:016, 169, 170 -174

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Prepared for:

Sarofim Realty Advisors

8115 Preston Road, Suite 400

Dallas, TX 75225

Attention Mr. Robert Poynor, Vice President

We declare that, to the best of our professional knowledge and belief, we meet the definition of *Environmental professional* as defined in 312.10 of 40 CFR 312 and we have the specific qualifications based on education, training, and experience to assess a *property* of the nature, history, and setting of the *subject property*. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312.

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Senior Geologist

➤ *Professional Geologist (Indiana)*

12-17-13

Date

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12-17-13

Date

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Disclosure

This document contains the results of services performed on this Project by **Malama Environmental (MEV, LCC)** pursuant to Agreement. The results represent the application of a variety of scientific and analytical disciplines that have been rendered using the standard of care, skill, and diligence normally provided by professionals in the performance of similar services under similar circumstances.

MEV assessments are intended to reduce, but not eliminate, uncertainty regarding recognized environmental conditions in connection with the Survey area, as conducted within reasonable limits of time and cost. A general consensus of EPA's guidance on landowner liability is that *no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property.*

The use of this document and the results reported are limited to the services performed and areas examined as described in this document and no inferences are intended with respect to anything not described herein.

MEV is not responsible for conditions or consequences arising from relevant data, facts, and information that were concealed, missing, withheld, not fully disclosed, or not reasonably available at the time these services were performed. **MEV** is not responsible for any indirect, incidental, or consequential damages of any nature arising from any cause.

MEV has no beneficial economic interest in the Project other than as an independent professional organization performing the agreed services. **MEV's** warranties are as described above and there are no other warranties of any kind, expressed or implied, regarding the services.

Executive Summary

Introduction

This Phase I Environmental Site Assessment (ESA) has been prepared for Mr. Robert Poynor, Vice President of Sarofim Realty Advisors, and was conducted pursuant to Malama Environmental's (MEV's) written proposal and contract accepted by Mr. Poynor on July 12, 2013. This investigation and report format follows the guidelines of the American Society of Testing and Materials (ASTM) Publication E1527-05, which is recognized by 40 CFR Part 312 as an acceptable guidance document for satisfying the EPA's final "All Appropriate Inquiries" rule.

Site Description

The survey area encompasses approximately 101 acres in north Kihei, Maui, Hawaii, mostly located mauka (toward the mountain) of Pi'ilani Highway (State Highway 31), between the Kihei Commercial Center and Kulanihakoi Gulch and due east of Kaonoulu Street's eastern terminus. Proposed utility easements included in the survey area are located along a gravel lane south of Ohukai Road and extend farther east immediately south of the Monsanto Seed Farm site.

The survey area consists of various parcels of land in their entirety and portions of land parcels, with a total measurement of approximately 101 acres in total area, owned by separate parties.

The survey area encompasses the following Tax Map Key (TMK) parcels: (2) 3-9-001: 016 (Lot 2A), 169 (Lot 2B), 170 (Lot 2C), 171 (Lot 2D), 172 (Lot 2E), 173 (Lot 2F), and 174 (Lot 2G). The survey area also includes TMKs (2) 2-2-002: 077, por. 16, and por. 82 for easement and water tank purposes. Additionally, TMKs (2) 3-9-001: 148 and (2) 3-9-048: 122 (parts of the original larger parcel before subdivision) located across and adjacent to Pi'ilani Highway, are also included for minor improvement purposes.

The total combined parcels and portions of the preceding parcels shall hereby be referred to as the "survey area". The survey area consists of sparsely vegetated vacant land with gulch terrain historically used for cattle grazing and ranching.

Surrounding land use consists of vacant ranch land, agriculture, gulch terrain, retail, commercial, and residential properties. The site is situated on the western slopes of Haleakala Volcano. The community of Kihei surrounds the site to the north, south, and west, with vacant land between the site and the town of Kula further to the east.

Intended Use of Property

Lots 2A, 2C, and 2D are planned for the Pi'ilani Promenade, a proposed mixed-use development consisting of business/commercial, light industrial, multi-family, and public/quasi-public land uses. Lot 2E is a roadway lot for the future Kaonoulu Street (the first segment of the planned Upcountry Highway), while Lots 2F and 2G are road-widening lots along the Promenade's frontage with Pi'ilani Highway.

Offsite improvements for the Promenade will involve TMK (2) 3-9-001: por. 169 for an irrigation well and waterline easement, TMK (2) 2-2-002: 077 for a water tank site, TMKs (2) 2-2-002: por. 016 and por. 082 for access and utility easements. Additionally, minor improvements will be performed on TMKs (2) 3-9-001: 148 and (2) 3-9-048: 122 located across Pi'ilani Highway.

For example, the gravel lane located immediately south of Ohukai Road is a proposed access utility easement and the eastern extended area located south of the Monsanto Seed Farm is a proposed waterline easement and water tank site.

Records Review

The purpose of a records review is to obtain and review records that will help identify *recognized environmental conditions* in connection with the subject property. The services of Environmental Data Resources, Inc. (EDR) were utilized to compile the database listings.

Our records review did not discover any current investigation of the survey area under any programs conducted by a federal, state, or local environmental agency.

Four (4) potential risk sites, [two are listed as State Hazardous Waste Sites (SHWS) and two are listed as Underground Storage Tank sites (UST)] were identified within a 1-mile radius of the survey area.

The SHWS site Selland Construction, Inc. located at 454 Ohukai Road had a confirmed release in 1994 of diesel fuel and oil due to overfill, equipment maintenance and construction. This area, once called “Ohukai Baseyard”, was likely the construction baseyard for the residential subdivision now located immediately north of Ohukai Road, just north of the northern boundary to the proposed utility/roadway easement of the subject property. According to the EDR and the HEER Office, the case number is 19940218 and was given a “low priority” site status. The initial assessment revealed “hazardous conditions” and as of 1994, the area was continually monitored by Haleakala Ranch. According to the HEER Office’s response to MEV’s inquiry, the case has been listed as “Site On-Scene Coordinator No Further Action” (SOSC NFA). This site did not likely impact the subject property.

Kihei Chevron, located at 1281 S. Kihei Road, is listed as a SHWS but as of 2004 has received a “No Further Action”. MEV does not believe this site would have environmentally adversely affected the subject property due to the distance from the survey area and the down-gradient proximity.

The Kihei Minit Stop, located at 233 Piikea Avenue, currently has three (3) in-use diesel and gasoline tanks. Due to the condition of this site (not currently a leaking UST site), it is not expected that this site will negatively impact the environmental condition of the subject property.

The Kihei Shell gas station (NCT, LLC) is located immediately adjacent to the northwestern corner of the survey area. This UST facility was constructed in 2007 and is not listed as a LUST site. Due to the close proximity and the slightly higher elevation of the gas station with respect to the survey area, this facility may pose a negative impact to the environmental condition of the subject property if in the future a leak of the underground storage tanks should occur.

According to the EDR, five (5) historic auto stations exist within the searchable distance from the survey area. These sites did not likely negatively impact the subject property.

Site Reconnaissance

A site investigation focuses on obtaining information indicating the likelihood of identifying physical *recognized environmental conditions* in connection with the property and assessing the subject property in relation to surrounding land uses and natural surface features. It includes a physical inspection of the real property and any on-site facilities.

On July 23, 2013, MEV geologist, Ms. Amy Mathis conducted an overall site inspection of the survey area. Accessible areas of the property were visually and physically inspected.

The following are significant observations of field conditions: (Appendix A, See Figure 2: Site Plan)

- The majority of the subject property was historically used for cattle grazing and ranch land during the ownership of Kaonoulu Ranch. Networks of cattle grazing paths were noted throughout the site.
- The Monsanto Seed Farm is located immediately east and north of the proposed utility and waterline easements.

- A residential lot with diversified crop cultivation exists immediately west of the proposed utility easement south of Ohukai Road. This lot appears to have an associated residential well and retention basin.
- The Kulanihakoi Gulch forms the majority of the southern property boundary. One (1) off-site structure (stream gauging station) is located in Kulanihakoi Gulch approximately 1,000 feet east of Pi'ilani Highway and about 100 feet south of the southern property boundary. Upon inspection no petroleum-product leakage was noted, but the structure has limited loose and flakey paint that could be lead-based.
- Several small fenced corrals were noted on the premises near the southwest corner associated with the cattle ranching operation. Small cement structures and limited water line infrastructure were noted in the cattle corral area.
- A small portion of the survey area located at the northwest corner appeared to be grubbed and graded with a gravel cap. This 0.5-acre area was used in the past as a construction baseyard for the northern adjoining commercial properties and initial development of the Shell gas station.
- Several boulder debris piles were noted near the aforementioned historic baseyard lot. No hazardous substances were noted in these piles.
- A concrete stormwater diversion ditch exists along the western property boundary. Two off-site culverts run beneath Pi'ilani Highway.
- A small-unnamed gulch dissects the northern and central portion of the survey area. It is possible that limited chemical pesticide runoff from the Monsanto Seed Farm may migrate to the survey area via this gulch.
- One (1) on-site well is located immediately north of a sand stockpile in Lot 2B. This well is used for irrigational purposes.
- Two (2) vehicle tires (regulated items) were noted along the northern property boundary just south of the Kihei Commercial center.
- Numerous wind-blown debris consisting of seed cross-contamination bags were noted in the vicinity of Monsanto Seed farm, within the unnamed gulch and along the proposed waterline easement.
- Limited quantities of miscellaneous debris including household refuse, windblown trash and discarded furniture were noted near the northern boundary.
- A perimeter earthen/boulder berm was noted along the northern property boundary creating a 4-6 foot up-gradient berm. A 6-foot to 10-foot boulder terrace is located in the central portion of the survey area.
- Two (2) derelict vehicles were noted along the proposed utility easement south of Ohukai Road.
- Electrical transmission lines run on the south side of Ohukai Road. Three (3) pole-mounted transformers exist just off-site along Ohukai Road. One (1) pole-mounted transformer exists along the distribution line leading to the off-site residential lot south of Ohukai Road. These transformers are non-PCB-containing (according to serial numbers) and are non-leaking.
- The Pi'ilani Promenade baseyard exists in the northeast corner of Lot 2B, just east of the Monsanto Seed farm. The majority of the baseyard consists of drain culvert and piping materials.
- No bulk hazardous/regulated substances are currently stored on-site.

Conclusions

Recognized environmental conditions, as defined by ASTM Standard E1527-05, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property, or into the ground, groundwater, or surface water of the property.

Recognized environmental conditions are described with regard to (1) the nature and extent of the environmental condition, (2) potential or actual environmental threat, (3) potential for transport (migration) of any environmental conditions, and (4) consideration for further investigation. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment

and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

MEV has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of the ASTM Practice E 1527-05 for the subject property, mostly located mauka (towards the mountain) of Pi'ilani Highway (State Highway 31), due east of Kaonoulu Street, south of Ohukai Road and north of Kulanihakoi Gulch [TMK (2) 3-9-001, parcels 016, 169, 170 – 174, TMK (2) 2-2-002, parcel 077, and 016 & 082 (pors.), TMK (2) 3-9-001: 148 and TMK (2) 3-9-048: 122], in Kihei, Maui, defined as the subject property. Any exceptions to or deletions from this practice are described in Section 1.4, Limitations and Exceptions, of this report.

This assessment has revealed no evidence of *recognized environmental conditions* in connection with the property.

- ***Database Listings***

The survey area is not listed.

The listed, nearby risk sites unlikely pose a significant concern to the subject property.

The northern adjoining Shell gas station does not at the present pose a significant environmental concern to the survey area. However, should this facility have any significant leakages occurring with USTs in the future, this site could adversely impact the subject property.

- ***Current and Historic Use or Storage of Hazardous and Regulated Substances***

There is no evidence of any historic misuse or significant spills of hazardous or regulated substances on the subject property. The Hashimoto family historically cultivated crops north of Lot 2B and 2C. The Monsanto Seed Farm is located immediately north of the proposed waterline easement. The use of limited quantities of pesticides is likely associated with crops in these locations. A small, unnamed gulch transects the Monsanto Seed Farm and continues southwest dissecting the survey area in the north-central area and leads toward Pi'ilani Highway. It is possible that during a heavy rain event, runoff from this cultivated area may cause limited pesticide contaminants to enter the subject property.

Aerial photos indicate that agricultural activities occurred north of the subject property from the early 1960s up until the mid-2000s. Presently, limited diversified agricultural activities continue on the residential property located immediately west of the proposed utility/roadway easement off of Ohukai Road. It is unlikely that the operations of this cross-gradient property have significantly impacted the environmental condition of the subject property. Monsanto began seed farming in the late 1990s. All chemicals used by this facility are legal and are listed for farming use.

According to Hawaii Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals, resulting from the legal application of a pesticide product, does not constitute a release of a hazardous substance and is not considered a *recognized environmental condition*.

While the use of pesticides and herbicides on the adjoining property will not necessarily result in adverse impacts to the environmental condition of the survey area, it is possible (yet unlikely) for residual amounts of these substances to accumulate to concentrations that present a potential threat to human health or the environment. However, due to the small scale size of agricultural activity on the northern adjoining lot, and its cross gradient location relative to the subject property, it is unlikely that pesticide levels on the subject property (soil or groundwater) are above regulated levels. Groundwater sampling and laboratory testing would provide additional information to evaluate potential environmental effects from these agricultural activities. A standard proactive procedure, which is recommended by the State Department of Health, would be to conduct such a survey prior to future development of this site, especially any residential development. There is, however, no regulatory requirement to conduct this sampling. Groundwater sampling and

laboratory analyses should be conducted if the groundwater resource is to be used for a potable water source in the future.

*The concerns listed below may not be considered **recognized environmental conditions** by ASTM definition, however, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.*

- ***Solid Waste Management***

A very limited amount of dumping (special waste and miscellaneous debris) was evident on the subject property. Miscellaneous debris includes but is not limited to household refuse, discarded furniture and former irrigation piping. Numerous Monsanto seed cross-contamination prevention bags were noted along the proposed waterline easement and the northeastern portion of the unnamed on-site gulch. Regulated items requiring special management (automobile tires and derelict vehicles) were noted near the northern property boundary and along the proposed utility easement. Management of these wastes needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the waste type.

Several boulder debris berms and piles were noted on the survey area associated with the northern property boundary. Miscellaneous solid waste items were found within these berms/piles.

Due to limited areas of inaccessible terrain, the entire survey area and underlying soils were not visibly inspected. It is important to note that if additional clearing of the property commences and debris or unidentifiable substances (containers) are further discovered, proper waste identification, testing and applicable waste handling/disposal procedures are followed.

- ***Surface Water and Area Aquifer Protection***

If future land use includes developing the land for residential or commercial use, the developer and property owner should be aware of the potential for contaminants to migrate into any adjacent and proximate drainage ways (including adjacent stormwater concrete culvert which leads west toward Pi'ilani Highway, the on-site unnamed gulch and Kulanihakoi Gulch). Products of concern relating to any future development project or land-clearing activity would be earthen material (silt), paints, oils, antifreezes, and other fluids from automobile or on-site machinery, or leaks from on-site stocked items.

Future land clearing of greater than one (1) acre will likely require both a County of Maui grading/grubbing permit and a National Pollution Discharge Elimination System (NPDES) General Permit (State of Hawaii, Department of Health).

The concerns listed above are presented as a matter of record. They, collectively or independently, do not have any significant impact on the environment, and are not considered by MEV to devalue the subject property at this time in any way.

The conclusions stated above should not be construed to mean that any regulatory agency would have the same opinion as this author, nor is any implication proposed therefrom.

The results of this environmental assessment are intended for general reference purposes only and are not intended as legal advice. The advice of legal counsel should be sought in regard to individual facts, circumstances and interpretation of environmental liability.

Environmental Site Assessment

Phase I Investigation

1.0 INTRODUCTION

A Phase I Environmental Site Assessment (ESA) is conducted to determine if a site may be contaminated with hazardous or toxic substances or wastes resulting from current or past site activities, unauthorized dumping or disposal, or migration of contaminants from adjacent or nearby properties. Its goal is to identify *recognized environmental conditions* on a property that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products. These release conditions apply to structures on the property as well as the soil, groundwater, or surface water of the property. The American Society of Testing and Materials (ASTM) Standard 1527-05, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, is used to "...define good commercial and customary practices for conducting an environmental site assessment of a parcel of commercial real estate."

1.1 Purpose

The study objectives are to characterize the environmental setting of the subject property, to identify any obvious activity of environmental concern that may have occurred at or near the site, and to evaluate potential migration pathways for any identified contaminants. It may also address any activities that affect future considerations for potential environmental impairment to the property.

Another function of this Phase I ESA is to conduct an *all appropriate environmental inquiry* in response to the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the EPA's final rule (40 CFR Part 312), and similar state and local regulations. An ESA "all appropriate inquiry" may provide the buyer, receiver, or lender making a loan secured by the subject real property with a basis to qualify for the *innocent landowner, contiguous property owner, or bona fide prospective purchaser defense* should any legal action be initiated for environmental impairment to the property.

ASTM Publication E1527-05 is recognized by 40 CFR Part 312 as an acceptable guidance document for satisfying the EPA's final "All Appropriate Inquiries" rule.

1.2 Detailed Scope of Services

This Phase I Environmental Site Assessment (ESA) has been prepared for Mr. Robert Poynor, Vice President of Sarofim Realty Advisors, and was conducted pursuant to Malama Environmental's (MEV's) written proposal and contract accepted by Mr. Poynor on July 12, 2013.

There were no other additional services requested of MEV by the Client.

1.3 Significant Assumptions

The assessment of *recognized environmental conditions* relies on: 1) sources of actual knowledge, 2) thorough appropriate inquiry, 3) reviewing reasonably ascertainable documents and records, and 4) conducting a visual and olfactory reconnaissance. In conducting this ESA, MEV has relied on the truthfulness of its inquiry sources and the validity of reviewed records. If obvious indications or MEV actual knowledge contradicted the reported/reviewed information sources, it has been so stated in the appropriate sections of this report.

1.4 Limitations and Exceptions

The investigation performed for this report includes the components of an *all appropriate inquiry* regarding the potential for contamination to exist or have occurred at this site. This investigation is also the basis of an *all appropriate inquiry* into the presence or likely presence, release or threatened release, of hazardous substances and petroleum products at this real property. As indicated earlier, this Phase I Environmental Site Assessment was prepared according to guidelines presented in (ASTM E-1527-05).

Since no ESA can eliminate uncertainty regarding the potential for *recognized environmental conditions* in connection with a property, the limiting intent of this investigation is to reduce the uncertainty to an appropriate level. Minimal requirements for the Phase I ESA include a review of historical records, a review of files and databases compiled by regulatory agencies, interviews with current owners and/or occupants of the property, and a field reconnaissance of the survey area and adjacent areas.

This ESA also takes into consideration the evaluation of other substances and products that are or may be interpreted as excluded under CERCLA. Commonly, these substances are of concern in commercial real estate transactions under current custom and usage and may include, but are not limited to, Radon, Lead-in-Drinking Water, and Special Environmental Resources. Where appropriate, MEV has considered environmental concerns of other federal, state, and local regulations.

Some database resources developed for Maui County are not readily attainable in a useful form or are not cross-referenced in a manner as to be readily discernible. The Maui County Fire Department maintains an electronic database that dates back to January 2000. Information and records prior to 2000 exist on file, as hardcopies, at the Department of Fire and Public Safety Office.

Databases and records utilized for this investigation were limited to those that are reasonably ascertainable; that is, they had to be publicly available, obtainable from its source within reasonable time and cost constraints, and practically reviewable with regard to volume, sorting, and organization. Additionally, the services of *Environmental Data Resources, Inc.* (EDR) were utilized to compile the environmental database listings. See Appendix B.

1.5 Data Gaps

MEV did not encounter any significant *data gaps* during the course of this Phase I ESA Investigation that would affect the ability of the *Environmental Professional* to identify *recognized environmental conditions* pertaining to the subject property.

1.6 Special Terms and Conditions

As a standard practice, a confidential client privilege was initiated by MEV for the work performed and contents of this report. MEV shall ensure that its officers, employees, agents, and independent contractors do not disclose this report or any information contained therein to any person without the proper knowledge and written consent from the Client (or as otherwise required by law). MEV shall ensure that each of its officers, employees, agents, and independent contractors understand and obey these requirements.

The information and opinions provided herein are intended as background data and planning guidance to interested parties. This should not be construed to mean that any regulatory agency would have the same opinion as MEV, nor is any implication proposed.

MEV has performed this study in a competent and professional manner. Since there may be hidden or unknown conditions that may be missed during this inspection, MEV cannot warrant the actual site conditions described in this report.

MEV, LLC

2.0 SITE AND REGIONAL DESCRIPTION

Refer to Figure 1, Regional Setting Map, in Appendix A, for a depiction of the general setting of the survey area in relation to topographic features. Also depicted are the projected groundwater flows, regional surface water flows, and locations of other significant physical features or structures. A regional aerial photo Figure 2 - Site Plan and Figure 3 - Tax Map Key are also located in Appendix A.

2.1 Location and Legal Description

The majority of the survey area is located mauka and east of Pi'ilani Highway (State Highway 31), between the Kihei Commercial Center and Kulanihakoi Gulch and due east of Kaonoulu Street. The proposed utility easement is located due south of Ohukai Road. The proposed waterline easement located immediately south of the Monsanto Seed Farm extends farther east of the main portion of the survey area. The survey area is located in the northern portion of Kihei, Maui, Hawaii. The survey area encompasses the following Tax Map Key (TMK) parcels: (2) 3-9-001: 016 (Lot 2A), 169 (Lot 2B), 170 (Lot 2C), 171 (Lot 2D), 172 (Lot 2E), 173 (Lot 2F), and 174 (Lot 2G). The survey area also includes TMKs (2) 2-2-002: 077, por. 16, and por. 82, TMK (2) 3-9-001: 148, and TMK (2) 3-9-048: 122. Two property access points are associated with the survey area. One is located from the south side of Ohukai Road across from Hale Kai Street and the other is a gated entry, centrally located along the western property boundary, east of Pi'ilani Highway. (See Figure 3, Tax Map, Appendix A.)

2.2 Site and Vicinity General Characteristics

The survey area consists of various parcels of land in their entirety and portions of parcels, with a total measurement of approximately 101 acres in total area.

The site is situated on the western slopes of Haleakala Volcano. The town of Kihei surrounds the site to the north, south, and west, with vacant ranch land between the site and Kula to the east. The Property consists of sparsely vegetated vacant land with gulch terrain historically used for cattle grazing and ranching.

Topography of the property is varied, but generally slopes from east to west. The survey area is at elevations ranging from 25 feet at the southwestern corner near Pi'ilani Highway to 75 feet in the northwest corner and rises to 137 feet along Ohukai Road and 230 feet at the far eastern boundary. The nearest prominent natural features are Kulanihakoi Gulch, which lies just south of the southern boundary and the Pacific Ocean which is located approximately 2,600 feet west of the survey area at its closest point. (See Figure 1, Appendix A.)

Surrounding land use consists of fallow agricultural land, a residential homesite, Kihei Commercial Center, Shell gas station and the Monsanto Seed Farm all located immediately north of the northern property boundary; undeveloped cattle ranch land to the east and south; Kulanihakoi Gulch to the south; and the Pi'ilani Highway to the west. Residential homes exist beyond Pi'ilani Highway farther to the west and north of Ohukai Road.

2.3 Description of Structures, Roads, Other Improvements

The subject property is predominantly undeveloped vacant ranch land. A limited, unpaved road network exists on-site, most notably an unpaved road traversing from the southwestern corner to the northern portion of the eastern boundary. This road marks the division between Makawao District and Wailuku District. ("District" refers to a zone marked off for administrative or other purposes.) A secondary unpaved road runs along the western boundary line of the survey area and along the southern portion of the eastern boundary. Post and wire fences run along the southern property boundary and within the interior of

the survey area. A concrete stormwater diversion ditch exists along the western property boundary adjacent to Pi'ilani Highway. A grubbed/graded 0.5 acre portion located at the northwest corner and directly south of the off-site Shell gas station exists on the premises. This lot was historically used as a baseyard to support the construction activity that took place during the mid-2000s on the northern adjoining property. A cattle corral was noted in the southwestern portion of the property. Small cement structures and limited water line infrastructure were noted in the cattle corral area. One (1) irrigation well is located within Lot 2B just north of the stockpiled sand. A construction dust-prevention fence lies along the western property boundary, installed by Goodfellow Bros, Inc. for upcoming construction activities. An irrigation waterline was noted running parallel to the proposed utility/roadway south of Ohukai Road. This waterline likely supplies Monsanto with crop irrigation water provided by the County of Maui. Electrical transmission lines exist along the south side of Ohukai Road. The remainder of the subject property is predominately undeveloped and no significant structures were noted. See Figure 2: Site Map, Appendix A.

2.4 Current Use of the Property

The survey area consists of approximately 101 acres of undeveloped grazing land, which consists predominately of sparse vegetation (mature trees, tall grasses, and small shrubs). Cattle were not noted by MEV at the time of the site visit and it appears that the survey area is no longer used for cattle ranching. Currently, the northeast corner of Lot 2B is used by Pi'ilani Promenade as a baseyard. Monsanto currently uses the proposed utility and waterline easements for seed farm site access.

2.5 Current Uses of the Adjoining Properties

The current uses of the adjoining properties as observed by the investigator during the site reconnaissance are as follows (see also Figure 2 Site Plan, in Appendix A):

▪ <i>Northern Adjoining Property:</i>	Shell gas station, Kihei Commercial Center (commercial building complex), fallow agricultural land, former cattle ranching land, residential agricultural land, and the Monsanto Seed Farm site. Residential properties are located north of Ohukai Road.
▪ <i>Eastern Adjoining Property:</i>	Undeveloped vegetated ranch land (cattle grazing).
▪ <i>Southern Adjoining Property:</i>	Kulanihakoi Gulch and undeveloped ranch land (cattle grazing).
▪ <i>Western Adjoining Property:</i>	Pi'ilani Highway, beyond which lies residential homes, and vacant land. A residential homesite with limited diversified crop cultivation is located west of the proposed utility/roadway easement.

MEV, LLC

3.0 USER PROVIDED INFORMATION

As a standard of practice, the following information was requested from the Client during the preliminary phases of this investigation:

- Title records and knowledge of environmental liens or activity and land use limitations (AULs);
- Personal, specialized knowledge or experience in regard to *recognized environmental conditions* concerning the property; and
- If applicable, actual knowledge of a significant, low purchase price for the property, and explanation for the lower price.

The purpose of this information is to help identify the possibility of *recognized environmental conditions* in connection with the property. These tasks do not require the technical expertise of an environmental professional and are generally not performed by environmental professionals performing the Phase I ESA. MEV submits a Preliminary Environmental Investigation questionnaire to the Client for this information. The completed questionnaire is attached in Appendix B.

According to information provided by the client-representative in the Preliminary Environmental Investigation, the client-representative is not aware of any environmental liens, proceedings, or investigations against the subject property as of the date of this ESA.

MEV, LLC

4.0 RECORDS REVIEW

The purpose of a record review is to obtain and review records that will help identify *recognized environmental conditions* in connection with the subject property. The service of Environmental Data Resources, Inc. (EDR) was utilized to compile the database listings.

4.1 Standard Environmental Record Sources

The subject property and properties within the minimum search distances were reviewed from the following record sources (see below). Risk sites, if any, that may be located on or adjacent to the subject property, or are within close proximity to the survey area are described. Refer to Appendix B, EDR Radius Map Report, for a complete listing and description of all sites located within the designated search distances, details, and government agency database release dates.

The EDR Report bases the location of the listed risk sites on longitude/latitude information provided by the respective government agency. MEV confirms the locations of risk sites within close proximity to the survey area during the site visit. When the MEV site visit contradicts the EDR Report, it has been so stated.

ASTM E-1527-05 EDR Sources and Recommended Search Distances	
EDR SOURCES	ASTM STANDARD SEARCH DISTANCES (miles)
Federal NPL Site List	1.0
Federal CERCLIS List	0.5
Federal CERCLIS NFRAP Site List	0.5
Federal RCRA CORRACTS Facilities List	1.0
Federal RCRA Non-CORRACTS TSD Facilities List	0.5
Federal RCRA Generators List	0.25
Federal ERNS List	Target property only
State & Tribal – Equivalent NPL	1.0
State & Tribal – Equivalent CERCLIS	0.5
State & Tribal Landfill and/or Solid Waste Disposal Sites	0.5
State & Tribal LUST Sites	0.5
State & Tribal UST Sites	0.25

THE TARGET PROPERTY (SURVEY AREA) IS NOT LISTED ON ANY OF THE FOLLOWING FEDERAL OR STATE DATABASE LISTINGS OF THE EDR REPORT.

Federal Database Listings

National Priorities List (NPL or Superfund) and Proposed NPL, EPA. The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. The Survey area is not listed as an NPL site. Additionally, the EDR report indicates no listings within a 1-mile radius of the Survey area.

Comprehensive Environmental Response, Compensation and Liability Information System List (CERCLIS), EPA. The CERCLIS list contains data on potentially hazardous waste sites that have been reported to EPA by states, municipalities, private companies and private persons, pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites that are either proposed to or on the NPL and sites, which are in the screening and assessment phase for possible inclusion on the NPL. The Survey area is not listed as an NPL site. Additionally, the EDR report indicates no listings within a 0.5-mile radius of the Survey area.

CERCLIS – No Further Remedial Action Planned (NFRAP), EPA. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. The Survey area was not identified as a CERCLIS NFRAP site. Additionally, the database did not identify any CERCLIS NFRAP sites within a 0.5-mile radius.

RCRA CORRACTS, EPA. The CORRACTS report lists hazardous waste handlers with RCRA corrective action activity. The Survey area was not listed as a CORRACTS facility. There are no CORRACTS sites within the recommended search distance of 1-mile.

RCRA (Non-CORRACTS) TSD Facilities. The EPA's RCRA program identifies and tracks hazardous waste from the point of where it was generated to the point of final disposal. The RCRA Treatment, Storage or Disposal (TSD) facility database compiles those reporting facilities that treat, store, or dispose of hazardous waste. The Subject Property is not listed as a RCRA TSD facility. The database did not identify any RCRA TSD facility within the appropriate search radius of 0.5-mile.

Resource Conservation and Recovery Information System (RCRIS), EPA/NTIS. RCRIS includes selective information on sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). The Federal RCRA Generator list includes Large Quantity Generators (LQG), facilities which generate more than 1000 kilograms (kg)/month of hazardous waste, Small Quantity Generator (SQG), facilities which generate less than 1000 kg but more than 100 kg/month and Conditionally Exempt Small Quantity Generator (CESQG), facilities which generate less than 100 kg/month. The Survey area was not listed as a RCRA-LQG, SQG or CESQG. The database did not identify any RCRA generator facilities within the appropriate search radius of 0.25-mile.

Emergency Response Notification System (ERNS), EPA/NTIS. Records and stores information on reported releases of oil and hazardous substances. The database contains information regarding the discharger, release date, material, amount released, incident location and release action taken. The Survey area is not listed as an ERNS facility.

State of Hawaii Database Listings

Sites List State Hazardous Waste Branch (SHWS), DOH. A list of facilities, sites, or areas in which the Office of Hazard Evaluation and Emergency Response (HEER) has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites). The Survey area was not identified as a SHWS. The EDR report indicates two (2) SHWS facilities within the 1-mile search radius from the Target Property.

SHWS Review			
Facility Name and Address	Distance (miles)/Direction	Discussion	Conclusion
Selland Construction, Inc. 454 Ohukai Road	½-1 NE	This site had a confirmed release in 1994 of diesel fuel and oil due to overfill, equipment maintenance and construction. This area, once called "Ohukai Baseyard" was likely the construction baseyard for the residential subdivision now located approximately 0.25-mile north of the subject property. The initial site assessment found hazardous conditions and as of 1994, Haleakala Ranch monitored the site. Approximately 2-feet of gravel were to be removed and remediated. According to the EDR and the HEER Office, the case number is 19940218 and was given a "low priority" site status.	Due to the distance and the status with the DOH, it is unlikely that this facility has impacted the survey area and is not considered a REC at this time. According to the HEER Office's response to MEV's inquiry, the case has been listed as "Site On-Scene Coordinator No Further Action" SOSC NFA. This area now consists of a residential subdivision further indicating that the listed incident has been cleaned up.
Kihei Chevron 1281 S. Kihei Road	1-mile SSW	This site had a confirmed release of a petroleum product at the service station. As of February 2004, the site was properly remediated and awarded a "No Further Action, no hazard for unrestricted residential use".	Due to the distance, elevation status (lower gradient), and the status with the DOH, it is unlikely that this facility has impacted the survey area during the release and is not considered a REC at this time.

Permitted Landfills in the State of Hawaii (SWF/LF), DOH. An inventory of solid waste disposal facilities or landfills in the State of Hawaii. These may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites. The Survey area is not listed. Additionally, the EDR report indicates no listings within the 0.5-mile search radius of the Survey area.

Leaking Underground Storage Tank (LUST) database, DOH. An inventory of reported leaking underground storage tank incidents. The Survey area is not listed as a LUST site. The EDR report indicates no listings within the 0.5-mile search radius of the Survey area.

Underground Storage Tank (UST) database, DOH. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with DOH. The Subject Property is not listed as a UST facility. The EDR report currently has two (2) listed UST facilities located within the appropriate search radius of 0.25-mile from the Survey area.

- ✓ *NCT LLC (Shell Station) – 30 Manao Place (Facility ID# 9-503832):* This site is listed as having two (2) gasoline tanks (12,000 and 7,000 gallon tanks), and one (1) 4,000 gallon diesel tank. This site was constructed in 2007 and is located immediately adjacent to the northwestern corner of the survey area. Currently, this facility is not listed as a Leaking Underground Storage Tank (LUST) site. Due to the close proximity and the slightly higher elevation of the gas station with respect to

the survey area, this facility may pose a negative impact to the environmental condition of the subject property if in the future a leak of the underground storage tanks should occur.

- ✓ *Kihei Minit Stop* – 233 Piikea Avenue (Facility ID# 9-503629): This site is listed as having two (2) gasoline tanks (10,000 and 6,000 gallon tanks), and one (1) 4,000-diesel tank. This site is currently not listed as a LUST site. Due to the distance from the survey area and the current listing with the DOH, this site is not anticipated to negatively impact the subject property at this current time.

EDR Exclusive Records. EDR US Historical Auto Stats: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Five (5) Historical Auto Stations were found within the searchable distance compared to the survey area. Due to the current status of these historic stations (all non-LUST sites) and the distance from the subject property, these sites did not likely negatively impact the subject property.

4.2 Additional Environmental Record Sources

The subject property and properties within the minimum search distances were reviewed from the following record sources. Refer to Appendix B, EDR Radius Map Report, for a complete listing and description of all sites located within the designated search distances, details, and database release dates.

Federal Database Listings

- ▼ **Superfund (CERCLA) Consent Decrees (CONSENT), EPA Regional Offices.** Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites.
 - *The survey area is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the survey area.*
- ▼ **Records of Decisions (ROD), EPA.** ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.
 - *The survey area is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the survey area.*
- ▼ **National Priority List Deletions (De-listed NPL), EPA.** A list of sites that have been deleted from the NPL where no further response is appropriate.
 - *The survey area is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the survey area.*
- ▼ **Facility Index System/Facility Identification Initiative Program Summary Report (FINDS), EPA.** Contains both facility information and 'pointers' to other sources that contain more detail.
 - *The survey area is not listed.*
- ▼ **Hazardous Materials Information Reporting System (HMIRS) DOT.** A list of hazardous material spill incidents reported to DOT.
 - *The survey area is not listed.*

- ▼ **Material Licensing Tracking System (MLTS), Nuclear Regulatory Commission (NRC).** A list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements.
 - *The survey area is not listed.*
- ▼ **Mines Master Index File (MINES), Department of Labor, Mine Safety and Health Administration.** Contains both facility information and ‘pointers’ to other sources that contain more detail.
 - *The survey area is not listed.*
 - *The EDR Report indicates no listings within the ¼-mile search radius of the survey area.*
- ▼ **Federal Superfund Liens (NPL Liens), EPA.** A list of properties whereby the EPA has filed liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability.
 - *The survey area is not listed.*
- ▼ **PCB Activity Database System (PADS).** Identifies generators, transporters, commercial storers and/or brokers and disposers of PCBs who are required to notify EPA of such activities.
 - *The survey area is not listed.*
- ▼ **RCRA Administrative Action Tracking System (RAATS), EPA.** A historical archived database containing records on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by EPA. The database was discontinued on September 30, 1995.
 - *The survey area is not listed.*
- ▼ **Toxic Chemical Release Inventory System (TRIS), EPA.** A list of facilities which release toxic chemicals to the air, water, and land in reportable quantities under SARA Title III, Section 313.
 - *The survey area is not listed.*
- ▼ **Toxic Substances Control Act (TSCA), EPA.** Identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list.
 - *The survey area is not listed.*
- ▼ **Federal Insecticide, Fungicide, & Rodenticide Act (FIFRA)/TSCA Tracking System (FTTS INSP and FTTS), EPA – Office of Prevention, Pesticides and Toxic Substances.** FTTS tracks administrative cases, pesticide enforcement actions, and compliance activities related to FIFRA, TSCA, and Emergency Planning and Community Right-to-Know Act (EPCRA).
 - *The survey area is not listed.*

State of Hawaii Database Listings

- ▼ **Release Notifications (SPILLS), DOH.** Releases of hazardous substances to the environment reported to the HEER Office. The following databases are included in the HEER Spill List:
 - Release Notification Report: a compilation of releases reported to HEER.
 - Hawaii Emergency Planning and Community Right-to-Know Act (HEPCRA): a list of facilities that have submitted Tier II and Form Rs as a reporting requirement.
 - *The survey area is not listed.*
 - *The EDR Report indicates no listings within the one-mile search radius of the survey area.*

▼ **Registered Wells and Dry Wells, DLNR.** (See Section 5.5.6)

- ✓ One (1) registered well is listed for the subject property. The well is owned by Kaonoulu Ranch and is listed as “Kaonoulu Irrigation 1”. This well is used for irrigational purposes only, and will remain in use for irrigation for the upcoming construction project.

According to the EDR, twenty-two (22) wells exist within the searchable distance of 1-mile from the survey area. Eighteen of these well are used for irrigation, one is used for agricultural purposes, one is unused at this time and two are listed as “other”. (See the EDR in Appendix B for more details.)

▼ **Air Quality Permit, DOH.** Current activities conducted on-site do not require an air quality permit.

▼ **Storm Water Discharge (NPDES) Permit, DOH-CWB.** The proposed construction activities for the survey area require a NPDES permit. A concrete stormwater drainage diversion ditch exists on the survey area along the western property boundary indicating that stormwater runoff will enter navigable waters. The unnamed gulch on the survey area also leads toward the concrete ditch. The immediately adjacent Kulanihakoi Gulch also carries runoff toward the Pi’ilani Highway culvert system. Pi’ilani Promenade was awarded a NGPC (Notice of General Permit Coverage) from the DOH. This permit expired as of October 21, 2012. However, Pi’ilani Promenade has filed for an extension and this was granted by the DOH.

County and Other Database Listings

Other local records of environmental interest that were reviewed or considered for review by MEV included:

▼ **Fire Department, County of Maui.** The Maui County Fire Department (MCFD) maintains file material that is not on a database. MCFD was contacted for an inquiry on the subject property. MEV did not receive a response from MCFD regarding any incidents on the survey area.

▼ **Grading/Grubbing Permit, County of Maui.** A grading permit is currently open for the subject property for (2) 3-9-001:016, 170 and 171. The permit number is G 20120039 and was issued April 12, 2012 and expires April 18, 2014. Future land clearing of greater than one (1) acre requires this County of Maui grading/grubbing permit.

▼ **Hazardous Waste Disposal Documents.** MEV did not review any hazardous waste disposal documents.

▼ **Maui Electric Company.** Maintains records on county power transformers regarding PCB-containing equipment and equipment maintenance. No pad or pole-mounted electrical transformers were observed on the subject property. Electrical transmission lines exist along the south side of Ohukai Road. Three (3) pole-mounted transformers are located along these lines immediately adjacent to the northern property boundary of the utility/roadway easement. One (1) pole-mounted transformer exists west of the utility/roadway easement, associated with a residential homesite. The transformers in question are not PCB-containing (according to serial identification numbers) and are not currently leaking.

▼ **Other Environmental Reports.** Environmental site assessment reports were previously completed by Vuich Environmental Consulting (VEC) for the subject property (VEC Phase I ESA dated August 2004 and April 2006). MEV conducted a Phase I ESA in close proximity to the survey area (MEV Phase I ESA Kihei North Master Plan dated April 2010). MEV reviewed all of these reports as valuable historic resources for the subject property and surrounding land.

▼ **Planning & Zoning, County of Maui.** According to the Maui County Department of Planning, the survey area’s zoning for Lots 2A through 2D is M-1, “light industrial”. The zoning for the remaining parcels is considered State Agricultural. The survey area **is not** within the boundaries of the Special Management Area (SMA). The SMA boundary in this area runs parallel to Pi’ilani Highway.

▼ **Property Tax Office, County of Maui.** The Maui County Property Tax Office maintains records of past ownership, maps, sketches and other information as it pertains to the subject property. (See also Section 8.0). According to Maui County Tax Office as of July 23, 2013, the current property owners are listed as the following:

(2) 3-9-001: 169 Lot 2B	Honua'ula Partners LLC
(2) 3-9-001:016 Lot 2A	Pi'ilani Promenade North LLC
(2) 3-9-001: 170-174 (Lots 2C thru 2G)	Pi'ilani Promenade South LLC
(2) 2-2-002: 016	Haleakala Ranch Company
(2) 2-2-002: 082, 077	Kaonoulu Ranch
(2) 3-9-001: 148	State Department of Transportation
(2) 3-9-048: 122	State Department of Transportation

▼ **Wastewater Discharge Permit, County of Maui.** MEV did not identify any wastewater discharge permits registered to the subject property.

4.3 Physical Setting Source(s)

The following sources were reviewed for physical setting information (refer to Section 8.0 for a complete listing):

- Atlas of Hawaii;
- Civil Defense Tsunami Evacuation Map;
- Geologic and Topographic Map (Hawaii Atlas & Gazetteer);
- Groundwater Map and Water Quality Plan for State of Hawaii;
- U.S. Department of Agriculture, Soil Conservation Service, Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, HI;
- U.S. Geological Survey, 7.5 Minute Topographic Map, Pu'u O Kali Hawaii 1983 & 1992.

These data sources were used to provide information regarding physical characteristics of the survey area and surrounding area. This information is typically used in analysis of potential geological trends, which might impact environmental conditions of the survey area. Note that this investigation is not intended to identify geologic hazards associated with the subject property.

4.4 Historical Use Information Regarding the Property and Adjoining Properties

The following historical data sources were reviewed for this report (refer to Section 8.0 for a complete listing):

- Aerial Photographs;
- Department of Planning and Zoning, County of Maui;
- Maui County Fire Department (Fire Prevention Bureau / Hazardous Materials Division);
- Maui County Real Property Tax Records;
- Personal Interviews;
- Sanborn Maps (not available for this location);
- State of Hawaii, Department of Health, Environmental Management Division;
- Environmental Data Resources (EDR);
- Client-supplied survey area and regional vicinity maps;
- VEC Phase I ESA reports dated 2004 and 2006;
- MEV Phase I ESA – Kihei North Master Plan report dated April, 2010.

Historic Aerial Photographs

A series of aerial photographs with coverage of the subject property and surrounding area were examined. See Figure 2 – Site Plan, Appendix A, for clarification of specific location. MEV did not observe any features on aerial photographs examined that would suggest the presence of significant vegetative stress, soil staining, or bulk storage of chemicals such as drums or tanks.

Table 1.0. Historical Aerial Photograph Analysis.		
Date	Aerial Photo Analysis	
2/28/1950 No Scale Provided	SS: N, E, S, W: RG:	Undeveloped, vegetated land. An unnamed watercourse transects the property in a northeast to southwest direction. Kulanihakoi Gulch is visible along the southern property boundary; Undeveloped, vegetated land; Undeveloped, vegetated land; Kulanihakoi Gulch visible; South Kihei Road visible as an unpaved roadway. The sparsely populated community of Kihei is present west of the site.
6/2/1964 No Scale Provided	SS: N: E, S, W: RG:	No significant changes noted except that more vegetation appears to be present. Pi'ilani Highway established as an unpaved road west of the subject property. Ohukai Road exists as an unpaved lane. Agricultural development (orchards and diversified agriculture) and the addition of a small water tank and retention pond is located west of the proposed utility/roadway and north of Lots 2A and 2B. Rectangles resembling crop areas are present at the location of the present-day Monsanto corn farm located just north of the unnamed gulch. These crop rectangles are part of the Hashimoto residential diversified agricultural farm. Initial construction of a residential development is located farther to the north; No significant changes noted; Two street loops and several homes have been constructed in the location of the present day Ohukai Road neighborhood. Agricultural parcels remain immediately west of the present-day Monsanto farm and north of the survey area. The town of Kihei has expanded slightly west of the survey area and the addition of new roads is noted.
10/25/1982 No Scale Provided	SS: N: E: S: W: RG:	A Stormwater diversion ditch is noted along the western property boundary of Lot 2A. Two limited access unpaved roads are noted: one on the western boundary line, and the other transecting the subject property (northeast to southwest). The diagonally transecting dirt road is the division line between the Makawao District and the Wailuku District; Agricultural activities remain. The crop rectangles have been expanded south of the unnamed gulch and parallel to the proposed waterline easement. Completed residential development noted further to the north; No significant changes noted. Large water tank now located farther to the northeast; No significant changes noted; More residential and commercial structures noted west of Pi'ilani Highway; The Ohukai Road neighborhood has been constructed with several streets and tens of homes. The community of Kihei continues to expand west of the site.
10/27/90 No Scale Provided	SS: N: E, S: W: RG:	A network of storm water infrastructure has been added near the western boundary of the subject property adjacent to Pi'ilani Highway. Corral enclosures are noted near the southwestern corner. The proposed waterline easement is not shown in this photo; Ohukai Road is now paved. The orchards once located in the northern adjoining property along Pi'ilani Highway appear fallow. Extensive commercial development noted in place of former crop areas. Diversified crop cultivation remains east of the commercial development zone. Crop rectangles east of the proposed utility easement appear fallow; No significant changes noted; No significant changes noted except for increased residential development; Increasing commercial and residential development; addition of new roads noted.

<p>9/27/96 No Scale Provided</p>	<p>SS: N: E, S: W: RG:</p>	<p>No significant changes noted except that the unpaved road that transected the subject property is more difficult to see; Kihei Commercial Center is now complete. Agriculture activity remains just west of the proposed utility/roadway, but appears fallow farther west and east of this spot. The Ohukai Road neighborhood has been expanded with more streets and homes. No significant changes noted; Construction of residential subdivision west of Pi'ilani Highway is complete. The town of Kihei continues to expand west of the site.</p>												
<p>Google Earth™ 2013</p>	<p>SS: N: E, S: W: RG:</p>	<p>Gravel lot exists in the northwest corner of Lot 2A. The Pi'ilani Promenade baseyard is stationed in the northeast corner of Lot 2B. Numerous unpaved roads exist within the subject property. A sand stockpile is located just south of the baseyard. Boulder berms can be seen on the premises likely from remnant grubbing and grading. Kihei Commercial Center and the Shell gas station. Agricultural activities remain to the north. Monsanto is actively seed farming the crop rectangles remnant from the Hashimoto farm located just north of the proposed waterline easement. No significant changes noted; Increased residential development; The community of Kihei continues to develop.</p>												
<p>Notes:</p> <table border="0"> <tr> <td>SS</td> <td>Survey area</td> <td>S</td> <td>Southern Adjacent Property</td> </tr> <tr> <td>N</td> <td>Northern Adjoining Property</td> <td>W</td> <td>Western Adjoining Property</td> </tr> <tr> <td>E</td> <td>Eastern Adjoining Property</td> <td>RG</td> <td>Regional Area</td> </tr> </table>			SS	Survey area	S	Southern Adjacent Property	N	Northern Adjoining Property	W	Western Adjoining Property	E	Eastern Adjoining Property	RG	Regional Area
SS	Survey area	S	Southern Adjacent Property											
N	Northern Adjoining Property	W	Western Adjoining Property											
E	Eastern Adjoining Property	RG	Regional Area											

MEV, LLC

5.0 SITE RECONNAISSANCE

Information regarding the storm water flow, property layout, physical characteristics, and adjoining property conditions are presented in Figure 2, Site Plan, and site photographs located in Appendix A.

5.1 Methodology and Limiting Conditions

A site investigation focuses on obtaining information indicating the likelihood of identifying *recognized environmental conditions* in connection with the property and assessing the subject property in relation to surrounding land uses and natural surface features. It includes a physical inspection of the real property and any on-site building structures.

On July 23, 2013, MEV geologist Ms. Amy Mathis conducted an overall site inspection of the survey area. The method used to observe the subject property included: (1) walking the approximate perimeter of the subject property where accessible, (2) inspecting the interior of the subject property, (3) inspecting the on-site gulch terrain, (4) conducting random and non-random traverses of the subject property and (5) inspecting all areas of potential storage areas for possible hazardous substances (baseyard). Some of the property perimeter boundaries were effectively defined by survey flags and boundary corner pins. Where boundaries were not physically defined, MEV was able to locate boundaries with the use of geographical features, aerial photos and GPS.

Certain physical obstructions limited the investigator from total property observations of native surface soils. Areas of dense vegetation located on-site, especially in the gulch areas, obscured the underlying surface soils. A limited portion of the survey area's total surface soils was not observable due to the presence of boulder and sand piles. Exposed soils that were observable did not exhibit evidence of gross surface contamination.

Any environmental conditions reported here are not intended to include minimal conditions that 1) generally do not present a material risk of harm to public health or the environment and 2) generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

5.2 General Site Setting

5.2.1 Current and Past Use(s) of the Property

Current Uses

According to the Maui County Tax Office, the current property owners are listed as follows:

(2) 3-9-001: 169 Lot 2B	Honua'ula Partners LLC
(2) 3-9-001:016 Lot 2A	Pi'ilani Promenade North LLC
(2) 3-9-001: 170-174 (Lots 2C thru 2G)	Pi'ilani Promenade South LLC
(2) 2-2-002: 016	Haleakala Ranch Company
(2) 2-2-002: 082, 077	Kaonoulu Ranch
(2) 3-9-001: 148	State Department of Transportation
(2) 3-9-048: 122	State Department of Transportation

The survey area consists of approximately 101-acres of land combining the parcels and parcel portions listed above.

The land is predominately undeveloped and is no longer used for cattle grazing. A portion of the northeast corner of Lot 2B is currently being used as a baseyard for the Pi'ilani Promenade and contains the water well and small head tank. No hazardous/regulated materials are currently being stored within the baseyard. Pi'ilani Promenade Parcels 172 (proposed Kaonoulu Street), 173, and 174 (along Pi'ilani

Highway) will be dedicated to the State of Hawaii. The portion of Haleakala Ranch Parcel 016 will be used as the utility and access easement from Ohukai Road to the site. Monsanto currently uses the proposed utility and waterline easement (Kaonoulu Ranch Parcel 082 portion) for seed plot access. The State Department of Transportation (SDOT) Parcels 148 and Parcel 122 (across and adjacent to Pi'ilani Highway and adjacent to Kaonoulu Street) will have minor improvements performed. Information presented here represents those items visually or physically observed or identified in the interviews or records review.

Past Uses

Historically, the property was vacant dating back to at least 1950, the earliest aerial photograph reviewed. According to the County of Maui Real Property Tax information, Kaonoulu Ranch has owned portions of the survey area for many decades for the purpose of pastureland for cattle. An interview with the previous property owner, Mr. Doug Peterson of Kaonoulu Ranch, informed MEV that the subject property was owned by Kaonoulu Ranch since 1916 and had only been used for cattle grazing and ranch land since the 1800s. Haleakala Ranch owned other areas of the main portion of the survey area. In 2005, the property currently consisting of Lots 2A, 2C, 2D and 2E was sold to Maui Industrial Partners, LLC. In the mid-2000s, a 0.5 acre portion of the property (northwest corner) was used as a construction baseyard for the development of the Shell gas station. According to an interview with the former property owner, aerial photos and county records, this parcel of land was historically only used for ranch land which continued until recently.

5.2.2 Current and Past Use(s) of the Adjoining Properties and Surrounding Area

MEV has researched current uses of adjoining properties and at its discretion, past uses of the adjoining properties and the surrounding areas. Information presented here represents those items visually or physically observed or identified in the interviews or records review. The information is described herein as items that may indicate *recognized environmental conditions* with adjoining properties and those conditions that may indicate a high probability of migration of hazardous substances or petroleum products to the subject property.

Adjoining Property	Period	Land/Property Use	Concerns	Comments
North of Survey area	Past	Agriculture activity.	Historical pesticide application leading to possible soil and groundwater contamination.	<p>Agricultural activity has been active on this site for several decades. During this time, there may have been the use of agricultural pest control chemicals and fertilizers, which have long been recognized by the U.S. Environmental Protection Agency (EPA) for contributing to the potential contamination of surface soils and groundwater systems. Although chemicals used for agriculture could have been regularly used in significant quantities, they degrade with time in soil. Most agricultural chemical concerns typically arise when bulk (full strength) products leak or are spilled onto soils. However, it is possible that chemicals in long-term use remain at, or above, regulated levels.</p> <p>Due to this site's cross gradient location relative to the subject property (Hashimoto farm) and the limited rainfall in this area, it is unlikely that the Hashimoto farm or Monsanto has significantly impacted the subject property. Groundwater testing should be conducted if that resource is to be utilized for domestic purposes.</p>
	Present	Commercial and agricultural activity.	Pesticide application leading to possible soil and groundwater contamination.	<p>See comments above for the same concern.</p> <p>Currently, the Monsanto Seed Farm actively cultivates the portion of land immediately north of the proposed waterline easement. A small, unnamed gulch transects the seed farm and runs toward and onto the survey area. It is possible that limited chemical contamination from the use of pesticides on the Monsanto farm could have migrated onto the survey area via surface runoff during heavy rainfall events. This is a remote possibility given the amount of rainfall in Kihei, but still should be mentioned. It has been brought to MEV's attention that this drainage way will be routed across the top on Kaonoulu Ranch property and then down the right of way for East Kaonoulu Street to its current transition under Pi'ilani Highway. Monsanto uses chemicals that are legally listed and publically available for farm use.</p>
East of survey area	Past	Undeveloped, grazing land.	None.	None.
	Present	Undeveloped, grazing land.	None.	None.

Adjoining Property	Period	Land/Property Use	Concerns	Comments
South of survey area	Past	Undeveloped, grazing land.	None.	None.
	Present	Undeveloped, grazing land.	None.	None.
West of survey area	Past	Undeveloped land.	None.	None.
	Present	Commercial and residential and Pi'ilani Highway.	None.	None.

The development of past uses of the adjoining properties was primarily interpreted from interviews, MEV site reconnaissance, and aerial photographs. Topographic maps and the Hawaii Atlas provided limited regional information.

5.2.3 Topography

The project site lies near the South Maui coastline on the western slope of Haleakala Volcano. The physiographic type feature of the survey area is described as Kula Slightly Dissected Upland.

Topography of the property is varied, but generally slopes from east to west. The survey area is at elevations ranging from 25 feet at the southwestern corner near Pi'ilani Highway to 75 feet in the northwest corner and rises to 137 feet along Ohukai Road and 230 feet at the far eastern boundary. Topographic relief for the property descends more steeply in the vicinity of the on-site gulches and drainages.

The nearest prominent natural features are Kulanihakoi Gulch, which lies just south of the southern boundary and the Pacific Ocean which is located approximately 2,600 feet west of the survey area at its closest point. See Figure 1, Appendix A.

5.2.4 Geology and Soils

The Haleakala Volcanics have been divided into three series. The oldest are the Honomanu Volcanic Series, which is the primitive shield composed of Pahoehoe and aa flows of tholeiite, tholeiitic olivine basalt, and oceanite. Above sea level, later lavas have almost entirely buried this volcanic series. The Kula Volcanic Series overlies the Honomanu Volcanics and is composed predominantly of hawaiiite with lesser amounts of alkalic olivine basalt and ankaramite. Near the summit of Haleakala Volcano, the Kula Series is at least 750 meters thick and near the shore only 15 to 60 meters thick. After a long period of erosion, renewal activity included the flows and cones of the Hana Volcanic Series, which are composed of the same rock type as of the Kula Series, but alkalic olivine basalts and basaltic hawaiiites are predominant over the more siliceous types.

According to the U.S. Department of Agriculture, the following soil series underlies the survey area:

- Waiakoa extremely stony clay loam, 3 to 25% slopes, eroded (WID2).
The Waiakoa 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. The (WID2) soil type is eroded and stones cover 3 to 15% 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. This soil is used for pasture and wildlife habitat.
- The southwestern portion of the property may contain Alae sandy loam, 3 to 7 percent slopes (AaB). Alae Series soil consists of excessively drained soils on alluvial fans on the island of Maui. These soils

developed in volcanic ash and recent alluvium derived from basic igneous rock. Runoff is slow and the erosion hazard is slight. This soil is usually used for sugarcane and pasture.

Other common, surface geologic phenomena investigated in an environmental site assessment are faults, landslides, rock falls, earthquake zones and volcanic eruptions. In 1992, the USGS reevaluated the seismic hazards for the State of Hawaii, and Maui County was classified as Zone 2B. This indicates that in any given year within a 50-year period (average building life span) there is a 10% chance that 1/5 the force of gravity (ground acceleration) during an earthquake will be exceeded.

After examination of the relevant data, it has been determined by MEV that these geologic phenomena are not a factor to the survey area. However, it should be noted that this is not an investigation for geological hazards.

5.2.5 Hydrology

The survey area has an annual average rainfall of approximately 10 inches. The average temperature range from the annual high to the annual low is 85 degrees and 65 degrees Fahrenheit, respectively. The pre-development vegetation zone within this temperature and rainfall range is characterized as Kiawe and lowland shrubs. Characteristic plants consist of Kiawe, koa haole, finger grass, and pili grass.

A small unnamed gulch was identified on-site, running diagonally, in a southwesterly direction through the center of the subject property. The Kulanihakoi Gulch is approximately 40 feet deep and 50 feet wide, and runs close to the southern boundary line of the subject property. At the time of the site visit, both areas were dry and no water flow was observed.

On-site drainage is in a southwesterly direction toward the adjoining concrete storm water diversion ditch located along the western property boundary. (See Figure 2 - Site Plan, Appendix A.)

The pertinent Federal Insurance Rate Maps (FEMA FIRM MAP #15003 0580E dated September 25, 2009 and MAP #150003 0586E dated September 25, 2009), prepared by the United States Federal Emergency Management Agency, depicts the area as determined to be outside the 0.2 percent annual chance floodplain (Zone X).

The Civil Defense Tsunami Evacuation Maps indicate the subject property **is not** within the Tsunami reach-zone. The Pacific Ocean is located approximately 2,600 feet to the west of the site.

5.2.6 Hydrogeology

As with all islands of the United States, Maui is regulated by the Coastal Zone Management Act of the Clean Water Act. These two designations require protective comprehensive plans for groundwater management and limit the extent of certain types of development and land use. One important management criterion is the disposal of wastewater. The State Commission on Water Resource Management has designated the groundwater management area as the **Kamaole Aquifer System** within the **Central Aquifer Sector**. The groundwater underlying the survey area is defined as follows:

Table 2.0. Aquifer Classification of the survey area.						
Aquifer	Aquifer Type: Hydrology & Geology	Status of Groundwater				
		Development Stage	Utility	Salinity (mg/l Cl ⁻)	Uniqueness	Vulnerability to Contamination
Upper	Unconfined, high level aquifer occurring on an impermeable layer (Perched).	Potential Use	Drinking	Fresh <250	Replaceable	High
Lower	Unconfined basal aquifer occurring in horizontally extensive lavas (Flank)	Used	Drinking	Low <250 - 1000	Irreplaceable	Moderate

The following are descriptions of the aquifer classification codes, according to Water Quality Plan: *basal* – freshwater in contact with seawater; *high level* – freshwater not in contact with seawater; *unconfined* – water table is the upper surface of the saturated aquifer; *confined* – aquifer is bounded by impermeable or poorly permeable formations; and *confined or unconfined* – the actual condition is uncertain.

Aquifer Type Geology: flank, dike, flank/dike, perched, dike/perched, and sedimentary.

Development Stage – currently used, potential use, no potential use: Aquifers are differentiated according to those already being used (currently used), those with potential utility (potential use), and those having no potential developability.

Utility – drinking, ecologically important, neither: Identifies aquifers by use.

Salinity – fresh, low, moderate, high, and seawater: The gradation of groundwater from fresh to seawater is a feature of all basal aquifers in Hawaii. The upper limit of the standard for drinking water is 250 mg/l Chlorine (Cl⁻) (fresh) and true seawater has a chloride content of 18,980 mg/l.

Uniqueness – irreplaceable and replaceable: The classes irreplaceable and replaceable are direct EPA derivatives. Virtually all potable water in the state of Hawaii should be considered irreplaceable over the long term.

Vulnerability to Contamination – high, moderate, low, none: Because of the geographical limits of resources, interconnection among groundwater sources and the relatively rapid time of groundwater travel, aquifers can be described as being either vulnerable or not vulnerable to contamination.

The estimated depth to the basal groundwater varies throughout the survey area and is likely to be approximately 35 to 200 feet below the surface (depending on the location on the site) and is projected to flow in a westerly direction. Additionally, perched areas of groundwater may also be underlying the survey area.

The survey area is located makai (seaward) of the Underground Injection Control (UIC). The UIC line is the designated boundary that divides protected inland areas situated over drinking water sources from seaward areas located over non-potable water sources. Sites mauka of the UIC line are considered drinking water sources and permit limitations are imposed by the State Department of Health, Clean Water Branch (CWB).

5.2.7 Potable Water Supply and Sewage Disposal System

The subject property is undeveloped. No potable water or sewage disposal systems have been installed on the survey area.

5.3 Interior and Exterior Observations

5.3.1 Hazardous/Regulated Substances and Petroleum Products in Connection with Identified Uses.

No hazardous/regulated substances and/or petroleum products that are in connection with identified current uses as visually and physically observed on the property were noted at the time of the site visit. No bulk hazardous/regulated substances are currently used or stored on-site.

It should be stated that various amounts of miscellaneous debris were noted within debris boulder berms near the northwestern property boundary. It is possible that when groundbreaking activities commence, hazardous/regulated substances and/or petroleum products could be unearthed in this area (or elsewhere within the property). Should this occur, proper testing, removal and disposal procedures are to be followed.

5.3.2 Hazardous/Regulated Substances and Petroleum Products/Containers (not in connection with identified current uses).

There is no evidence of any historic misuse or significant spills of hazardous or regulated substances on the subject property. The Hashimoto family historically cultivated crops north of Lot 2B and 2C. The Monsanto Seed Farm is located immediately north of the proposed waterline easement. The use of limited quantities of pesticides is likely associated with crops in these locations. A small, unnamed gulch transects the Monsanto Seed Farm and continues southwest dissecting the survey area in the north-central area and leads toward Pi'ilani Highway. It is possible that during a heavy rain event, runoff from this cultivated area may cause limited pesticide contaminants to enter the subject property.

Aerial photos indicate that agricultural activities occurred north of the subject property from the early 1960s up until the mid-2000s. Presently, limited diversified agricultural activities continue on the residential property located immediately west of the proposed utility/roadway easement off of Ohukai Road. It is unlikely that the operations of this cross-gradient property have significantly impacted the environmental condition of the subject property. Monsanto began seeding operations during the late 1990s. According to the Land and Resource Manager for Monsanto, the chemicals used on the crop are labeled farm chemicals that are publically available for common use. Monsanto is not licensed for experimental crop use products.

According to Hawaii Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals, resulting from the legal application of a pesticide product, does not constitute a release of a hazardous substance and is not considered a *recognized environmental condition*. However, it is common practice to conduct a limited soil sampling program on former agricultural lands to ensure residual pesticide concentrations (if any) are at acceptable levels. This is recommended (but not legally required) if residential development is to be undertaken.

MEV observed no hazardous/regulated substances and/or petroleum products not in connection with identified current uses as visually and physically observed on the property at the time of the site visit.

5.3.3 Unidentified Substance Containers

MEV noted two (2) metal storage containers located within the baseyard area. These containers were locked during the time of site reconnaissance. According to Mr. Charlie Jencks, these containers hold general construction materials and do not contain hazardous/regulated materials at this time.

MEV did not observe any unidentified substances suspected of being possible hazardous/regulated substances or petroleum products as visually and physically observed on the property at the time of the site reconnaissance.

5.3.4 Storage Tanks

No indications regarding the historic or current presence of USTs on the survey area were obtained through our review of regulatory databases, interviews, or through MEV's site reconnaissance.

As noted in Section 4.1, the Shell gas station is located immediately adjacent to the northwestern corner of the survey area and has USTs currently in use. This facility was constructed in 2007 and according to the EDR and the DOH UST/LUST file provided by the Solid and Hazardous Waste Branch, this facility is not listed as a leaking UST site. Due to the close proximity and the slightly higher elevation of the gas station with respect to the survey area, this facility may pose a negative impact to the environmental condition of the subject property if in the future a leak of the underground storage tanks should occur.

One (1) water tanker trailer exists on the survey area associated with Pi'ilani Baseyard. During the time of MEV's reconnaissance, this tanker was empty. This tanker does not appear to have ever held petroleum product or other substances besides water.

According to Mr. Dan Clegg, Land and Resource Manager for Monsanto, historically, one (1) 250-gallon diesel tank existed near the proposed waterline easement. No spills are known to have been associated with this tank and MEV found no evidence of the tank or any remnant spills on the premises.

5.3.5 Odors

MEV identified no suspect odors on the subject property.

5.3.6 Pools of Liquid

MEV did not observe any pools or sumps containing liquids suspect to be hazardous substances or petroleum products to the extent visually and/or physically observed on the subject property at the time of the site visit.

5.3.7 Indications of PCBs

Pole or pad-mounted transformers numbered 7777 or above are considered non-PCB containing by the Maui Electric Company.

Electrical transmission lines run on the south side of Ohukai Road and distribution lines run toward the Hashimoto residence located just to the west of the central portion of the proposed utility/roadway easement. Three (3) pole-mounted transformers exist immediately east of the Ohukai Road survey area entrance. One (1) pole-mounted transformer is located at the end of the Hashimoto distribution line. None of the transformers in questions are leaking at this time and all are non-PCB-containing according to the listed serial numbers.

Background Information:

Polychlorinated biphenyls (PCBs) are groups of manufactured organic chemicals that contain 209 individual chlorinated chemicals (known as congeners) and were introduced in 1929. PCBs have been used widely as coolants and lubricants in transformers, capacitors, and other electrical equipment. Products containing PCBs are old fluorescent lighting fixtures, electrical appliances containing PCB capacitors, old microscope oil, and hydraulic fluids.

The manufacture of PCBs stopped in the United States in 1977 because of evidence that they build up in the environment and cause harmful effects. The distribution in commerce of PCB containing items was banned in 1979 (40 CFR 761.20). The EPA aggressively enforces regulations concerning PCB manufacturing, use, distribution, release and disposal under the Toxic Substance Control Act (TSCA). This federal agency extensively regulates the use, servicing, and disposal of PCBs in electrical equipment by enforcing marking, notification, inspection, and record keeping requirements.

5.4 Interior Observations

The subject property is essentially undeveloped with no permanent building structures. This section does not apply.

5.5 Exterior Observations

5.5.1 Pits, Ponds, and Lagoons

There were no areas identified as any man-made or natural depressions that are, or would have been, likely to hold waste liquids or sludge from industrial operations or other activities.

5.5.2 Stained Soil or Pavement

No significant areas of soil staining that indicated gross soil contamination were observed at the time of MEV's site inspection.

If in the future the site should undergo development and a significant release occurs, (>25 gallons), the State of Hawaii is to be notified.

5.5.3 Stressed Vegetation

MEV observed no areas of significant stressed vegetation on the property at the time of the site visit that may have been caused from something other than insufficient water (or flooding).

5.5.4 Solid Waste

There were no indications of significant solid waste dumping or suspect fill materials, mounds, depressions or excavations observed on this property during the site reconnaissance, nor on historic aerial photographs.

The only solid waste items that were identified by MEV on the survey area at the time of the site reconnaissance consisted of the following: (See photos #4, 19, 20 and Figure 2, Appendix B)

- Miscellaneous items (i.e. plastic bags, household refuse and discarded furniture);
- Two automobile tires (2) (special waste) noted near the boulder berm near the northern property boundary;
- One (1) waste dumpster filled with construction materials;
- One landscape debris pile;
- Boulder piles located in the grubbed/graded lot near the northwestern corner. The contents beneath these piles are unknown;
- Perimeter earthen grubbing/grading boulder debris berms along the northern property boundary. Miscellaneous debris items including household refuse were noted within these berms. The contents of these berms are unknown beneath the surficial areas.
- Two (2) derelict vehicles (special waste) were noted immediately west of the central portion of the proposed utility/roadway. No surficial leaks were noted.
- Numerous wax paper bags used by Monsanto to prevent seed cross-fertilization were noted in the unnamed gulch and along the fence line of the proposed waterline easement.

Some wastes may be considered “Special Wastes” according to the Hawaii Administrative Rules (HAR) on Solid Waste, Title 11, Chapter 58.1. Special wastes are those wastes that do not fit in the mixed municipal solid waste (MMSW) category, either by general nature or because of special handling requirements. Special waste categories include: asbestos, sludge, medical waste, used oil, batteries, agricultural wastes, tires, derelict vehicles and white goods (i.e., appliances). Locally, the County of Maui, Department of Public Works, Solid Waste Division administers the disposal of these materials. These wastes need to be disposed of in a permitted solid waste landfill such as the Maui County Central Landfill. Special wastes’ management needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type.

5.5.5 Wastewater or Storm Water – Discharge Drains, Dry Wells, Drainage Ways, and Retention Basins

MEV noted a concrete stormwater drainage diversion ditch system near the western property boundary adjacent to Pi’ilani Highway. This drainage network handles the stormwater from the Pi’ilani Highway and the higher elevation surrounding area. (See photo 16, Appendix B)

The Hashimoto agricultural residence located just west of the proposed utility/roadway and north of Lot 2B has one (1) associated retention basin. This basin is located immediately west of the central area of the proposed utility easement. MEV also noted the presence of a residential well used for irrigation purposes next to this retention basin. The retention basin appeared on aerial photographs in the 1960s and was likely only used for diversified crop irrigation on the farm.

MEV did not identify any outdoor wastewater sumps, dry wells, discharge-drains or retention basins on the subject property.

Future developers should be aware of the potential for contaminants to enter nearby drainage ways (Kulanihakoi Gulch) or storm water discharge drains and drainage systems. Products of concern relating to any future development project would be earthen material (silt), oils, antifreezes and other fluids from automobile or on-site machinery, or leaks from on-site stocked items.

Any future grubbing or grading activity that may take place on the survey area (especially if > 1 acre of soil disturbance), both a Maui County Grading Permit and a Department of Health, Clean Water Branch, NPDES (National Pollutant Discharge Elimination System) permit will likely be required. A grading permit is currently open for the subject property for (2) 3-9-001:016, 170 and 171. The permit number is G 20120039 and was issued April 12, 2012 and expires April 18, 2014. The proposed construction activities for the survey area require a NPDES permit. A concrete stormwater drainage diversion ditch exists on the survey area along the western property boundary indicating that stormwater runoff will enter navigable waters. The unnamed gulch on the survey area also leads toward the concrete ditch. The immediately adjacent Kulanihakoi Gulch also carries runoff toward the Pi'ilani Highway culvert system. Pi'ilani Promenade was awarded a NGPC (Notice of General Permit Coverage) from the DOH. This permit expired as of October 21, 2012. However, Pi'ilani Promenade has filed for an extension and this was granted by the DOH.

5.5.6 Wells

One (1) registered well is listed for the subject property. The well is owned by Kaonoulu Ranch and is listed as "Kaonoulu Irrigation 1". This well is used for irrigational purposes only and will be used for irrigation for the proposed construction project.

According to the EDR, twenty-two (22) wells exist within the searchable distance of 1-mile from the survey area. Eighteen of these well are used for irrigation, one is used for agricultural purposes, one is unused at this time and two are listed as "other". (See the EDR in Appendix B for more details.)

From MEV's observations and database search, there are no other production, domestic, abandoned, irrigation or monitor wells located on the survey area. See Figure 1, Appendix A and EDR with GeoCheck, Appendix B.

5.5.7 Septic and Cesspool Systems

The subject property is essentially undeveloped. This section does not apply. MEV did not obtain evidence of any former septic or cesspool system located on the survey area.

5.6 Non-Scope Considerations

The concerns listed below are not normally considered relevant under CERCLA, however, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

5.6.1 Asbestos-Containing Materials (ACM)

The subject property did not have any permanent on-site building structures that would consist of asbestos-containing materials. MEV was not made aware of any subsurface water lines that could be asbestos-containing.

Background Information:

Asbestos was widely used in building materials and in fire retardant applications up through the 1980s. Asbestos use in the United States did not start to decline until the EPA banned the spray-applied materials

during 1973-1978. Further restrictions on U.S. manufactured asbestos products continued into the 1990s. The EPA ban rule and phase-out of all asbestos-containing materials (ACMs) was to be implemented in stages from 1990 to 1997, but the Rule was overturned in federal court.

Asbestos is a known health hazard causing progressive lung scarring and cancer. Asbestos related conditions usually develop within 15 to 40 years after exposure. Exposed smokers have an increased risk factor of 50 to 90 times that of the non-smoking population.

State and federal rules have established standards for the use and control of ACM. These standards apply to worker protection, notification procedures, renovation/demolition activities, and construction debris (waste) management.

Under the EPA's Asbestos Hazard Emergency Response Act (AHERA), 40CFR763, asbestos-containing material (ACM) is defined as any substance whose asbestos content exceeds one percent (1%) of the total volume as determined by Polarized Light Microscopy (PLM) analysis. Building inspector training, sampling procedures and laboratory analysis are also addressed under this rule. Some aspects of this rule have been extended to public and commercial buildings. The Hawaii Administrative Rules 11-502 have essentially adopted EPA's AHERA standard.

Current OSHA regulations for occupational exposure to asbestos hazards require commercial building owners to *presume* all thermal system insulation, sprayed or textured surfacing materials and asphaltic and vinyl flooring installed in buildings constructed before 1981 to contain ACM. The Federal Occupational Safety and Health Act (OSHA) Construction Standard for Asbestos requires that building owners communicate any potential or actual asbestos hazards (29CFR1926.1101(k)). Owner/Operators must inform in-house employees and any outside contractor (workers) who apply or bid for work in or adjacent to areas known or *presumed* to contain asbestos. Included asbestos materials are Thermal system insulation (TSI), sprayed or troweled-on surfacing materials, and asphalt or vinyl flooring material installed prior to 1981. Hawaii Occupational Safety and Health (HIOSH) under HAR 12-141.1 has adopted the federal standard.

Under EPA's National Emission Standards for Hazardous Air Pollutants (NESHAP) 40CFR Part 61, are requirements for renovation and demolition work involving ACM.

5.6.2 Lead-Based Paint

The subject property did not have any permanent on-site building structures that would consist of possible lead-based paint materials. MEV did not find any suspect lead-based paint debris within the survey area.

Background Information:

Lead is a metal element in pure form but is found in other chemical compounds used within manufactured and formulated products. Among these are pipe solder, paint and other coatings and water pipes - items commonly found in older buildings and homes.

Lead becomes toxic to the human body even in low levels by chronic over exposure. The exposure may occur by breathing dust, eating dust (on food, tobacco, fingers, or eating paint chips (children)). Lead poisoning affects the brain and central nervous system; especially susceptible are young children. Lead is also known to impact kidney and liver functions.

The EPA/HUD defines lead-based paint as paint or other coatings containing lead equal to or in excess of 0.5% lead by weight or 1.0 mg/cm². The prevalence of lead-based paint in housing built before 1940 is especially high according to research conducted by the U.S. Department of Housing and Urban Development (HUD). After 1940, its use diminished until 1972 when U.S. manufactured housing paint became regulated at 0.5 percent lead by weight and "banned" in 1978; this means that paint could not be

manufactured and sold for housing use if it contained lead above the U.S. Consumer Products Safety Commission's (CC) 0.06 percent by weight. The "ban" provided a basis for using the cut-off date of 1978 when disclosing the possibility of lead-containing paint in sales and rentals of housing units.

Any detected lead-level in paint below HUD and the CPSC's criteria remains an environmental concern under the U.S. Occupational Safety and Health Administration's (OSHA) Lead Standard for Construction Workers, 29CFR1926.62 and the HIOSH equivalent, HAR 12-148.1. Communication of lead-levels in paint is required for worker safety, when conducting renovation or demolition, and for construction debris (waste) management.

5.6.3 Arsenic-Containing Substances

MEV did not observe any on-site structures or any suspect arsenic-containing building materials or waste materials at the time of the site visit.

Background Information:

Arsenic, like several other heavy metals, tends to accumulate in the body. Ingestion of a small dose may seemingly exert no adverse effect at all, while ingestion of multiple small doses could cause death. In lesser amounts, arsenic-containing compounds cause other health problems, like mottling of the skin, skin lesions, nervous disorder, and severe, irreversible liver damage. Arsenic is a human carcinogen, causing skin tumors when ingested and lung tumors when inhaled.

Arsenic-containing compounds were once used as components of some inorganic pesticides. In the 1940s, these pesticides were used to control insects and rodents.

To protect against exposure to high arsenic concentrations, OSHA requires workers to use air-purifying respirators and to wear protective clothing in areas where airborne arsenic compounds are known to exist.

The Resource Conservation and Recovery Act (RCRA), Subtitle C lists arsenic and arsenic-containing compounds as a hazardous waste. Therefore, construction/demolition debris (waste) management should be conducted in accordance with all Federal, State, and Local regulations. This typically requires waste segregation into construction material and dust/debris waste. Sampling using the Toxicity Leach Characteristic Procedure (TCLP) for arsenic is required for hazardous waste determination.

5.6.4 Radon

MEV did not identify any man-made products on the subject property that are known or suspected to emit radioactive decay elements.

Background Information:

Radon is a colorless and odorless radioactive gas that can produce health effects such as cellular injury. Radon gas can occur in the natural environment as concentrations from certain rocks and geologic conditions have a high radon-emanation potential.

These surface rock types are not known to occur in Hawaii. It is possible that increased concentrations of Radon could occur in regions where geologic fault and volcanic rift zones may release gases from deeper earth sources. However, the State of Hawaii, Department of Health (DOH) has not addressed concerns for any significant levels of gas to occur anywhere in Hawaii. This was based on the 1992 and 1996 DOH investigations conducted in elementary schools throughout the State.

5.6.5 Lead in Drinking Water

The subject property is undeveloped. This section does not apply.

5.6.6 Ecological Resources, Endangered Species, Cultural and Historic Resources, and Wetlands

There are no known wetlands, critical habitats, or threatened and/or endangered species on the project site. The survey area is not located within the County of Maui's Special Management Area (SMA).

Rock piles were noted on the subject property, however, their significance, if any, is unknown to MEV. According to a Phase I ESA of the survey area conducted by VEC, in 1994 Xamanek Researchers and Munekiyo, Arakawa & Hiraga, Inc. conducted an archaeological inventory surveys, for the subject property. This report documented a total of twenty-one (21) archaeological sites, twenty (20) of which were assigned State Inventory of Historic Places numbers. Of these sites, nineteen (19) were deemed significant for information content and have had sufficient data collected rendering them complete with no further archaeological work necessary. One (1) petroglyph was found on the premises, removed and slated for permanent preservation in a separate location. Based on Munekio's findings, the subject property underwent a historic preservation review by the State Historic Preservation Division in 2007. This more recent investigation concluded that no historic properties will be affected by the proposed intended property use.

5.6.7 Indoor Air Quality

The subject property is undeveloped. This section does not apply.

5.6.8 High Voltage Transmission Lines

MEV did not identify any high voltage overhead transmission lines on the subject property. Electrical transmission lines run on the south side of Ohukai Road leading toward Pi'ilani Highway.

MEV, LLC

6.0 INTERVIEWS

MEV conducts interviews with persons that may have specific knowledge on the subject property and any land use activities that may have operated on-site in the past or continue to currently operate on the subject property. Interviews are also an effective tool to better understand the overall historical regional and local setting of the survey area. Whenever possible, MEV attempts to interview the present and past owner(s), site manager, occupants, local government officials and other relevant contacts. See also Section 8.3.

6.1 Interview with the Property Owner

In MEV's 2010 Phase I Environmental site investigation of the subject property, information provided by the client representative in the Preliminary Environmental Investigation, Douglas Gray of Pi'ilani Promenade LLC c/o Eclipse Development Group was not aware of any environmental liens, proceedings, or investigations against the subject property as of the date of the 2010 ESA.

The property owner representative, Mr. Charlie Jencks, completed an updated environmental investigation form for this ESA. The completed questionnaire is attached in Appendix B.

6.2 Interview with Current Property Owner Representative

In 2010, MEV conducted a previous Phase I ESA on a portion of the current survey area. For the previous ESA, MEV spoke with Mr. Charlie Jencks of Maui Industrial Partners, LLC, (former owner) representative for the survey area. Mr. Jencks informed MEV that the survey area was purchased from Kaonoulu Ranch in 2005. To his knowledge, the historic baseyard located at the northwestern corner of the property did not have any significant spills and did not store bulk amounts of hazardous substances/materials.

Mr. Jencks provided valuable information for this current Phase I ESA. Mr. Jencks provided MEV with permit information, the on-site well information, a subdivision map and property boundary information. Mr. Jencks told MEV that a portion of the property is slated for the development of 200 residential units, a waterline easement and water tank, and a utility easement. Mr. Jencks also informed MEV that the on-site baseyard contains construction materials for Pi'ilani Promenade and that currently there is no bulk storage of petroleum products and/or hazardous materials on the premises. The on-site well was drilled with State permits and is intended for irrigation use in the project. As for the unnamed drainage way, the small one traversing the property will be routed across the top on Kaonoulu Ranch property and then down the right of way for East Kaonoulu Street to its current transition under Pi'ilani Highway. Mr. Jencks informed MEV in the updated Environmental Investigation that the he is not aware of any recognized environmental conditions on the survey area.

6.3 Interview with Previous Property Owner Representative

MEV spoke with Mr. Doug Peterson of Kaonoulu Ranch, the previous property owner representative. Mr. Peterson informed MEV that Kaonoulu Ranch purchased the survey area in 1916 from the Cornwell family. Mr. Peterson said that during Kaonoulu Ranch ownership, the subject property was only used for cattle grazing and ranch land. No above ground storage tanks, underground storage tanks or pesticides were used on the premises. Mr. Peterson also informed MEV that prior to their ownership the land was also used for cattle grazing and ranch land since the 1800s.

6.4 Interview with Adjoining Property Lessee

MEV spoke with Mr. Dan Clegg, the Land and Resource Manager with Monsanto. Mr. Clegg informed MEV that Monsanto began using the former Hashimoto agricultural plot located to the east of the proposed utility easement during the late 1990s. Mr. Clegg said that historically, one 250-gallon diesel tank was stored on the Monsanto seed farm site, but is no longer present. No spills have been associated with this

former tank. Mr. Clegg also mentioned that there were crop chemicals stored in a shipping container located on the northern side of the seed farm site. He is unsure if they are still present. All chemicals used are commercially available products specifically labeled for crops and commercially identified for farming. Monsanto is not licensed for experimental use product. Mr. Clegg is not aware of any spills or recognized environmental conditions associated with the seed farm site.

6.5 Other Persons Interviewed

A list of any additional persons interviewed during the course of this investigation is located in Section 8.3. None of these persons interviewed had any specialized knowledge of the site relating to *Recognized Environmental Conditions* on the survey area.

MEV, LLC

7.0 FINDINGS, OPINIONS, AND CONCLUSIONS

7.1 Recognized Environmental Conditions

Recognized environmental conditions, as defined by ASTM Standard E1527-05, are the presence or likely presence of any hazardous substance or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property.

Recognized environmental conditions are described with regard to (1) the nature and extent of the environmental condition, (2) potential or actual environmental threat, (3) potential for transport (migration) of any environmental conditions, and (4) consideration for further investigation. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

MEV has performed this Phase I Environmental Site Assessment in conformance with the scope and limitations of the ASTM Practice E 1527-05 for the subject property, mostly located mauka (toward the mountain) of Pi'ilani Highway (State Highway 31), between the Kihei Commercial Center and Kulanihakoi Gulch and due east of Kaonoulu Street's eastern terminus. Proposed utility easements included in the survey area are located along a gravel lane south of Ohukai Road and extend farther east immediately south of the Monsanto Seed Farm site. The survey area is located in the northern portion of Kihei, Maui, Hawaii.

The site consists of eight (8) parcels of land in their entirety and portions of three (3) land parcels, with a total measurement of approximately 101 acres in total area. The site is further described on the Tax Maps of the State of Hawaii as follows:

Division 2, Zone 3, Section 9, Plat 1, Parcel 16 (Lot 2A), 169 (Lot 2B), 170 (Lot 2C), 171 (Lot 2D), 172 (Lot 2E), & 34 (portion). The site also includes Division 2, Zone 2, Section 2, Plat 2, Parcels 16 & 82 (portions) and parcel 77, Division 2, Zone 3, Section 9, Plat 1, Parcel 48, and Division 2, Zone 3, Section 9, Plat 48, Parcel 122.

Any exceptions to or deletions from this practice are described in Section 1.4, Limitations and Exceptions, of this report.

This assessment has revealed no evidence of *recognized environmental conditions* in connection with the property.

7.1.1 Database Listings (See Section 4.0 & EDR Report, Appendix B)

Findings/Concerns:

Our records review did not discover any current investigation of the survey area under any programs conducted by a federal, state, or local environmental agency.

Two (2) potential risk sites, listed as State Hazardous Waste Sites (SHWS) were identified within a 1-mile radius of the survey area.

Selland Construction, Inc. located at 454 Ohukai Road had a confirmed release in 1994 of diesel fuel and oil due to overflow, equipment maintenance and construction. This area, once called "Ohukai Baseyard" was likely the construction baseyard for the residential subdivision now located immediately northwest of the subject property. According to the EDR and the HEER Office, the case number is 19940218 and was given a "low priority" site status. The initial assessment revealed "hazardous conditions" and as of 1994, the area was continually monitored by Haleakala Ranch.

Kihei Chevron located at 1281 S. Kihei Road is listed as a SHWS due to a station spill.

Two (2) UST sites are located within the searchable distance of 0.25-mile from the survey area. *NCT LLC (Shell Station)* and *Kihei Minit Stop* both have in-use USTs.

Opinions/Conclusions:

According to the HEER Office's response to MEV's inquiry regarding the Selland Construction incident, the case has been listed as "Site On-Scene Coordinator No Further Action" SOSC NFA. Based on the gathered information, MEV concludes that this incident did not have any adverse effect on the subject property. The area where this occurred is now a residential subdivision, further indicating that this site has indeed been cleaned up and properly managed.

The above-noted Kihei Chevron site is listed as of 2004 as having received a "No Further Action". MEV does not believe this site would have environmentally adversely affected the subject property due to the distance from the survey area and the down-gradient proximity.

Due to the distance from the survey area and the current listing with the DOH (non-LUST sites), the listed UST sites are not anticipated to negatively impact the subject property at this current time.

It should be noted that the Shell station was constructed in 2007 and is located immediately adjacent to the northwestern corner of the survey area. Currently, this facility is not listed as a LUST site. Due to the close proximity and the slightly higher elevation of the gas station with respect to the survey area, this facility may pose a negative impact to the environmental condition of the subject property if in the future a leak of the underground storage tanks should occur.

7.1.2 Current and Historic Use or Storage of Hazardous and Regulated Substances (See Sections 5.3.1 & 5.3.2)

Findings/Concerns:

There is no evidence of any historic misuse or significant spills of hazardous or regulated substances on the subject property. The Hashimoto family historically cultivated crops north of Lot 2B and 2C. The Monsanto Seed Farm is located immediately north of the proposed waterline easement. The use of limited quantities of pesticides is likely associated with crops in these locations. A small, unnamed gulch transects the Monsanto Seed Farm and continues southwest dissecting the survey area in the north-central area and leads toward Pi'ilani Highway. It is possible that during a heavy rain event, runoff from this cultivated area may cause limited pesticide contaminants to enter the subject property.

Aerial photos indicate that agricultural activities occurred north of the subject property from the early 1960s up until the mid-2000s. Presently, limited diversified agricultural activities continue on the residential property located immediately west of the proposed utility/roadway easement off of Ohukai Road. It is unlikely that the operations of this cross-gradient property have significantly impacted the environmental condition of the subject property. Monsanto began seeding operations during the late 1990s. According to the Land and Resource Manager for Monsanto, the chemicals used on the crop are labeled farm chemicals that are publically available for common use. Monsanto is not licensed for experimental crop use products.

MEV observed no hazardous/regulated substances and/or petroleum products not in connection with identified current uses as visually and physically observed on the property at the time of the site visit.

Opinions and Conclusions:

According to Hawaii Administrative Rules, Chapter 128D Environmental Response Law, the presence of agricultural chemicals, resulting from the legal application of a pesticide product, does not constitute a release of a hazardous substance and is not considered a *recognized environmental condition*.

While the use of pesticides and herbicides on the adjoining property will not necessarily result in adverse impacts to the environmental condition of the survey area, it is possible (yet unlikely) for residual amounts of these substances to accumulate to concentrations that present a potential threat to human health or the environment. However, due to the small scale size of agricultural activity on the northern adjoining lot, and its cross gradient location relative to the subject property, it is unlikely that pesticide levels on the subject property (soil or groundwater) are above regulated levels. Groundwater sampling and laboratory testing would provide additional information to evaluate potential environmental effects from these agricultural activities. A standard proactive procedure, which is recommended by the State Department of Health, would be to conduct such a survey prior to future development of this site, especially any residential development. There is, however, no regulatory requirement to conduct this sampling. Groundwater sampling and laboratory analyses should be conducted if the groundwater resource is to be used for a potable water source in the future.

7.2 Other Environmental Concerns

The concerns listed below may not be considered *recognized environmental conditions* by ASTM definition. However, they may be considered regulated under other environmental laws and ordinances and may present a potential liability to the property owner.

7.2.1 Solid Waste Management (See Section 5.5.4)

Findings/Concerns:

MEV observed limited solid waste dumping on the survey area. The majority of the solid waste material found consisted of limited amounts of household refuse, discarded furniture, plastic bags, wax paper seed bags, landscape debris piles, construction materials and several boulder piles/boulder berms. Regulated items found on the survey area included two (2) automobile tires and two (2) derelict vehicles.

Opinions and Conclusions:

Any waste disposal should be in a permitted solid waste landfill or recycled/managed in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type with special attention given to regulated items.

Some wastes may be considered “Special Wastes” according to the Hawaii Administrative Rules (HAR) on Solid Waste, Title 11, Chapter 58.1. Special wastes are those wastes that do not fit in the mixed municipal solid waste (MMSW) category, either by general nature or because of special handling requirements. Special waste categories include: asbestos, sludge, medical waste, used oil, batteries, agricultural wastes, tires, derelict vehicles and white goods (i.e., appliances). Locally, the County of Maui, Department of Public Works, Solid Waste Division administers the disposal of these materials. These wastes need to be disposed of in a permitted solid waste landfill such as the Maui County Central Landfill. Special wastes’ management needs to be performed in a manner that complies with all local, state, and federal regulations as applicable to the specific waste type.

Regarding the boulder debris piles/berms, it is important to note that if additional clearing of the property commences and large amounts of construction debris or unidentifiable substances (containers/drums) are discovered, proper waste identification, testing and applicable waste handling/disposal procedures are followed.

7.2.2 Surface Waters and Area Aquifer Protection (See Section 5.5.6)

Findings/Concerns:

The property owner should be aware of the potential for contaminants to migrate off-site and into nearby storm water drains. Products of concern would be silt, oils, antifreezes and other fluids from automobile or on-site machinery.

Opinions and Conclusions:

In order to minimize the regulatory profiling of the survey area as a potential responsible party for any newly discovered groundwater or surface water contamination, property managers should consider implementing conservative, proactive environmental policies for the current and future tenants.

The conclusions stated above should not be construed to mean that any regulatory agency would have the same opinion as this author, nor is any implication proposed therefrom.

The results of this environmental assessment are intended for general reference purposes only and are not intended as legal advice. The advice of legal counsel should be sought in regard to individual facts, circumstances and interpretation of environmental liability.

MEV, LLC

8.0 REFERENCES

8.1 Published References

1. American Standard of Testing and Materials, Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, E1527-05, 2005.
2. “Atlas of Hawaii”, 2nd Edition, Department of Geography, University of Hawaii at Hilo, 1983, University of Hawaii Press.
3. “Atlas of Hawaii”, 3rd Edition, Department of Geography, University of Hawaii at Hilo, 1998, University of Hawaii Press.
4. County of Maui, Real Property Tax Division, Historical Records for TMK Number (2) 3-9-001:34 (portion), (2) 3-9-001: 016, 169, 170, 171, 172, (2) 2-2-002: 016, 82 (portions), and (2) 2-2-002: 77.
5. Hawaii Administrative Rules, Title 11, Department of Health, Chapter 58.1, Solid Waste Management Control.
6. State of Hawaii, Department of Health, Solid and Hazardous Waste Branch, Underground Storage Tank Section, List of Leaking Underground Storage Tank Release Sites, April 2013.
7. State of Hawaii, Department of Health, Solid and Hazardous Waste Branch, Underground Storage Tank Section, List of Underground Storage Tank Facilities, April 2013.
8. State of Hawaii, Department of Health, Voluntary Response Program (VRP), List of Voluntary Response Program Sites, April, 2013.
9. State of Hawaii, Department of Health, Office of Hazard Evaluation and Emergency Response, List of Release Notifications, April, 2013.
10. State of Hawaii, Department of Health, Office of Hazard Evaluation and Emergency Response, List of Sites List, April 2013.
11. State of Hawaii, Department of Land and Natural Resources, Registered Wells and Dry Wells.
12. State of Hawaii, Department of Land and Natural Resources, “State of Hawaii Water Quality Plan and Groundwater Map”, June 1990, Revised December 1991.
13. U.S. Department of Agriculture, Soil Conservation Service, “Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii”, 1972.

8.2 Map and Other References

1. Environmental Data Resources, Inc., “The EDR Radius Map™ Report with Geocheck®”, July 29, 2013.
2. Federal Emergency Management Agency, “Flood Insurance Rate Map”, Numbers #15003 0580E dated September 25, 2009 and MAP #150003 0586E dated September 25, 2009.
3. Sanborn Maps (no coverage).
4. U.S. Geological Survey, 7.5 Minute Topographic Map, Pu’u O Kali Hawaii 1983 & 1992.
5. <http://www.mauipropertytax.com/Main/Home.aspx>

8.3 Record of Personal Communications

Table 3.0. List of personal Interviews conducted by MEV.

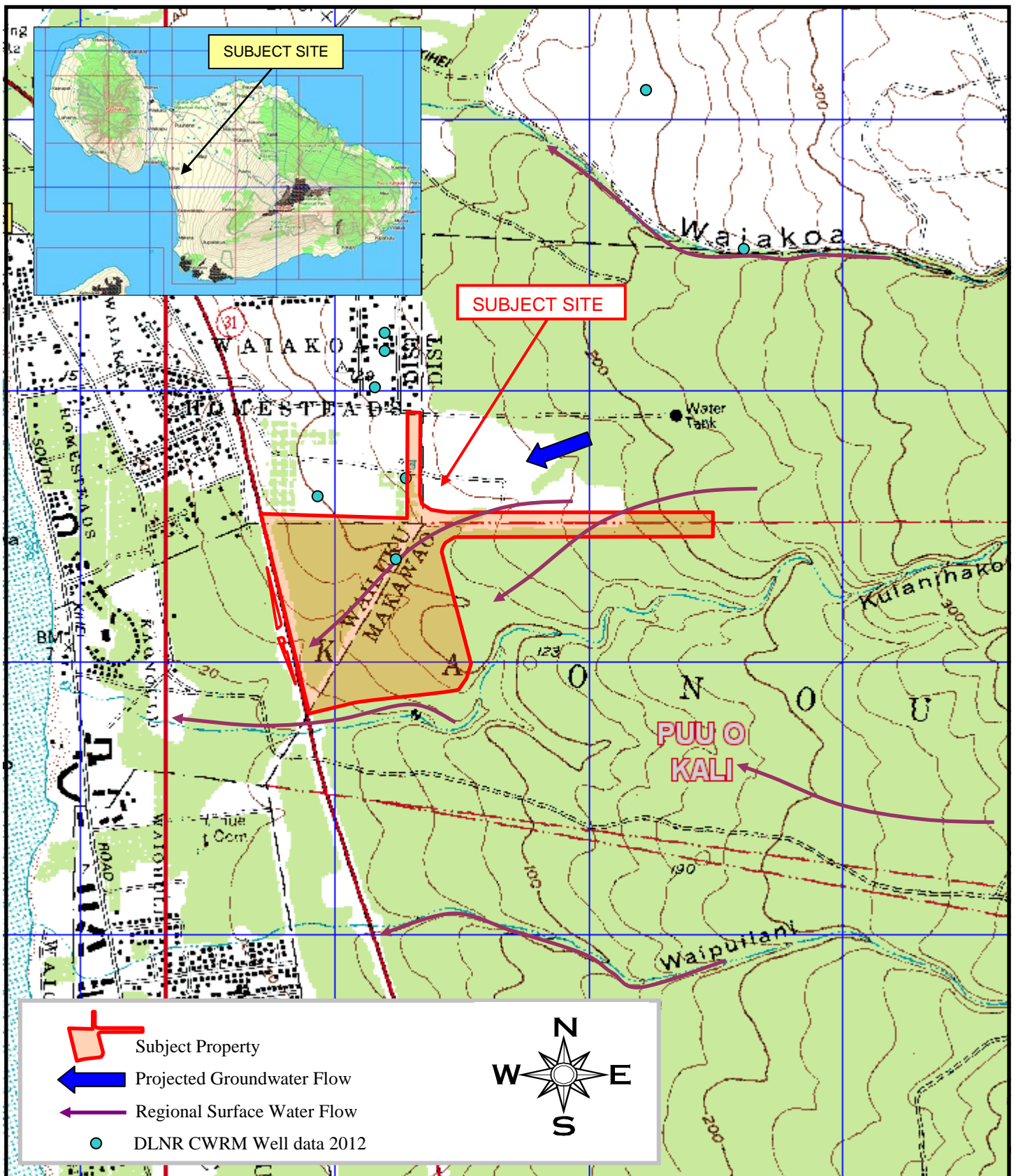
Date	Interviewee	Title & Organization	Address	Phone Number
7/29/13	Mr. Charlie Jencks	Current property owner representative – Pi’ilani Promenade LLC	2111 Pi’ilani Highway Kihei, HI 96753	(808) 250-3178
8/2/13	DOH personnel	Clean Water Branch	919 Ala Moana Blvd., Rm 206 Honolulu, HI 96814	(808) 586-4309
8/6/13	Mr. Dan Clegg	Monsanto Land and Resource Manager	2111 Pi’ilani Highway Kihei, HI 96753	(808) 283-4028
8/4/10	Mr. Douglas Gray	Client – Pi’ilani Promenade, LLC c/o Eclipse Development Group	17802 Sky Park Circle Suite 200 Irvine, CA 92614	(949) 251-1161
8/12/10	Mr. Charlie Jencks	Current property owner representative – Maui Industrial Partners, LLC	2111 Pi’ilani Highway Kihei, HI 96753	(808) 250-3178
8/12/10	Ms. Lauren Tokura	Clean Water Branch	919 Ala Moana Blvd., Rm 206 Honolulu, HI 96814	(808) 586-4309
3/25/10	HI DOH HEER Office	HEER personnel	919 Ala Moana Blvd., Rm 206 Honolulu, HI 96814	(808) 586-4249

MEV, LLC

Appendix A:

Maps, Plans, and Photographs

FIGURE 1: REGIONAL SETTING MAP



© 1999 DeLorme Yarmouth, ME 04096 Source Data: USGS

750 ft Scale: 1 : 25,000 Detail: 13-0 Datum: WGS84

FIGURE 2: SITE MAP

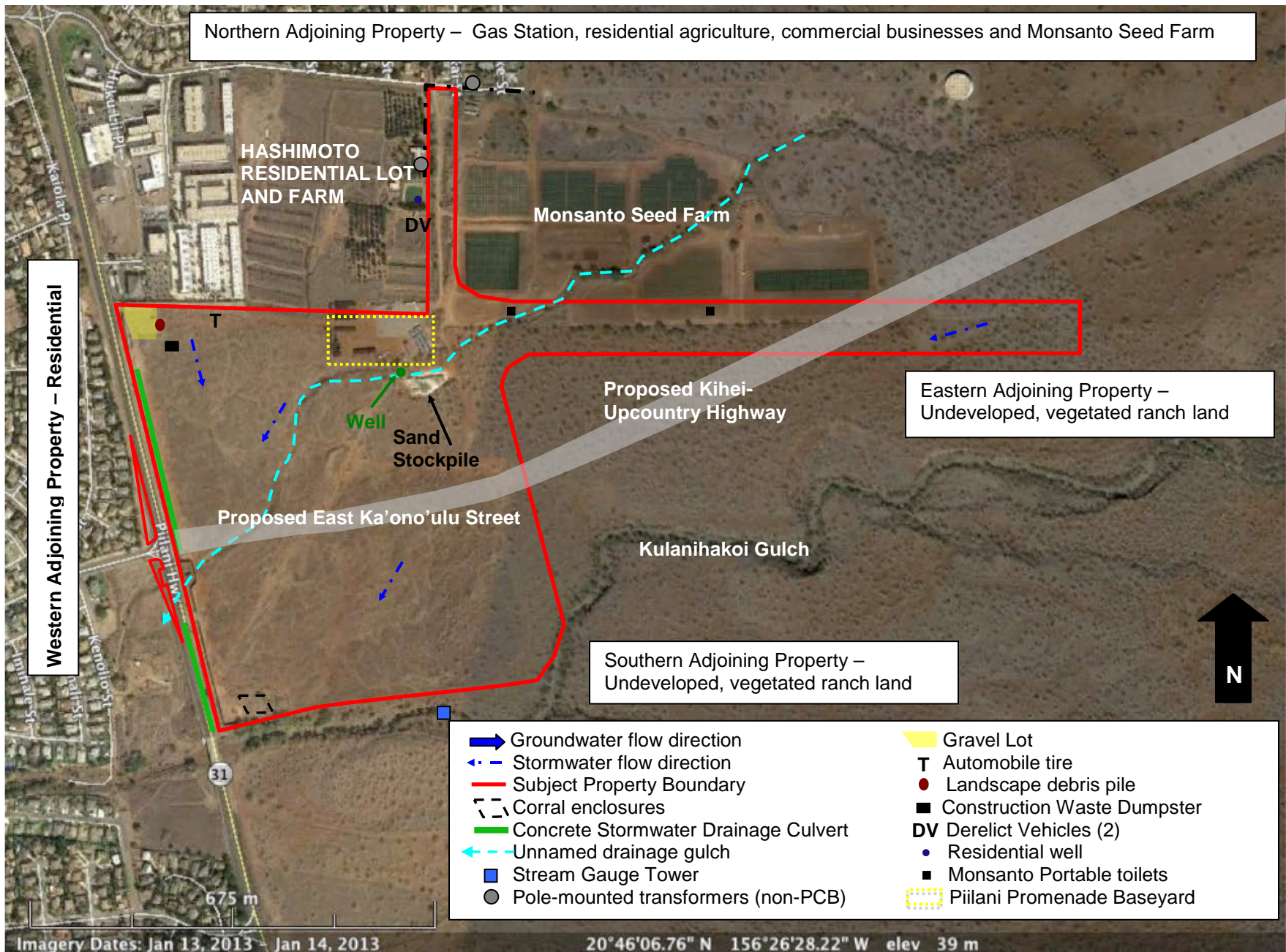


FIGURE 3: TAX MAP KEY

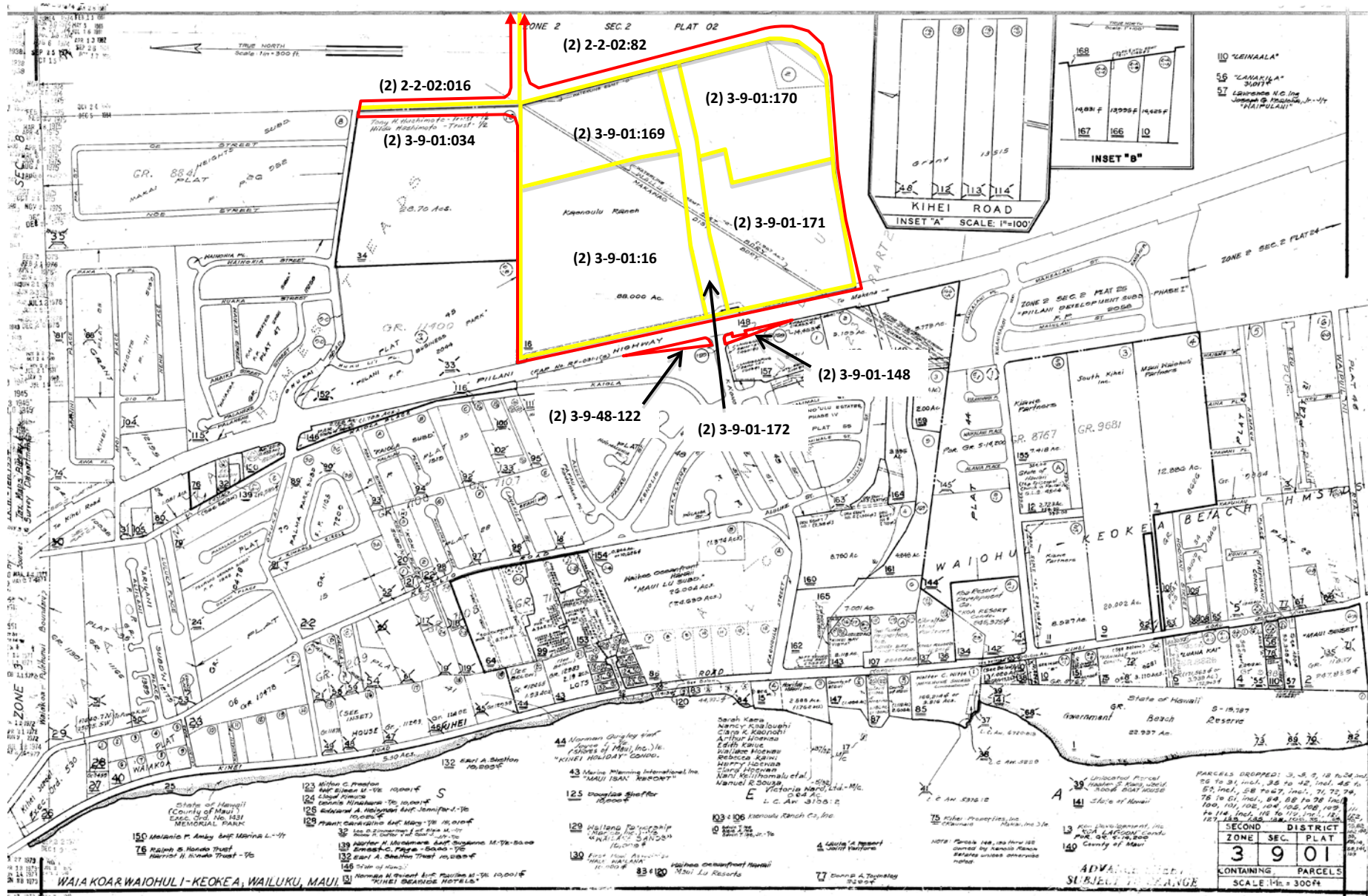


FIGURE 4: SUBDIVISION PLAT MAP

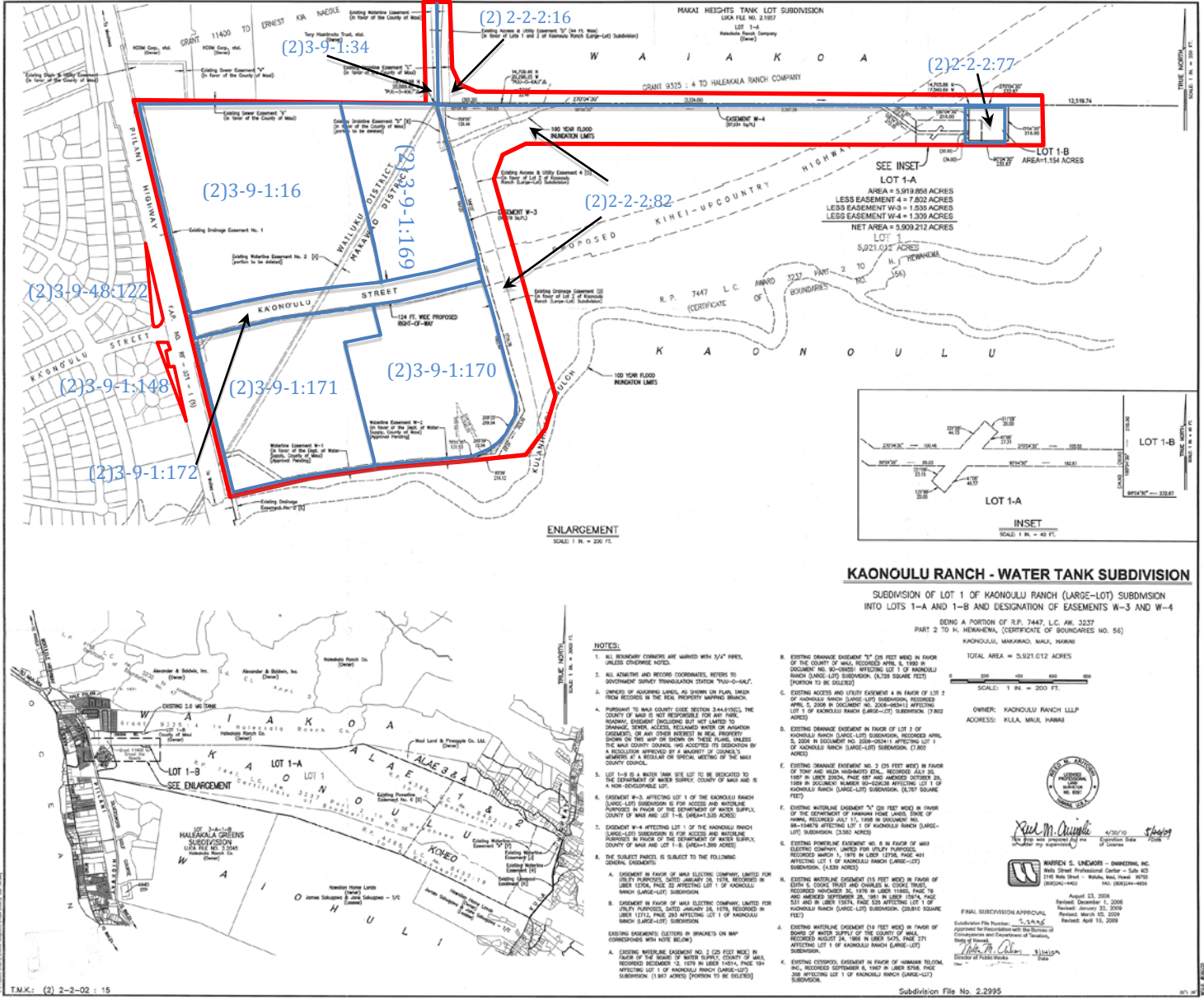




PHOTO 1

Aerial view of the subject property and the immediate adjoining areas.

Photo source:
Google Earth Photo date 2013.



PHOTO 2

Easterly view of the west site access entrance off of Piilani Highway located along the western property boundary.



PHOTO 3

Southerly view along the western boundary. This photo was taken from the gravel lot in the northwest corner of the main portion of the Subject Site. Goodfellow Bros., Inc. has installed a 12-foot dust fence along the western property boundary in preparation for development.



PHOTO 4

Easterly view along the northern property boundary. This photo was taken from the gravel lot in the northwest corner of the subject site. The waste dumpster in the photo is filled with construction debris such as wood and cardboard and does not appear to contain any hazardous materials.



PHOTO 5

Westerly view along the northern property boundary. This photo was taken from the northeast corner of Parcel 169. The construction materials in the back of the photo are part of the Piilani Promenade Baseyard. Baseyard materials consist of concrete drain blocks, iron and plastic irrigation piping, two metal storage containers, and one empty water tanker.



PHOTO 6

Northerly view along the proposed roadway and utility easement that leads toward Ohukai Road. The Monsanto Seed Farm is located east of the gravel road. The Hashimoto residential/agricultural land is located to the west.

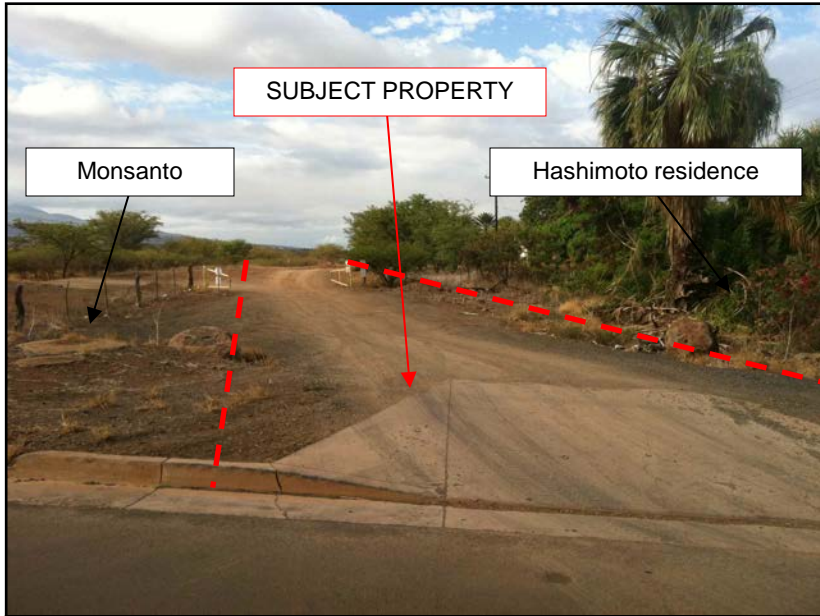


PHOTO 7

Southerly view along the proposed roadway and utility easement off of Ohukai Road. The subject site includes the gravel road and immediately surrounding areas. The dashed line represents the approximate property boundary in this area.



PHOTO 8

Northeasterly view toward the waterline easement immediately south of the Monsanto Seed Farm. The dirt road at the back of the photo is the location of this proposed easement.

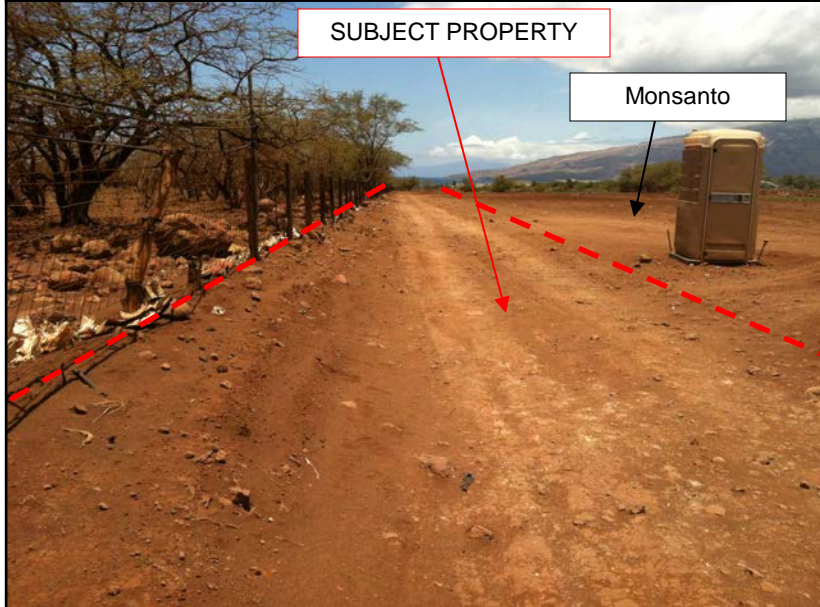


PHOTO 9

Westerly view along the proposed waterline easement. The dashed line represents the approximate property boundary. Monsanto Seed Farm is located immediately north of this gravel road.

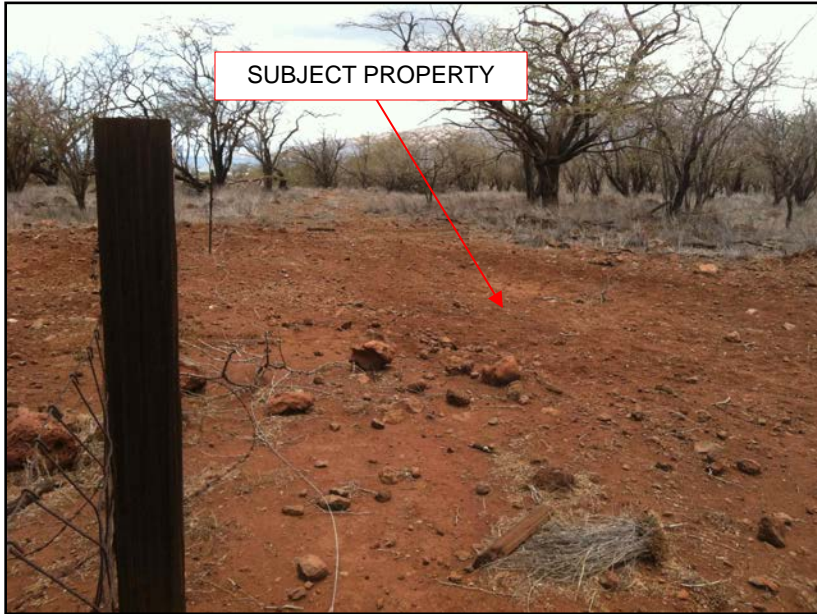


PHOTO 10

Westerly view of the approximate location for the proposed water tank and easement area Lot 1-A and Lot 1-B.

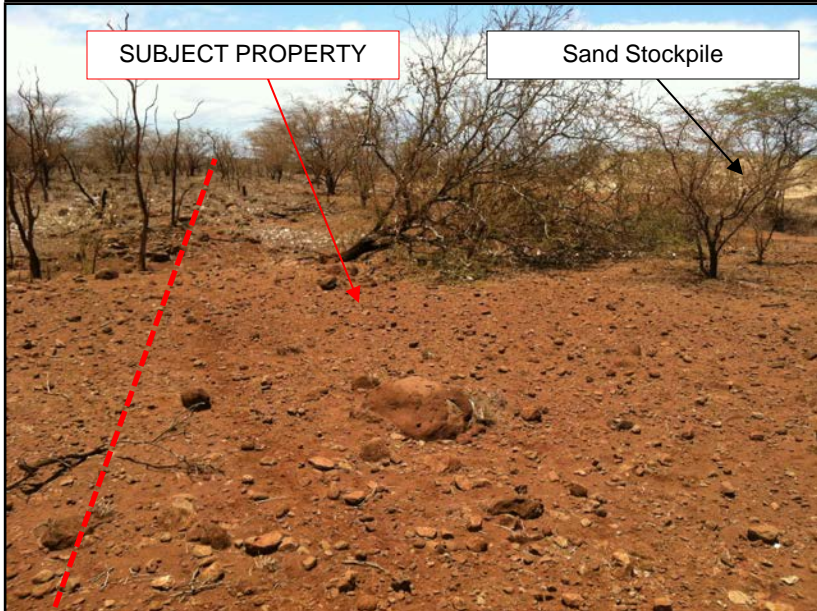


PHOTO 11

Southerly view along the the eastern property boundary. The dashed line represents the approximate property boundary. This photo was taken just south of the junction between the proposed water line easement and the roadway/utility easement. This is the approximate location for the proposed access and utility easement that continued south from Ohukai Road.



PHOTO 12

Northerly view of the proposed access and utility easement located along the eastern boundary. This photo was taken near the southeastern corner of the subject site.



PHOTO 13

Northerly view of the western property boundary. This photo was taken from the southwest corner of the Subject Site.



PHOTO 14

Ranch enclosures located near the southwest corner of Parcel 171. MEV noted a water spigot associated with this enclosure. A water line runs from this area and traverses south to the off-site southern adjoining gulch.



PHOTO 15

Landscape debris pile and waste dumpster located near the northwest corner of the subject site. Only construction materials (wood and cardboard) were noted inside the dumpster.



PHOTO 16

View of the concrete drain culvert located along the western property boundary. This culvert runs along the length of the western boundary and has two drainage areas leading beneath Piilani Highway.



PHOTO 17

View of the Piilani Promenade Baseyard located in the northeast corner of Parcel 169. The baseyard consists of construction materials for water culvert and drain line installation.



PHOTO 18

Above-ground storage tanker associated with the on-site baseyard. This tanker likely only contained water and is currently empty.



PHOTO 19

Westerly view along the proposed water line easement near the Monsanto Seed Farm. Note the paper bag debris collected near the barbed wire fence. These paper bags were used by Monsanto to prevent cross-fertilization in their seed crops. Large amount of these bags can be found along the southern boundary of the proposed water line easement.



PHOTO 20

Derelict vehicles found immediately adjacent to the proposed roadway and utility easement south of Ohukai Road. These vehicles are likely associated with the adjoining residential/agricultural lot west of this easement. MEV did not note any surface staining on the subject –site associated with these vehicles.



PHOTO 21

Water source located just north of the stockpiled sand near the northeast corner of Parcel 169.

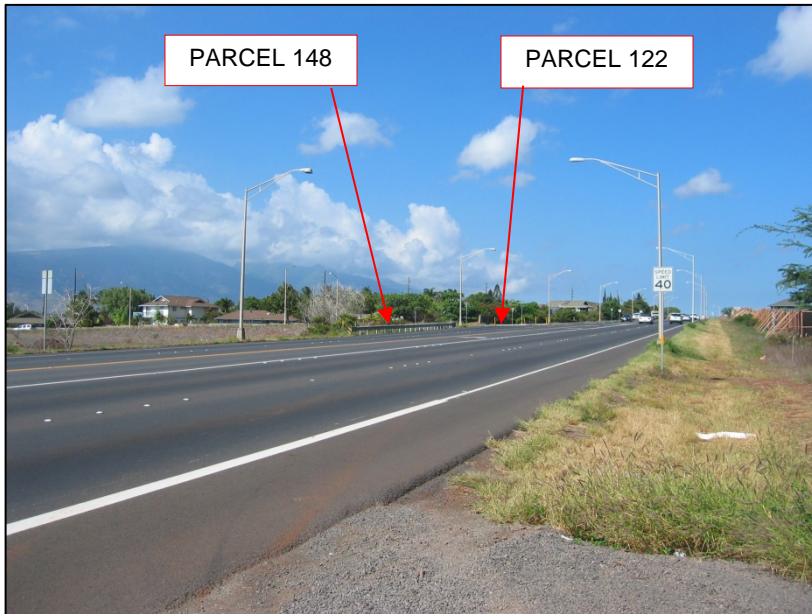


PHOTO 22

Northwesterly view of Subject Parcels 148 and 122 across Piilani Highway. Photo taken from gravel driveway into Subject Parcel 171.



PHOTO 23

Southerly view of Subject Parcel 148 along Piilani Highway. Far left across the highway is fence around Subject Parcel 171.



PHOTO 24

Northerly view of Subject Parcel 122 along Piilani Highway. Far right across the highway is fence around Subject Parcel 16.

Appendix B:

**Regulatory Records
Documentation**

Site Specific Documentation



MALAMA Environmental

PRELIMINARY INFORMATION FOR ENVIRONMENTAL INVESTIGATION

According to ASTM Standard 1527-05, the user's (or client's) responsibility in this investigation is to help identify the possibility of recognized environmental conditions in connection with the property. In order to qualify for one of the *Land Owner Liability Protections* (LLPs) offered by the small Business Liability Relief and Brownfields Revitalization Act of 2001 (*the "Brownfields Amendments"*), the user must provide the following information (if available) to the *environmental professional*. Failure to provide this information could result in a determination that "*all appropriate inquiry*" is not complete. Please assist us by responding to the following request for ASTM required data and other MEV requested information you may have, or of which you may have some specialized knowledge. This questionnaire will be included in the Appendices of the final report as an indication of user assistance.

Project Name: Piilani Promenade, Kihei

MEV Project No: 1307-0292

Please supply as many of the following documents as possible:

- A. Tax Map Key Number/Tax Code Number (2) 2-2-02:16, (2) 2-2-002:15, (2) 3-9-01:16
- B. Title Information (*Current, and any previous ownership.*) 2A, 2D, 2C
- C. Property Legal Description (*If Title Information is not available*)
- D. Tax Map and/or Site Development Drawing/Plat
- E. Special Property Information (*Well development data, endangered species listings, historical registration or environmental deed restrictions.*)
- F. Real Estate Appraisal Report
- G. Special Management Area Permit Report (SMA)

Please provide the following information to the best of your ability:

1. Environmental clean-up liens that are filed or recorded against the site (40 CFR 312.25)

Are you aware of any environmental clean up liens against the *property* that are filed or recorded under federal, tribal, state or local law?

NO

2. Activity and land use limitations (AULs) that are in place on the site or that have been filed or recorded in a registry (40 CFR 312.26).

Are you aware of any AULs, such as *engineering controls*, land use restrictions or *institutional controls* that are in place at the site and/or have been filed or recorded in a registry under federal, tribal, state, or local law?

NO

3. Specialized knowledge or experience of the person seeking to qualify for the LLP (40 CFR 312.28).

As the user of this *ESA*, do you have any specialized knowledge or experience related to the *property* or nearby properties? For example, are you involved in the same line of business as the current or former *occupants* of the property or an adjoining property so that you would have specialized knowledge of the chemicals and processes used by this type of business?

NO



MALAMA Environmental

4. Relationship of the purchase price to the fair market value of the property if it were not contaminated (40 CFR 312.29).

Does the purchase price being paid for this property reasonably reflect the fair market value of the property? If you conclude that there is a difference, have you considered whether the lower purchase price is because contamination is known or believed to be present at the property?

N/A

5. Commonly known or reasonably ascertainable information about the property if it were not contaminated (40 CFR 312.30).

Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of releases or threatened releases? For example, as user,

- a) Do you know the past uses of the property? YES
- b) Do you know of specific chemicals that are present or once were present at the property? NO
- c) Do you know of spills or other chemical releases that have taken place at the property? NO
- d) Do you know of any environmental cleanups that have taken place at the property? N/A

6. The degree of obviousness of the presence or likely presence of contamination at the property, and the ability to detect the contamination by appropriate investigation (40 CFR 312.31).

As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?

NO

Additional Information Request:

1. Name of Current Owner: SAROFIM REALTY ADVISORS

2. Name of Former Owner: MAUI INDUSTRIAL PARTNERS, LLC

3. Environmental Site Assessments (ESA): Are you aware of any previous assessments: Phase I/II ESAs Cleanup Closure Reports, Permit Characterization Reports, etc. conducted on the subject site or within the immediate area? If yes, please supply details. NO

4. Local-State-Federal Inspections: Are you aware of any environmental inspections conducted by any regulatory agency, i.e., Hawaii Dept. of Health (Environmental Health Services), OSHA, U.S. Army Corps of Engineers, Department of Land & Natural Resources, Fish & Wildlife Services, HUD, EPA, or County Wastewater or Solid Waste Division of the Public Works/Waste Management Department etc.? If yes, please supply details.

NO

5. Structures/Buildings: Are there any as-built or other construction drawings available for review? Contact Name and Telephone Number: YES, CIVIL CONSTRUCTION PLANS, C. JENKS

6. Site improvements? (Renovation Date & Extent) NONE 250-3178

7. Proceedings Against the Property: Are you aware of any administrative or legal proceedings against the property for environmental concerns i.e., Compliance Orders, Notices of Violation? If yes, please supply



MALAMA Environmental

details. NO

8. Specialized Historic Information: Are you aware of any previous owner, neighbor, business affiliate or other individual who might have knowledge of any special or unusual historic use of, and/or previous operations conducted on the subject property? Contact Name and Telephone Number: CHARLES JENCKS 250-3178
9. Manufacturing or Processing: If there are manufacturing or processing activities conducted on-site, is there an operation flow chart, diagram or procedures manual available for review? Contact Name and Telephone Number: N/A

This Phase I ESA Report is being prepared for: (Please Print)

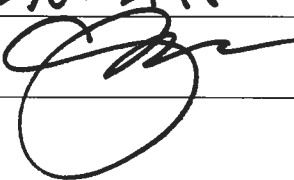
Attention: ROBERT POYNOR, VICE PRESIDENT
 Organization: SARFIM REALTY ADVISORS
 Address: 8115 PRESTON RD., STE 400, DALLAS, TX 75225
 Phone no.: (214) 692-9227 Fax no.: _____

Please List Other Organizations (Lenders) Who Will Require a Listing as "Also Prepared For:" on the Phase I ESA report cover and signature page.

- (1) Attention: N/A
 Organization: _____
 Address: _____
- (2) Attention: N/A
 Organization: _____
 Address: _____

We will submit 2 signed reports for each project. If additional copies are required, an additional fee will be charged for processing.

Who Prepared This Starter Package Information?

Print Name:	<u>CHARLES JENCKS</u>	Title:	<u>OWNER</u>
Company:	<u>SECOND & PECK REAL ESTATE, LLC</u>		
Address:	<u>P.O. BOX 5107 KAHULUI, MAUI, HI 96732</u>		
Tel. No.:	<u>250-3178</u>	Fax No.:	
Signature:		Date:	<u>7/21/13</u>

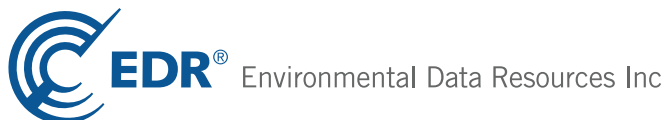
Piilani Promenade

Piilani Highway and Kaonoulu Street
Kihei, HI 96753

Inquiry Number: 3679434.2s
July 29, 2013

The EDR Radius Map™ Report with GeoCheck®

Prepared using the EDR FieldCheck® System



440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OF DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction or forecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EXECUTIVE SUMMARY

A search of the environmental records was conducted by Environmental Data Resources, Inc. (EDR). MEV, LLC used the EDR FieldCheck System to review and/or revise the results of this search, based on independent data verification by MEV, LLC. The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

PIILANI HIGHWAY AND KAONOULU STREET
KIHEI, HI 96753

COORDINATES

Latitude (North): 20.7684000 - 20° 46' 6.24"
Longitude (West): 156.4479000 - 156° 26' 52.44"
Universal Transverse Mercator: Zone 4
UTM X (Meters): 765714.1
UTM Y (Meters): 2298479.8
Elevation: 79 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map: 20156-G4 WAILUKU, HI
Most Recent Revision: Not reported

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No sites were identified in following databases.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List
Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

EXECUTIVE SUMMARY

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Permitted Landfills in the State of Hawaii

State and tribal leaking storage tank lists

LUST..... Leaking Underground Storage Tank Database
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal institutional control / engineering control registries

ENG CONTROLS..... Engineering Control Sites
INST CONTROL..... Sites with Institutional Controls

State and tribal voluntary cleanup sites

VCP..... Voluntary Response Program Sites

EXECUTIVE SUMMARY

INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Brownfields Sites

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
ODI..... Open Dump Inventory
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
CDL..... Clandestine Drug Lab Listing
US HIST CDL..... National Clandestine Laboratory Register

Local Land Records

LIENS 2..... CERCLA Lien Information

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
SPILLS..... Release Notifications
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators
DOT OPS..... Incident and Accident Data
DOD..... Department of Defense Sites
FUDS..... Formerly Used Defense Sites
CONSENT..... Superfund (CERCLA) Consent Decrees
ROD..... Records Of Decision
UMTRA..... Uranium Mill Tailings Sites
US MINES..... Mines Master Index File
TRIS..... Toxic Chemical Release Inventory System
TSCA..... Toxic Substances Control Act
FTTS..... FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS..... FIFRA/TSCA Tracking System Administrative Case Listing
SSTS..... Section 7 Tracking Systems
ICIS..... Integrated Compliance Information System
PADS..... PCB Activity Database System
MLTS..... Material Licensing Tracking System
RADINFO..... Radiation Information Database

EXECUTIVE SUMMARY

FINDS.....	Facility Index System/Facility Registry System
RAATS.....	RCRA Administrative Action Tracking System
RMP.....	Risk Management Plans
UIC.....	Underground Injection Wells Listing
DRYCLEANERS.....	Permitted Drycleaner Facility Listing
AIRS.....	List of Permitted Facilities
INDIAN RESERV.....	Indian Reservations
SCRD DRYCLEANERS.....	State Coalition for Remediation of Drycleaners Listing
COAL ASH EPA.....	Coal Combustion Residues Surface Impoundments List
COAL ASH DOE.....	Steam-Electric Plant Operation Data
PCB TRANSFORMER.....	PCB Transformer Registration Database
US FIN ASSUR.....	Financial Assurance Information
EPA WATCH LIST.....	EPA WATCH LIST
PRP.....	Potentially Responsible Parties
US AIRS.....	Aerometric Information Retrieval System Facility Subsystem
2020 COR ACTION.....	2020 Corrective Action Program List
LEAD SMELTERS.....	Lead Smelter Sites
Financial Assurance.....	Financial Assurance Information Listing

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP.....	EDR Proprietary Manufactured Gas Plants
EDR US Hist Cleaners.....	EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property. Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

SHWS: The State Hazardous Waste Sites records are the states' equivalent to CERCLIS. These sites may or may not already be listed on the federal CERCLIS list. Priority sites planned for cleanup using state funds (state equivalent of Superfund) are identified along with sites where cleanup will be paid for by potentially responsible parties. The data come from the Department of Health.

An online review and analysis by MEV, LLC of the SHWS list, as provided by EDR, and dated 01/17/2013 has revealed that there are 2 SHWS sites within approximately 1 mile of the target property.

EXECUTIVE SUMMARY

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>SELLAND CONSTRUCTION INC, KIHE</i>	<i>454 OHUKAI RD</i>	<i>N 0 - 1/8 (0.028 mi.)</i>	<i>2</i>	<i>8</i>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>KIHEI CHEVRON DBA T.A. HUGHES</i>	<i>1281 S KIHEI RD</i>	<i>SSW 1/2 - 1 (1.000 mi.)</i>	<i>9</i>	<i>12</i>

State and tribal registered storage tank lists

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the Department of Health's Listing of Underground Storage Tanks.

An online review and analysis by MEV, LLC of the UST list, as provided by EDR, and dated 03/05/2013 has revealed that there are 2 UST sites within approximately 0.25 miles of the target property.

<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>NCT LLC</i>	<i>30 MANAO KALA PLACE</i>	<i>NW 0 - 1/8 (0.024 mi.)</i>	<i>A1</i>	<i>7</i>
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
<i>KIHEI MINIT STOP</i>	<i>233 PIIKEA AVE233 PIIKE</i>	<i>S 1/8 - 1/4 (0.127 mi.)</i>	<i>6</i>	<i>10</i>

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR US Hist Auto Stat: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

An online review and analysis by MEV, LLC of the EDR US Hist Auto Stat list, as provided by EDR, has revealed that there are 5 EDR US Hist Auto Stat sites within approximately 0.25 miles of the target property.

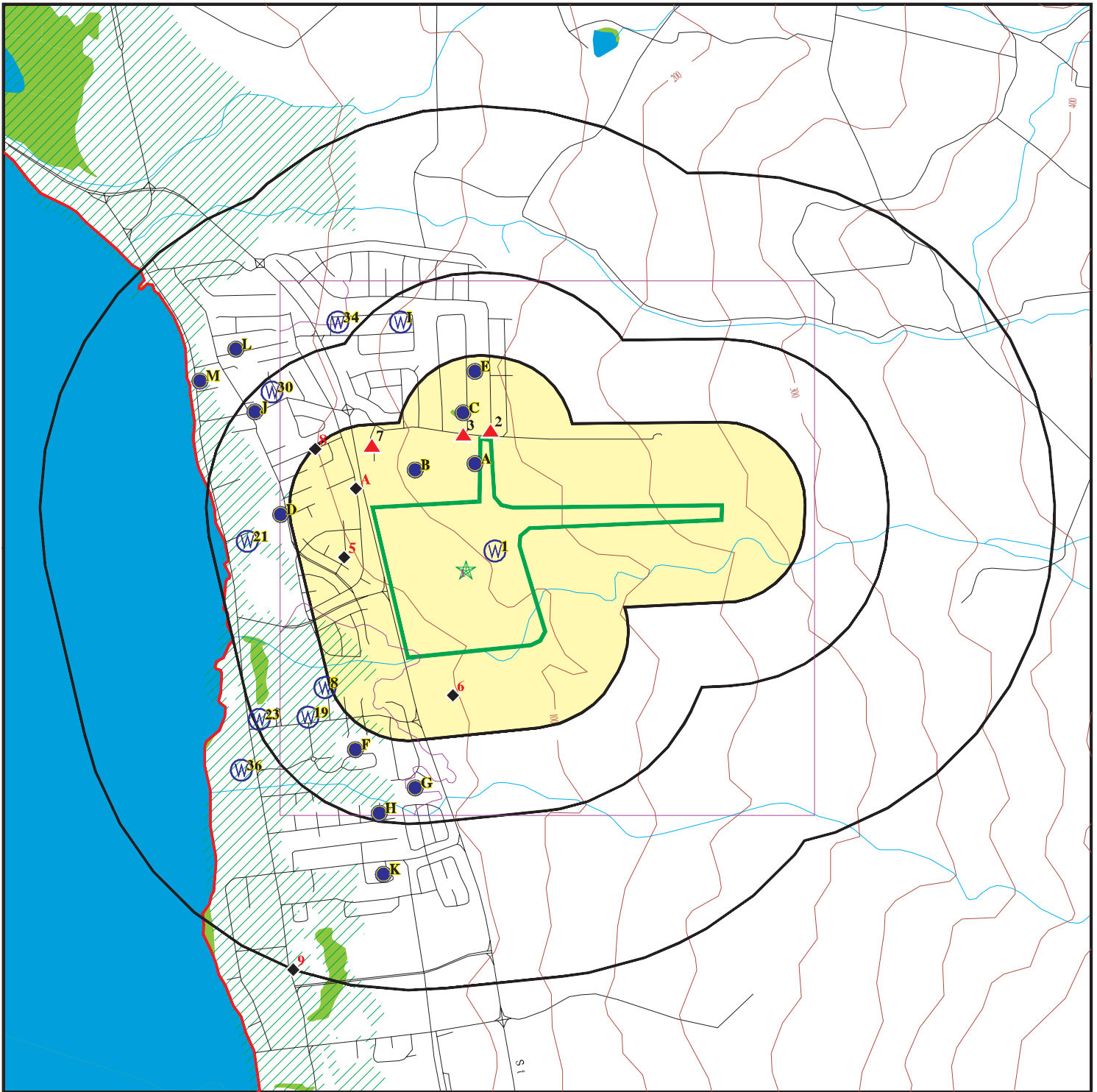
<u>Equal/Higher Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	300 OHUKAI RD	N 0 - 1/8 (0.053 mi.)	3	9
Not reported	356 HUKU LII PL	NW 1/8 - 1/4 (0.187 mi.)	7	11
<u>Lower Elevation</u>	<u>Address</u>	<u>Direction / Distance</u>	<u>Map ID</u>	<u>Page</u>
Not reported	476 KAIOLA PL	NW 0 - 1/8 (0.076 mi.)	A4	10
Not reported	560 HALALAI ST	W 0 - 1/8 (0.118 mi.)	5	10
Not reported	43 KOKI PL	NW 1/8 - 1/4 (0.246 mi.)	8	12

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 15 records.

<u>Site Name</u>	<u>Database(s)</u>
MECO PAD-MOUNT TRANSFORMER NO. 932	SHWS, ENG CONTROLS, INST CONTROL
MECO PAD-MOUNT TRANSFORMER NO. 156	SHWS
MAUI ELECTRIC - SUBSTATION 35, KIH	SHWS
MECO GENERATING STATION MAALAEA	SHWS, SPILLS
KIHEI SPS #5 (EAST WELAKAHAO)	LUST, UST
KIHEI WWTP	LUST, UST, Financial Assurance
KIHEI SPS #3 (MENEHUNE SHORES)	UST
KIHEI SPS #6 (KIHEI FIRE HOUSE)	UST
KIHEI SPS #4 (YE'S ORCHARD)	UST
GTE HAWAIIAN TEL NORTH KIHEI REMOT	UST, Financial Assurance
MONSANTO COMPANY	RCRA-SQG
US NAVY KAHOO LAWE ISLAND RESERVE	RCRA-CESQG
LOCATED IN HALE PIILANI PARK	FINDS
MONSANTO PIILANI GREENHOUSE BUILDI	FINDS
PIILANI HIGHWAY INTERIM WIDENING,	FINDS

OVERVIEW MAP - 3679434.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites



Indian Reservations BIA

County Boundary

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory

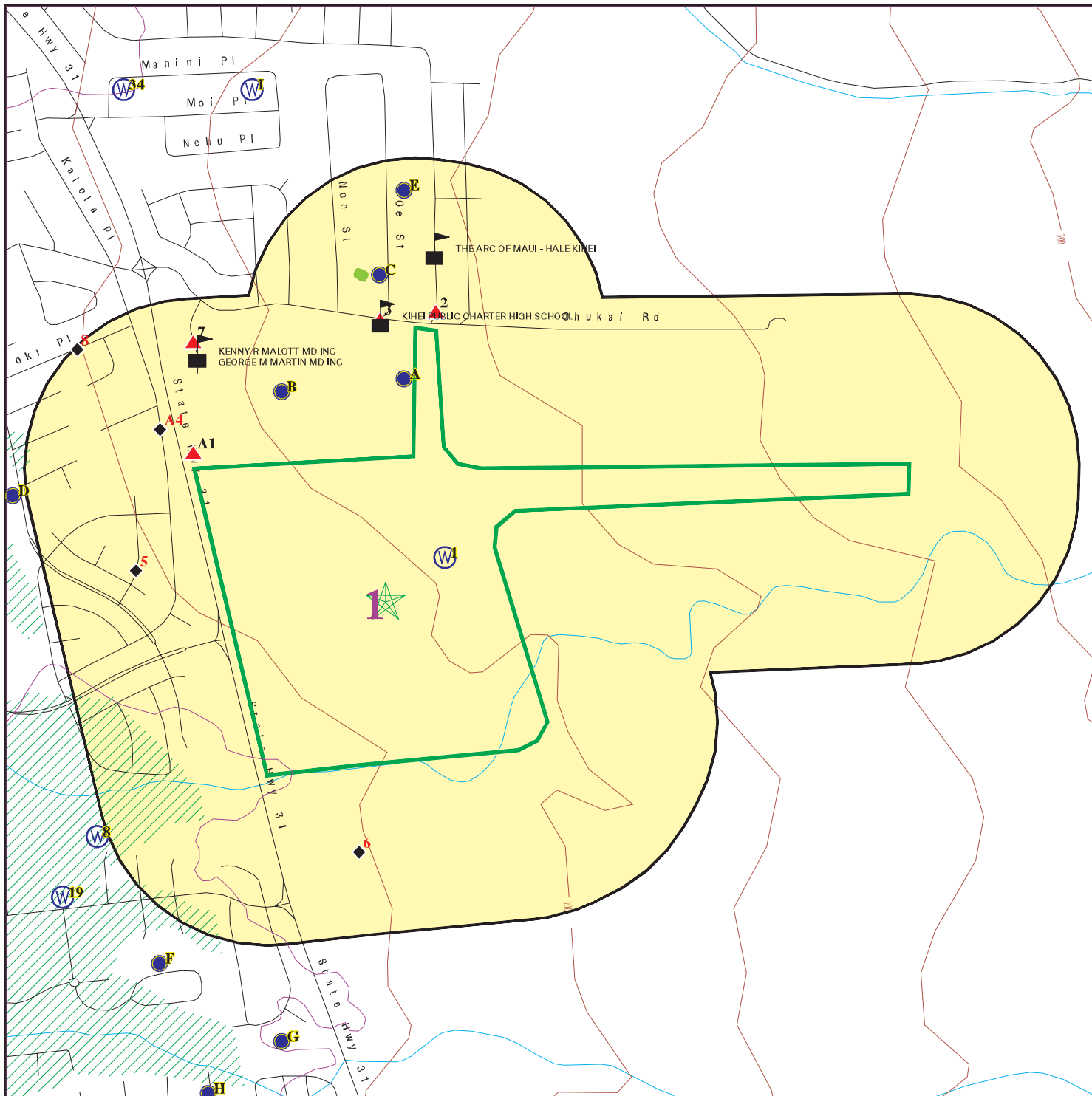


This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Piilani Promenade
 ADDRESS: Piilani Highway and Kaonoulu Street
 Kihei HI 96753
 LAT/LONG: 20.7684 / 156.4479

CLIENT: MEV, LLC
 CONTACT: Amy Mathis
 INQUIRY #: 3679434.2s
 DATE: July 29, 2013 7:23 pm

DETAIL MAP - 3679434.2s



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

Indian Reservations BIA

Oil & Gas pipelines from USGS

100-year flood zone

500-year flood zone

National Wetland Inventory



This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Piilani Promenade
 ADDRESS: Piilani Highway and Kaonoulu Street
 Kihei HI 96753
 LAT/LONG: 20.7684 / 156.4479

CLIENT: MEV, LLC
 CONTACT: Amy Mathis
 INQUIRY #: 3679434.2s
 DATE: July 29, 2013 7:23 pm

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
<i>Federal NPL site list</i>								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
<i>Federal Delisted NPL site list</i>								
Delisted NPL	1.000		0	0	0	0	NR	0
<i>Federal CERCLIS list</i>								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
<i>Federal CERCLIS NFRAP site List</i>								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
<i>Federal RCRA CORRACTS facilities list</i>								
CORRACTS	1.000		0	0	0	0	NR	0
<i>Federal RCRA non-CORRACTS TSD facilities list</i>								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
<i>Federal RCRA generators list</i>								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
<i>Federal institutional controls / engineering controls registries</i>								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
<i>Federal ERNS list</i>								
ERNS	TP		NR	NR	NR	NR	NR	0
<i>State- and tribal - equivalent CERCLIS</i>								
SHWS	1.000		1	0	0	1	NR	2
<i>State and tribal landfill and/or solid waste disposal site lists</i>								
SWF/LF	0.500		0	0	0	NR	NR	0
<i>State and tribal leaking storage tank lists</i>								
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
<i>State and tribal registered storage tank lists</i>								
UST	0.250		1	1	NR	NR	NR	2

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal institutional control / engineering control registries								
ENG CONTROLS	0.500		0	0	0	NR	NR	0
INST CONTROL	0.500		0	0	0	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0
SPILLS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
AIRS	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		3	2	NR	NR	NR	5
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

A1
NW
< 1/8
0.024 mi.
126 ft.

NCT LLC
30 MANAO KALA PLACE
KIHEI, HI 96753

UST U004109528
Financial Assurance N/A

Site 1 of 2 in cluster A

Relative:
Higher

UST:

Actual:
80 ft.

Facility ID: 9-503832
Owner: NCT LLC
Owner Address: 370 Dairy Road
Owndner City,St,Zip: Kihei, 96753 96753

Tank ID: 1
Date Installed: Not reported
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 12000
Substance: Gasoline

Tank ID: 2A
Date Installed: Not reported
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 7000
Substance: Gasoline

Tank ID: 2B
Date Installed: Not reported
Tank Status: Currently In Use
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

HI Financial Assurance:

Alt Facility ID: 9-503832
Tank Id: 2B
Tank Status Desc: Currently in Use
FRTYPE: Insurance
Expiration Date: 06/12/2013

Alt Facility ID: 9-503832
Tank Id: 1
Tank Status Desc: Currently in Use
FRTYPE: Insurance
Expiration Date: 06/12/2013

Alt Facility ID: 9-503832
Tank Id: 2A
Tank Status Desc: Currently in Use
FRTYPE: Insurance
Expiration Date: 06/12/2013

MAP FINDINGS

Map ID
 Direction
 Distance
 Elevation

Site

Database(s)

EDR ID Number
 EPA ID Number

2
North
< 1/8
0.028 mi.
147 ft.

SELLAND CONSTRUCTION INC, KIHEI BASE YARD
454 OHUKAI RD
KIHEI, HI 96753

SHWS **S105262951**
SPILLS **N/A**

Relative:
Higher

SHWS:

Actual:
141 ft.

Organization:	Not reported
Supplemental Location Text:	Ohukai Rd Base Yard
Island:	Maui
Environmental Interest:	Selland Construction, Inc., Kihei Base Yard
HID Number:	Not reported
Facility Registry Identifier:	110013779018
Lead Agency:	HEER
Program:	State
Project Manager:	Richard Palmer
Hazard Priority:	Low
Potential Hazards And Controls:	Hazard Undetermined
Organization:	Not reported
Island:	Maui
Location Address Line 2:	Not reported
Location Zip Suffix:	Not reported
Supplemental Location Text:	Ohukai Rd Base Yard
SDAR Environmental Interest Name:	Selland Construction, Inc., Kihei Base Yard
HID Number:	Not reported
Facility Registry Identifier:	110013779018
Lead Agency:	HEER
Program Name:	State
Potential Hazard And Controls:	Hazard Undetermined
Priority:	Low
Assessment:	Response Necessary
Response:	Response Complete
Nature of Contamination:	Found: Diesel Fuel and oil in soil.
Nature of Residual Contamination:	Not reported
Use Restrictions:	Undetermined
Engineering Control:	Not reported
Description of Restrictions:	Not reported
Institutional Control:	Not reported
Within Designated Areawide Contamination:	Not reported
Site Closure Type:	Not reported
Document Date:	Not reported
Document Number:	Not reported
Document Subject:	Not reported
Project Manager:	Richard Palmer
Contact Information:	(808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island:	Maui
Supplemental Loc. Text:	Ohukai Rd Base Yard
Case Number:	19940218-2
HID Number:	Not reported
Facility Registry Id:	110013779018
Lead and Program:	HEER EP&R
ER:	Not reported
Units:	Selland Construction Baseyard
Substances:	Diesel Fuel and oil
Less Or Greater Than:	Not reported
Numerical Quantity:	Not reported
Units:	Not reported

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

SELLAND CONSTRUCTION INC, KIHEI BASE YARD (Continued)

S105262951

Activity Type: Response
Activity Lead: Not reported
Assignment End Date: Not reported
Result: Refer to ISST
File Under: Selland Construction, Inc.

3
North
< 1/8
0.053 mi.
281 ft.

300 OHUKAI RD
KIHEI, HI 96753

EDR US Hist Auto Stat 1015399780
N/A

Relative:
Higher

EDR Historical Auto Stations:

Actual:
127 ft.

Name: KIHEI AUTO CLINIC
Year: 2001
Address: 300 OHUKAI RD

Name: KIHEI AUTO CLINIC
Year: 2002
Address: 300 OHUKAI RD

Name: KIHEI AUTO CLINIC
Year: 2005
Address: 300 OHUKAI RD

Name: KIHEI AUTO CLINIC
Year: 2006
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2007
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2008
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2009
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2010
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2011
Address: 300 OHUKAI RD

Name: ERNIES KWIK LUBE AUTO REPAIR
Year: 2012
Address: 300 OHUKAI RD

MAP FINDINGS

Map ID
Direction
Distance
Elevation

Site

Database(s)

EDR ID Number
EPA ID Number

A4
NW
< 1/8
0.076 mi.
402 ft.

476 KAIOLA PL
KIHEI, HI 96753

Site 2 of 2 in cluster A

EDR US Hist Auto Stat **1015512720**
N/A

Relative:
Lower

Actual:
71 ft.

EDR Historical Auto Stations:
Name: THE OLD GAS STATION INC
Year: 2004
Address: 476 KAIOLA PL

5
West
< 1/8
0.118 mi.
623 ft.

560 HALALAI ST
KIHEI, HI 96753

EDR US Hist Auto Stat **1015553459**
N/A

Relative:
Lower

Actual:
44 ft.

EDR Historical Auto Stations:
Name: BP & CO INC
Year: 2006
Address: 560 HALALAI ST

6
South
1/8-1/4
0.127 mi.
673 ft.

KIHEI MINIT STOP
233 PIIKEA AVE
233 PIIKEA AVE
KIHEI, HI 96753

UST **U003762157**
Financial Assurance **N/A**

Relative:
Lower

Actual:
47 ft.

UST:
Facility ID: 9-503629
Owner: MAUI PETROLEUM
Owner Address: 385 HUKILIKE ST, SUITE 200
Owner City,St,Zip: Kihei, 96753 96753

Tank ID: 3
Date Installed: 08/31/2000
Tank Status: **Currently In Use**
Date Closed: Not reported
Tank Capacity: 4000
Substance: Diesel

Tank ID: 87
Date Installed: 08/31/2000
Tank Status: **Currently In Use**
Date Closed: Not reported
Tank Capacity: 10000
Substance: Gasoline

Tank ID: 92
Date Installed: 08/31/2000
Tank Status: **Currently In Use**
Date Closed: Not reported
Tank Capacity: 6000
Substance: Gasoline

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

KIHEI MINIT STOP (Continued)

U003762157

HI Financial Assurance:

Alt Facility ID: 9-503629
Tank Id: 3
Tank Status Desc: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-503629
Tank Id: 87
Tank Status Desc: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-503629
Tank Id: 92
Tank Status Desc: Currently In Use
FRTYPE: Other
Expiration Date: Not reported

Alt Facility ID: 9-503629
Tank Id: 3
Tank Status Desc: Currently In Use
FRTYPE: Insurance
Expiration Date: 11/01/2012

Alt Facility ID: 9-503629
Tank Id: 87
Tank Status Desc: Currently In Use
FRTYPE: Insurance
Expiration Date: 11/01/2012

Alt Facility ID: 9-503629
Tank Id: 92
Tank Status Desc: Currently In Use
FRTYPE: Insurance
Expiration Date: 11/01/2012

7
NW
1/8-1/4
0.187 mi.
985 ft.

356 HUKU LII PL
KIHEI, HI 96753

EDR US Hist Auto Stat 1015446291
N/A

Relative:
Higher

EDR Historical Auto Stations:

Name: TESORO HAWAII CORP
Year: 2004
Address: 356 HUKU LII PL

Name: TESORO HAWAII CORP
Year: 2006
Address: 356 HUKU LII PL

Name: 2 GO TESORO
Year: 2007
Address: 356 HUKU LII PL

Name: TESORO SOUTH PACIFIC PETRO

Actual:
88 ft.

Map ID
 Direction
 Distance
 Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
 EPA ID Number

(Continued)

1015446291

Year: 2008
 Address: 356 HUKU LII PL

Name: TESORO SOUTH PACIFIC PETROLEUM CO
 Year: 2009
 Address: 356 HUKU LII PL

Name: TESORO
 Year: 2010
 Address: 356 HUKU LII PL

8
 NW
 1/8-1/4
 0.246 mi.
 1298 ft.

43 KOKI PL
 KIHEI, HI 96753

EDR US Hist Auto Stat 1015491488
 N/A

Relative:
 Lower
 Actual:
 48 ft.

EDR Historical Auto Stations:

Name: FROGS REPAIR WITH MOBILE SVC
 Year: 2010
 Address: 43 KOKI PL

Name: FROGS REPAIR WITH MOBILE SERVICE
 Year: 2011
 Address: 43 KOKI PL

Name: FROGS REPAIR WITH MOBILE SERVICE
 Year: 2012
 Address: 43 KOKI PL

9
 SSW
 1/2-1
 1.000 mi.
 5279 ft.

KIHEI CHEVRON DBA T.A. HUGHES INC
 1281 S KIHEI RD
 KIHEI, HI 96753

SHWS S106818529
 SPILLS N/A

Relative:
 Lower
 Actual:
 10 ft.

SHWS:
 Organization: Not reported
 Supplemental Location Text: Not reported
 Island: Maui
 Environmental Interest: Kihei Chevron
 HID Number: Not reported
 Facility Registry Identifier: 110013770099
 Lead Agency: SHWB
 Program: State
 Project Manager: Laura Young
 Hazard Priority: NFA
 Potential Hazards And Controls: No Hazard
 Organization: Not reported
 Island: Maui
 Location Address Line 2: Not reported
 Location Zip Suffix: Not reported
 Supplemental Location Text: Not reported
 SDAR Environmental Interest Name: Kihei Chevron
 HID Number: Not reported
 Facility Registry Identifier: 110013770099

Map ID
Direction
Distance
Elevation

MAP FINDINGS

Site

Database(s)

EDR ID Number
EPA ID Number

KIHEI CHEVRON DBA T.A. HUGHES INC (Continued)

S106818529

Lead Agency: SHWB
Program Name: State
Potential Hazard And Controls: No Hazard
Priority: NFA
Assessment: Response Necessary
Response: Response Complete
Nature of Contamination: Not reported
Nature of Residual Contamination: Not reported
Use Restrictions: No Hazard Present For Unrestricted Residential Use
Engineering Control: Not reported
Description of Restrictions: Not reported
Institutional Control: Not reported
Within Designated Areawide Contamination: Not reported
Site Closure Type: No Further Action Letter - Unrestricted Residential Use
Document Date: 02/24/2004
Document Number: 2004-065-LY
Document Subject: Release Notification Letter, Kihei Chevron Service Station 1281 Kihei Road, Incident Case Number 200
Project Manager: Laura Young
Contact Information: (808) 586-4249 919 Ala Moana Blvd, Honolulu, HI 96814

HI SPILLS:

Island: Maui
Supplemental Loc. Text: Not reported
Case Number: 20030916-1430
HID Number: Not reported
Facility Registry Id: 110013770099
Lead and Program: HEER EP&R
ER: Not reported
Units: Kihei Chevron Service Station Release ID 200309161430
Substances: Unknown
Less Or Greater Than: Not reported
Numerical Quantity: Not reported
Units: Not reported
Activity Type: Response
Activity Lead: Curtis Martin
Assignment End Date: Not reported
Result: SOSC NFA
File Under: Chevron Products Company

Count: 15 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
KAHO'OLAWA ISLAND	1001227536	US NAVY KAHOOLOWA ISLAND RESERVE	BASECAMP	96753	RCRA-CESQG
KIHEI	1008212074	LOCATED IN HALE PIILANI PARK	HALE PIILANI PARK		FINDS
KIHEI	U003155105	KIHEI SPS #5 (EAST WELAKAHAO)	N KIHEI RD	96753	LUST, UST
KIHEI	U003222170	KIHEI SPS #3 (MENEHUNE SHORES)	N KIHEI RD	96753	UST
KIHEI	U003222168	KIHEI SPS #6 (KIHEI FIRE HOUSE)	N KIHEI RD	96753	UST
KIHEI	U003222167	KIHEI SPS #4 (YE'S ORCHARD)	N KIHEI RD	96753	UST
KIHEI	S113230486	MECO PAD-MOUNT TRANSFORMER NO. 156	MAKENA SURF RESORT	96753	SHWS
KIHEI	U003732595	GTE HAWAIIAN TEL NORTH KIHEI REMOT	KA ONO ULU ESATE, LOT 15HALALA	96753	UST, Financial Assurance
KIHEI	1006818928	MONSANTO PIILANI GREENHOUSE BUILDI	2111 PIILANI HWY		FINDS
KIHEI	1015933228	PIILANI HIGHWAY INTERIM WIDENING,	PIILANI HIGHWAY FROM MOKULELEL		FINDS
KIHEI	1010316486	MONSANTO COMPANY	2111 PIILANI HWY	96753	RCRA-SQG
KIHEI	S113230474	MAUI ELECTRIC - SUBSTATION 35, KIH	SUBSTATION 35	96753	SHWS
KIHEI	U001236805	KIHEI WWTP	480 WELEKAHAO RD/PIILANI HWY	96753	LUST, UST, Financial Assurance
MAALAEA	S106819074	MECO GENERATING STATION MAALAEA	N KIHEI RD	96753	SHWS, SPILLS
WAILEA	S113230490	MECO PAD-MOUNT TRANSFORMER NO. 932	WAILEA POINT (MANAGER'S OFFICE	96753	SHWS, ENG CONTROLS, INST CON1

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991	Source: EPA
Date Data Arrived at EDR: 02/02/1994	Telephone: 202-564-4267
Date Made Active in Reports: 03/30/1994	Last EDR Contact: 08/15/2011
Number of Days to Update: 56	Next Scheduled EDR Contact: 11/28/2011
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013	Source: EPA
Date Data Arrived at EDR: 05/09/2013	Telephone: N/A
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 05/09/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 07/22/2013
	Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 02/04/2013	Source: EPA
Date Data Arrived at EDR: 03/01/2013	Telephone: 703-412-9810
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/09/2012	Telephone: 703-603-8704
Date Made Active in Reports: 12/20/2012	Last EDR Contact: 07/08/2013
Number of Days to Update: 72	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 02/05/2013	Source: EPA
Date Data Arrived at EDR: 03/01/2013	Telephone: 703-412-9810
Date Made Active in Reports: 03/13/2013	Last EDR Contact: 05/29/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 05/09/2013
	Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 6

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 02/12/2013
Date Data Arrived at EDR: 02/15/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 12

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/29/2013	Telephone: 703-603-0695
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/10/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005	Source: Department of the Navy
Date Data Arrived at EDR: 12/11/2006	Telephone: 843-820-7326
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 05/20/2013
Number of Days to Update: 31	Next Scheduled EDR Contact: 09/02/2013
	Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012	Source: National Response Center, United States Coast Guard
Date Data Arrived at EDR: 01/17/2013	Telephone: 202-267-2180
Date Made Active in Reports: 02/15/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 29	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

State- and tribal - equivalent CERCLIS

SHWS: Sites List

Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 01/17/2013	Source: Department of Health
Date Data Arrived at EDR: 02/28/2013	Telephone: 808-586-4249
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 05/31/2013
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Semi-Annually

State and tribal landfill and/or solid waste disposal site lists

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SWF/LF: Permitted Landfills in the State of Hawaii

Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/17/2012	Source: Department of Health
Date Data Arrived at EDR: 04/03/2013	Telephone: 808-586-4245
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/05/2013
Number of Days to Update: 37	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

State and tribal leaking storage tank lists

LUST: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 03/05/2013	Source: Department of Health
Date Data Arrived at EDR: 03/06/2013	Telephone: 808-586-4228
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 06/03/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 09/16/2013
	Data Release Frequency: Semi-Annually

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012	Source: EPA Region 1
Date Data Arrived at EDR: 11/01/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 05/01/2013
Number of Days to Update: 162	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-8677
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011	Source: EPA Region 6
Date Data Arrived at EDR: 09/13/2011	Telephone: 214-665-6597
Date Made Active in Reports: 11/11/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6271
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/01/2013	Telephone: 415-972-3372
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Underground Storage Tank Database

Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 03/05/2013	Source: Department of Health
Date Data Arrived at EDR: 03/06/2013	Telephone: 808-586-4228
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 06/03/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 09/16/2013
	Data Release Frequency: Semi-Annually

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012	Source: EPA Region 8
Date Data Arrived at EDR: 08/28/2012	Telephone: 303-312-6137
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 49	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012	Source: EPA Region 7
Date Data Arrived at EDR: 02/28/2013	Telephone: 913-551-7003
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 43	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011	Source: EPA Region 6
Date Data Arrived at EDR: 05/11/2011	Telephone: 214-665-7591
Date Made Active in Reports: 06/14/2011	Last EDR Contact: 07/24/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012	Source: EPA Region 5
Date Data Arrived at EDR: 08/03/2012	Telephone: 312-886-6136
Date Made Active in Reports: 11/05/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 94	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations).

Date of Government Version: 02/06/2013	Source: EPA Region 4
Date Data Arrived at EDR: 02/08/2013	Telephone: 404-562-9424
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 63	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 11/07/2012	Telephone: 617-918-1313
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 04/29/2013
Number of Days to Update: 156	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013	Source: EPA Region 10
Date Data Arrived at EDR: 02/06/2013	Telephone: 206-553-2857
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 65	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013	Source: EPA Region 9
Date Data Arrived at EDR: 02/26/2013	Telephone: 415-972-3368
Date Made Active in Reports: 04/12/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 45	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FEMA UST: Underground Storage Tank Listing

A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010	Source: FEMA
Date Data Arrived at EDR: 02/16/2010	Telephone: 202-646-5797
Date Made Active in Reports: 04/12/2010	Last EDR Contact: 07/19/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Varies

State and tribal institutional control / engineering control registries

ENG CONTROLS: Engineering Control Sites

A listing of sites with engineering controls in place.

Date of Government Version: 01/17/2013	Source: Department of Health
Date Data Arrived at EDR: 02/28/2013	Telephone: 404-586-4249
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 05/31/2013
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Varies

INST CONTROL: Sites with Institutional Controls

Voluntary Remediation Program and Brownfields sites with institutional controls in place.

Date of Government Version: 01/17/2013	Source: Department of Health
Date Data Arrived at EDR: 02/28/2013	Telephone: 808-586-4249
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 05/31/2013
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Varies

State and tribal voluntary cleanup sites

VCP: Voluntary Response Program Sites

Sites participating in the Voluntary Response Program. The purpose of the VRP is to streamline the cleanup process in a way that will encourage prospective developers, lenders, and purchasers to voluntarily cleanup properties.

Date of Government Version: 01/17/2013	Source: Department of Health
Date Data Arrived at EDR: 02/28/2013	Telephone: 808-586-4249
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 05/31/2013
Number of Days to Update: 40	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Varies

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012	Source: EPA, Region 1
Date Data Arrived at EDR: 10/02/2012	Telephone: 617-918-1102
Date Made Active in Reports: 10/16/2012	Last EDR Contact: 07/02/2013
Number of Days to Update: 14	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008	Source: EPA, Region 7
Date Data Arrived at EDR: 04/22/2008	Telephone: 913-551-7365
Date Made Active in Reports: 05/19/2008	Last EDR Contact: 04/20/2009
Number of Days to Update: 27	Next Scheduled EDR Contact: 07/20/2009
	Data Release Frequency: Varies

State and tribal Brownfields sites

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

BROWNFIELDS: Brownfields Sites

With certain legal exclusions and additions, the term 'brownfield site' means real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

Date of Government Version: 01/17/2013
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/09/2013
Number of Days to Update: 40

Source: Department of Health
Telephone: 808-586-4249
Last EDR Contact: 05/31/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites

Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 12/10/2012
Date Data Arrived at EDR: 12/11/2012
Date Made Active in Reports: 12/20/2012
Number of Days to Update: 9

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations

A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: No Update Planned

ODI: Open Dump Inventory

An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands

Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 05/03/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 03/12/2013	Telephone: 202-307-1000
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/03/2013
Number of Days to Update: 59	Next Scheduled EDR Contact: 09/16/2013
	Data Release Frequency: Quarterly

CDL: Clandestine Drug Lab Listing

A listing of clandestine drug lab site locations.

Date of Government Version: 08/04/2010	Source: Department of Health
Date Data Arrived at EDR: 09/10/2010	Telephone: 808-586-4249
Date Made Active in Reports: 10/22/2010	Last EDR Contact: 06/03/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 09/16/2013
	Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007	Source: Drug Enforcement Administration
Date Data Arrived at EDR: 11/19/2008	Telephone: 202-307-1000
Date Made Active in Reports: 03/30/2009	Last EDR Contact: 03/23/2009
Number of Days to Update: 131	Next Scheduled EDR Contact: 06/22/2009
	Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ("Superfund") lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 04/25/2013	Telephone: 202-564-6023
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 07/24/2013
Number of Days to Update: 15	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012	Source: U.S. Department of Transportation
Date Data Arrived at EDR: 01/03/2013	Telephone: 202-366-4555
Date Made Active in Reports: 02/27/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 55	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS: Release Notifications

Releases of hazardous substances to the environment reported to the Office of Hazard Evaluation and Emergency Response since 1988.

Date of Government Version: 01/31/2012	Source: Department of Health
Date Data Arrived at EDR: 02/28/2012	Telephone: 808-586-4249
Date Made Active in Reports: 04/04/2012	Last EDR Contact: 05/31/2013
Number of Days to Update: 36	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Varies

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 03/10/2012	Source: FirstSearch
Date Data Arrived at EDR: 01/03/2013	Telephone: N/A
Date Made Active in Reports: 02/11/2013	Last EDR Contact: 01/03/2013
Number of Days to Update: 39	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 02/12/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/15/2013	Telephone: (415) 495-8895
Date Made Active in Reports: 02/27/2013	Last EDR Contact: 07/01/2013
Number of Days to Update: 12	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transportation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012	Source: Department of Transportation, Office of Pipeline Safety
Date Data Arrived at EDR: 08/07/2012	Telephone: 202-366-4595
Date Made Active in Reports: 09/18/2012	Last EDR Contact: 05/07/2013
Number of Days to Update: 42	Next Scheduled EDR Contact: 08/19/2013
	Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005	Source: USGS
Date Data Arrived at EDR: 11/10/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 62	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 06/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 01/15/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 06/11/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 06/04/2013
Next Scheduled EDR Contact: 09/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 09/01/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 131

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 05/29/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/07/2013
Data Release Frequency: Every 4 Years

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing

A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing

A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 114

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 112

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 07/10/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013
Date Data Arrived at EDR: 04/11/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013
Date Data Arrived at EDR: 03/21/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 111

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/23/2013
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995	Source: EPA
Date Data Arrived at EDR: 07/03/1995	Telephone: 202-564-4104
Date Made Active in Reports: 08/07/1995	Last EDR Contact: 06/02/2008
Number of Days to Update: 35	Next Scheduled EDR Contact: 09/01/2008
	Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 05/25/2012	Telephone: 202-564-8600
Date Made Active in Reports: 07/10/2012	Last EDR Contact: 07/24/2013
Number of Days to Update: 46	Next Scheduled EDR Contact: 11/11/2013
	Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011	Source: EPA/NTIS
Date Data Arrived at EDR: 02/26/2013	Telephone: 800-424-9346
Date Made Active in Reports: 04/19/2013	Last EDR Contact: 05/30/2013
Number of Days to Update: 52	Next Scheduled EDR Contact: 09/09/2013
	Data Release Frequency: Biennially

UIC: Underground Injection Wells Listing

A listing of underground injection well locations.

Date of Government Version: 02/07/2013	Source: Department of Health
Date Data Arrived at EDR: 02/12/2013	Telephone: 808-586-4258
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 06/03/2013
Number of Days to Update: 56	Next Scheduled EDR Contact: 09/16/2013
	Data Release Frequency: Varies

DRYCLEANERS: Permitted Drycleaner Facility Listing

A listing of permitted drycleaner facilities in the state.

Date of Government Version: 12/31/2012	Source: Department of Health
Date Data Arrived at EDR: 01/25/2013	Telephone: 808-586-4200
Date Made Active in Reports: 02/28/2013	Last EDR Contact: 07/18/2013
Number of Days to Update: 34	Next Scheduled EDR Contact: 10/21/2013
	Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

AIRS: List of Permitted Facilities

A listing of permitted facilities in the state.

Date of Government Version: 04/24/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Department of Health
Telephone: 808-586-4200
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 05/17/2013
Next Scheduled EDR Contact: 08/26/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites

A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931 and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

LEAD SMELTER 1: Lead Smelter Sites

A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Financial Assurance: Financial Assurance Information Listing

A listing of financial assurance information for underground storage tank facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 03/18/2013	Source: Department of Health
Date Data Arrived at EDR: 03/19/2013	Telephone: 808-586-4226
Date Made Active in Reports: 04/09/2013	Last EDR Contact: 06/13/2013
Number of Days to Update: 21	Next Scheduled EDR Contact: 09/30/2013
	Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List

A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010	Source: Environmental Protection Agency
Date Data Arrived at EDR: 01/03/2011	Telephone: N/A
Date Made Active in Reports: 03/21/2011	Last EDR Contact: 06/14/2013
Number of Days to Update: 77	Next Scheduled EDR Contact: 09/23/2013
	Data Release Frequency: Varies

COAL ASH DOE: Sleam-Electric Plan Operation Data

A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005	Source: Department of Energy
Date Data Arrived at EDR: 08/07/2009	Telephone: 202-586-8719
Date Made Active in Reports: 10/22/2009	Last EDR Contact: 07/19/2013
Number of Days to Update: 76	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011	Source: Environmental Protection Agency
Date Data Arrived at EDR: 10/19/2011	Telephone: 202-566-0517
Date Made Active in Reports: 01/10/2012	Last EDR Contact: 05/03/2013
Number of Days to Update: 83	Next Scheduled EDR Contact: 08/12/2013
	Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013	Source: Environmental Protection Agency
Date Data Arrived at EDR: 03/15/2013	Telephone: 202-566-1917
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 05/20/2013
Number of Days to Update: 56	Next Scheduled EDR Contact: 09/02/2013
	Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 12/31/2012	Source: Environmental Protection Agency
Date Data Arrived at EDR: 02/18/2013	Telephone: 617-520-3000
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 05/10/2013
Number of Days to Update: 81	Next Scheduled EDR Contact: 08/26/2013
	Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties

A listing of verified Potentially Responsible Parties

Date of Government Version: 12/18/2012	Source: EPA
Date Data Arrived at EDR: 04/04/2013	Telephone: 202-564-6023
Date Made Active in Reports: 07/10/2013	Last EDR Contact: 07/03/2013
Number of Days to Update: 97	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)

The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013	Source: EPA
Date Data Arrived at EDR: 01/30/2013	Telephone: 202-564-5962
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 100	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005	Source: U.S. Geological Survey
Date Data Arrived at EDR: 02/06/2006	Telephone: 888-275-8747
Date Made Active in Reports: 01/11/2007	Last EDR Contact: 07/19/2013
Number of Days to Update: 339	Next Scheduled EDR Contact: 10/28/2013
	Data Release Frequency: N/A

US AIRS MINOR: Air Facility System Data

A listing of minor source facilities.

Date of Government Version: 01/23/2013	Source: EPA
Date Data Arrived at EDR: 01/30/2013	Telephone: 202-564-5962
Date Made Active in Reports: 05/10/2013	Last EDR Contact: 06/25/2013
Number of Days to Update: 100	Next Scheduled EDR Contact: 10/14/2013
	Data Release Frequency: Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A	Source: EDR, Inc.
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A	Source: N/A
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A	Source: N/A
Date Data Arrived at EDR: N/A	Telephone: N/A
Date Made Active in Reports: N/A	Last EDR Contact: N/A
Number of Days to Update: N/A	Next Scheduled EDR Contact: N/A
	Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data

Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:

Source: American Hospital Association, Inc.

Telephone: 312-280-5991

The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing

Source: Centers for Medicare & Medicaid Services

Telephone: 410-786-3000

A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes

Source: National Institutes of Health

Telephone: 301-594-6248

Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools

Source: National Center for Education Statistics

Telephone: 202-502-7300

The National Center for Education Statistics' primary database on private school locations in the United States.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK[®] - PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

PIILANI PROMENADE
PIILANI HIGHWAY AND KAONOULU STREET
KIHEI, HI 96753

TARGET PROPERTY COORDINATES

Latitude (North):	20.7684 - 20° 46' 6.24"
Longitude (West):	156.4479 - 156° 26' 52.44"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	765714.1
UTM Y (Meters):	2298479.8
Elevation:	79 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	20156-G4 WAILUKU, HI
Most Recent Revision:	Not reported

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

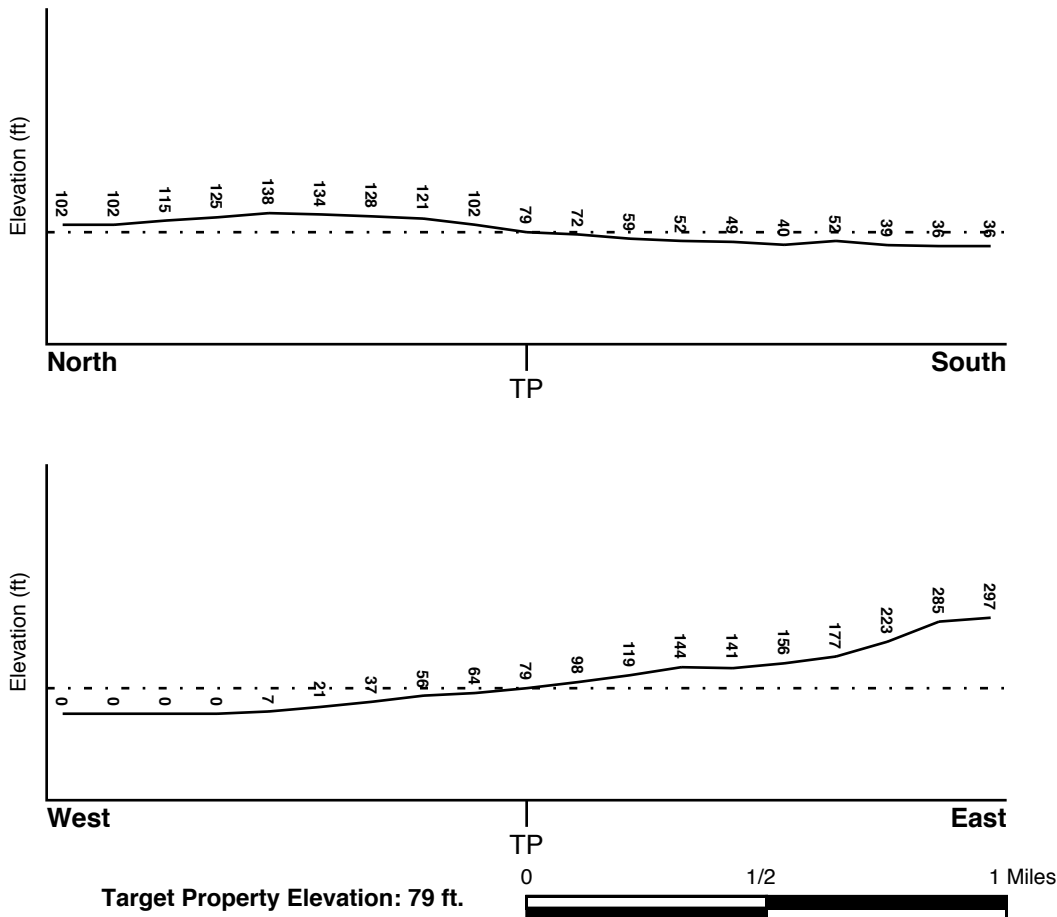
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

<u>Target Property County</u> MAUI, HI	<u>FEMA Flood Electronic Data</u> YES - refer to the Overview Map and Detail Map
Flood Plain Panel at Target Property:	1500030265C - FEMA Q3 Flood data
Additional Panels in search area:	1500030255B - FEMA Q3 Flood data

NATIONAL WETLAND INVENTORY

<u>NWI Quad at Target Property</u> NOT AVAILABLE	<u>NWI Electronic Data Coverage</u> YES - refer to the Overview Map and Detail Map
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HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

<u>MAP ID</u>	<u>LOCATION FROM TP</u>	<u>GENERAL DIRECTION GROUNDWATER FLOW</u>
Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

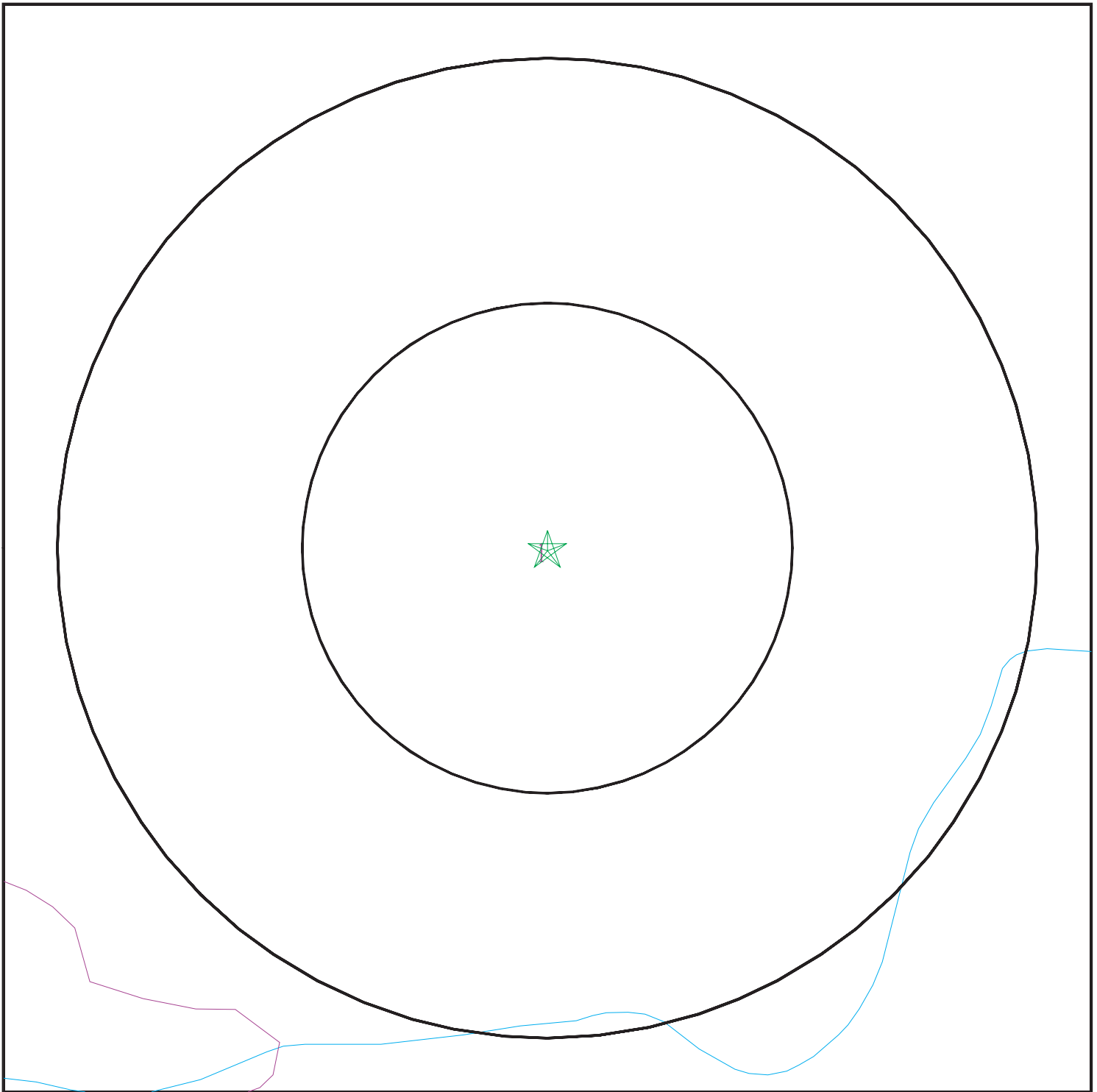
Era: -
System: -
Series: -
Code: N/A (*decoded above as Era, System & Series*)

GEOLOGIC AGE IDENTIFICATION

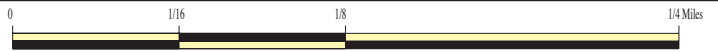
Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 3679434.2s



- ★ Target Property
- ∩ SSURGO Soil
- ∩ Water



SITE NAME: Piilani Promenade
ADDRESS: Piilani Highway and Kaonoulu Street
Kihei HI 96753
LAT/LONG: 20.7684 / 156.4479

CLIENT: MEV, LLC
CONTACT: Amy Mathis
INQUIRY #: 3679434.2s
DATE: July 29, 2013 7:24 pm

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: Waiakoa

Soil Surface Texture: extremely stony silty clay loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 71 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
Layer	Boundary		Soil Texture Class	Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
	Upper	Lower		AASHTO Group	Unified Soil		
1	0 inches	0 inches	extremely stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
2	0 inches	20 inches	extremely stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
3	20 inches	27 inches	stony silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:
4	27 inches	31 inches	bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Clayey Soils.	Not reported	Max: 0.42 Min: 0.02	Max: Min:

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

<u>DATABASE</u>	<u>SEARCH DISTANCE (miles)</u>
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A3	USGS40000268873	1/4 - 1/2 Mile North
B5	USGS40000268872	1/4 - 1/2 Mile NNW
C7	USGS40000268876	1/4 - 1/2 Mile North
D9	USGS40000268869	1/2 - 1 Mile WNW
E12	USGS40000268879	1/2 - 1 Mile North
D14	USGS40000268870	1/2 - 1 Mile WNW
F15	USGS40000268867	1/2 - 1 Mile SSW
E18	USGS40000268882	1/2 - 1 Mile North
G20	USGS40000268864	1/2 - 1 Mile SSW
H24	USGS40000268863	1/2 - 1 Mile SSW
I25	USGS40000268886	1/2 - 1 Mile NNW
I27	USGS40000268887	1/2 - 1 Mile NNW
J29	USGS40000268875	1/2 - 1 Mile NW
30	USGS40000268878	1/2 - 1 Mile NW
J32	USGS40000268877	1/2 - 1 Mile NW
34	USGS40000268888	1/2 - 1 Mile NNW
K35	USGS40000268861	1/2 - 1 Mile SSW
K38	USGS40000268860	1/2 - 1 Mile SSW
L39	USGS40000268883	1/2 - 1 Mile NW
M42	USGS40000268880	1/2 - 1 Mile NW

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

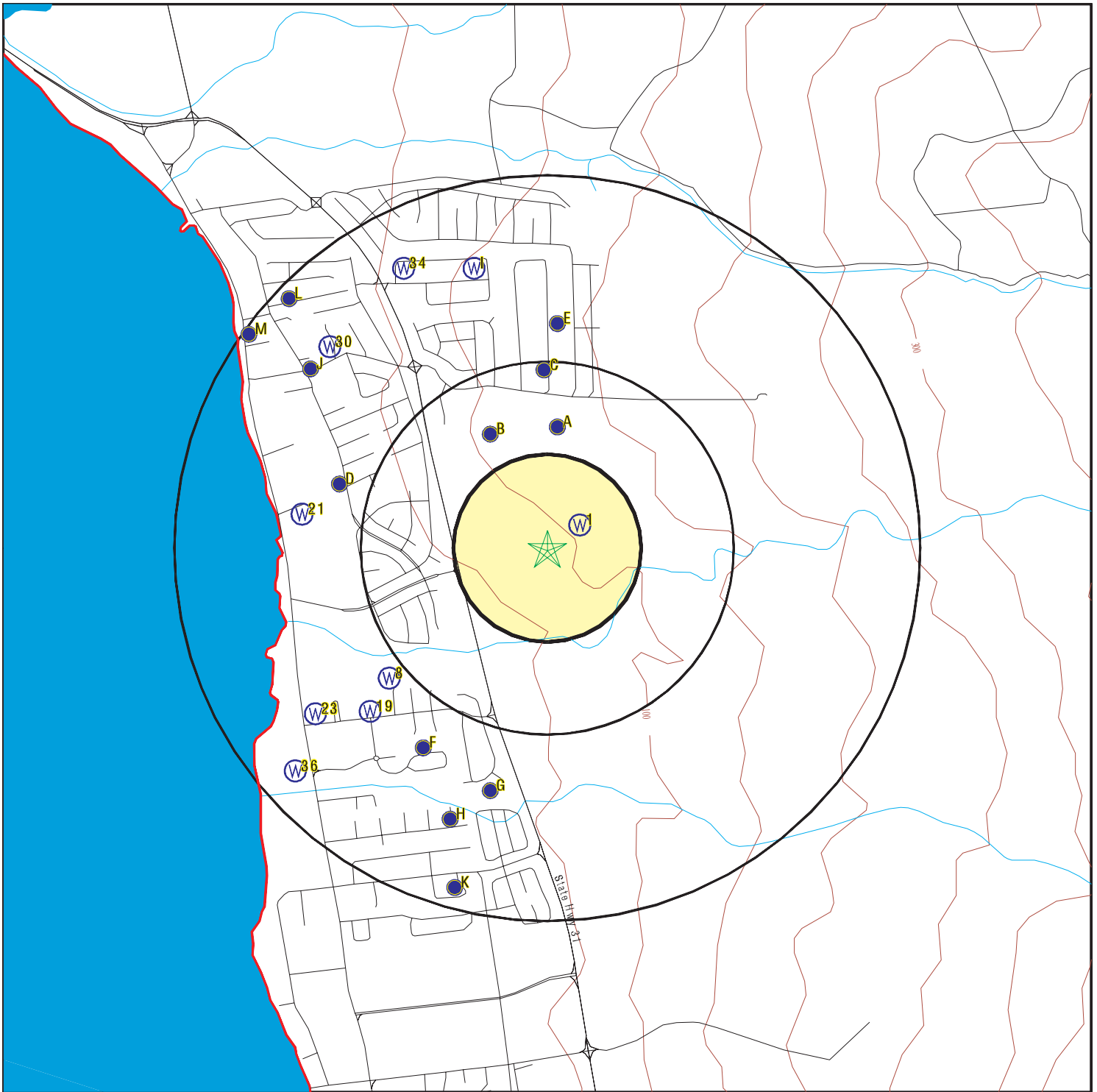
<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
1	HI8000000001116	0 - 1/8 Mile NE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

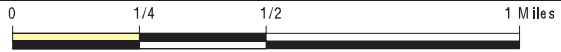
STATE DATABASE WELL INFORMATION

<u>MAP ID</u>	<u>WELL ID</u>	<u>LOCATION FROM TP</u>
A2	HI8000000001123	1/4 - 1/2 Mile North
B4	HI8000000001122	1/4 - 1/2 Mile NNW
C6	HI8000000001129	1/4 - 1/2 Mile North
8	HI8000000001112	1/2 - 1 Mile SW
D10	HI8000000001118	1/2 - 1 Mile WNW
E11	HI8000000001132	1/2 - 1 Mile North
D13	HI8000000001119	1/2 - 1 Mile WNW
E16	HI8000000001134	1/2 - 1 Mile North
F17	HI8000000001109	1/2 - 1 Mile SSW
19	HI8000000001111	1/2 - 1 Mile SW
21	HI8000000001117	1/2 - 1 Mile West
G22	HI8000000001107	1/2 - 1 Mile SSW
23	HI8000000001110	1/2 - 1 Mile SW
H26	HI8000000001106	1/2 - 1 Mile SSW
J28	HI8000000001126	1/2 - 1 Mile NW
J31	HI8000000001128	1/2 - 1 Mile NW
J33	HI8000000001130	1/2 - 1 Mile NW
36	HI8000000001108	1/2 - 1 Mile SW
L37	HI8000000001135	1/2 - 1 Mile NW
K40	HI8000000001104	1/2 - 1 Mile SSW
M41	HI8000000001131	1/2 - 1 Mile NW

PHYSICAL SETTING SOURCE MAP - 3679434.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons



- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location



SITE NAME: Piilani Promenade
 ADDRESS: Piilani Highway and Kaonoulu Street
 Kihei HI 96753
 LAT/LONG: 20.7684 / 156.4479

CLIENT: MEV, LLC
 CONTACT: Amy Mathis
 INQUIRY #: 3679434.2s
 DATE: July 29, 2013 7:24 pm

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

1
NE
0 - 1/8 Mile
Higher

HI WELLS HI8000000001116

Objectid:	3044	Wid:	6-4626-002
Island:	Maui	Well name:	Kaonoulu Irr 1
Old name:	Not Reported		
Yr drilled:	2012		
Driller:	Moreira		
Quad map:	0		
Long83dd:	-156.44655		
Lat83dd:	20.7693		
Gps:	0	Utm:	0
Owner user:	Charles Jenks	Old number:	Not Reported
Well type:	ROT	Casing dia:	10
Ground el:	118		
Well depth:	133		
Solid case:	123	Perf case:	133
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr water:	Not Reported
Init head:	1.12	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	180		
Test date:	1/17/2012	Test gpm:	179
Test ddown:	2.46	Test chlor:	180
Test temp:	73.5	Test unit:	F
Pump gpm:	150		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	2012		
Draft yr:	Not Reported	Bot hole:	-15
Bot solid:	-5	Bot perf:	-15
Spec capac:	Not Reported		
Pump mgd:	.216		
Draft mgd:	Not Reported	Pump elev:	-8
Pump depth:	128	Tmk:	(2) 3-9-001:169
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	02/23/2012
Pir:	2/23/2012	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001116

A2
North
1/4 - 1/2 Mile
Higher

HI WELLS HI8000000001123

Objectid:	3058	Wid:	6-4627-014
Island:	Maui	Well name:	Tmk 3-9-01-34
Old name:	Not Reported		
Yr drilled:	1969		
Driller:	OCEAN VIEW		
Quad map:	8		
Long83dd:	-156.4475		
Lat83dd:	20.7730555556		
Gps:	0	Utm:	-1
Owner user:	Hashimoto T	Old number:	226-

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	ROT	Casing dia:	Not Reported
Ground el:	130		
Well depth:	200		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use/structure:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	24	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-70
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1969
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001123

A3
North
1/4 - 1/2 Mile
Higher

FED USGS USGS40000268873

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204635156270101		
Monloc name:	6-4627-14 Waiakea Homesteads, Maui, HI		
Monloc type:	Well		
Monloc desc:	former local no. W226		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7731899
Longitude:	-156.447459	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	130.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19690101	Welldepth:	200
Welldepth units:	ft	Wellholedepth:	200
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

B4
NNW
1/4 - 1/2 Mile
Higher

HI WELLS HI800000001122

Objectid:	3052	Wid:	6-4627-008
Island:	Maui	Well name:	Tmk 3-9-01-33
Old name:	Not Reported		
Yr drilled:	1948		
Driller:	MULLIN		
Quad map:	8		
Long83dd:	-156.450277778		
Lat83dd:	20.772777778		
Gps:	0	Utm:	-1
Owner user:	Hashimoto T	Old number:	225-
Well type:	Not Reported	Casing dia:	6
Ground el:	Not Reported		
Well depth:	116		
Solid case:	85	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr: cat:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	100
Test ddown:	Not Reported	Test chlor:	435
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	12	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1948
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI800000001122

B5
NNW
1/4 - 1/2 Mile
Higher

FED USGS USGS40000268872

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204634156271101		
Monloc name:	6-4627-08 W225		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7729122
Longitude:	-156.4502367	Sourcemap scale:	24000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	105.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19480101	Welldepth:	116
Welldepth units:	ft	Wellholedepth:	116
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel

1973-07-16	92.28	

**C6
North
1/4 - 1/2 Mile
Higher**

HI WELLS HI800000001129

Objectid:	3059	Wid:	6-4627-015
Island:	Maui	Well name:	Trnk 3-9-26-43
Old name:	Not Reported		
Yr drilled:	1969		
Driller:	OCEAN VIEW		
Quad map:	8		
Long83dd:	-156.448055556		
Lat83dd:	20.7752777778		
Gps:	0	Utm:	-1
Owner user:	Neubauer A	Old number:	227-
Well type:	ROT	Casing dia:	4
Ground el:	Not Reported		
Well depth:	110		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr:cat:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1969
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001129

C7
North
1/4 - 1/2 Mile
Higher

FED USGS USGS40000268876

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204643156270301		
Monloc name:	6-4627-15 W227		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7754119
Longitude:	-156.4480145	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	130.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19690101	Welldepth:	110
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

8
SW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001112

Objectid:	3034	Wid:	6-4527-018
Island:	Maui	Well name:	Kaonoulu 5
Old name:	Not Reported		
Yr drilled:	2007		
Driller:	Not Reported		
Quad map:	6		
Long83dd:	-156.454444444		
Lat83dd:	20.7633333333		
Gps:	-1	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	ROT	Casing dia:	6
Ground el:	18		
Well depth:	50		
Solid case:	20	Perf case:	50
Use:	IRR - Landscape/Water Features	Use year:	Not Reported
Init head:	3.14	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	184		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	60		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	2006		
Draft yr:	Not Reported	Bot hole:	-32
Bot solid:	-2	Bot perf:	-32
Spec capac:	Not Reported		
Pump mgd:	.086		
Draft mgd:	Not Reported	Pump elev:	-28
Pump depth:	46	Tmk:	(2) 3-9-001:161
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	04/16/2007
Pir:	9/16/2009	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001112

**D9
WNW
1/2 - 1 Mile
Lower**

FED USGS USGS40000268869

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204626156273301		
Monloc name:	6-4627-11 W220		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7706902
Longitude:	-156.4563476	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19490101	Welldepth:	19
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

D10
WNW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001118

Objectid:	3055	Wid:	6-4627-011
Island:	Maui	Well name:	Tmk 3-9-01-99
Old name:	Not Reported		
Yr drilled:	1949		
Driller:	MULLIN		
Quad map:	6		
Long83dd:	-156.456388889		
Lat83dd:	20.7705555556		
Gps:	0	Utm:	-1
Owner user:	Alo S	Old number:	220-
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	19		
Solid case:	18	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr nature:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1949
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001118

E11
North
1/2 - 1 Mile
Higher

HI WELLS HI8000000001132

Objectid:	3060	Wid:	6-4627-016
Island:	Maui	Well name:	Tmk 3-9-26-67
Old name:	Not Reported		
Yr drilled:	1969		
Driller:	OCEAN VIEW		
Quad map:	8		
Long83dd:	-156.4475		
Lat83dd:	20.7766666667		
Gps:	0	Utm:	-1
Owner user:	Batoon A	Old number:	228-

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	ROT	Casing dia:	4
Ground el:	Not Reported		
Well depth:	161		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use/structure:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1969
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001132

E12
North
1/2 - 1 Mile
Higher

FED USGS USGS40000268879

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204648156270101		
Monloc name:	6-4627-16 W228		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7768007
Longitude:	-156.447459	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	140.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19690101	Welldepth:	161
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

D13
WNW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001119

Objectid:	3047	Wid:	6-4627-003
Island:	Maui	Well name:	Tmk 3-9-01-54
Old name:	Not Reported		
Yr drilled:	1947		
Driller:	VENTURA J		
Quad map:	6		
Long83dd:	-156.456666667		
Lat83dd:	20.7711111111		
Gps:	0	Utm:	-1
Owner user:	Ting L	Old number:	230-
Well type:	Not Reported	Casing dia:	10
Ground el:	Not Reported		
Well depth:	29		
Solid case:	26	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	QD		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1947
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001119

D14
WNW
1/2 - 1 Mile
Lower

FED USGS USGS40000268870

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204628156273401		
Monloc name:	6-4627-03 W230		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7712457
Longitude:	-156.4566253	Sourcemap scale:	24000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	3
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19470101	Welldepth:	29
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

F15
SSW
1/2 - 1 Mile
Lower

FED USGS USGS40000268867

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204550156272101		
Monloc name:	6-4527-06 W210		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.760691
Longitude:	-156.4530145	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	20.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19480101	Welldepth:	28
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

E16
North
1/2 - 1 Mile
Higher

HI WELLS HI800000001134

Objectid:	3061	Wid:	6-4627-017
Island:	Maui	Well name:	Trnk 3-9-26-66
Old name:	Not Reported		
Yr drilled:	1969		
Driller:	OCEAN VIEW		
Quad map:	8		
Long83dd:	-156.4475		
Lat83dd:	20.7775		
Gps:	0	Utm:	-1
Owner user:	Tavares H	Old number:	229-

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	ROT	Casing dia:	4
Ground el:	Not Reported		
Well depth:	120		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1969
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001134

**F17
SSW
1/2 - 1 Mile
Lower**

HI WELLS HI8000000001109

Objectid:	3026	Wid:	6-4527-006
Island:	Maui	Well name:	Tmk 3-9-01-9
Old name:	Not Reported		
Yr drilled:	1948		
Driller:	MULLIN		
Quad map:	8		
Long83dd:	-156.453055556		
Lat83dd:	20.7605555556		
Gps:	0	Utm:	-1
Owner user:	Teruya E	Old number:	210-
Well type:	Not Reported	Casing dia:	6
Ground el:	Not Reported		
Well depth:	28		
Solid case:	25	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	42
Test ddown:	Not Reported	Test chlor:	541
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(2) 3-9-001:009
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1948
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001109

E18
North
1/2 - 1 Mile
Higher

FED USGS USGS40000268882

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204651156270101		
Monloc name:	6-4627-17 W229		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.777634
Longitude:	-156.447459	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	140.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19690101	Welldepth:	120
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

19
SW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001111

Objectid:	3036	Wid:	6-4527-020
Island:	Maui	Well name:	Haleakala Gardens Irrigation
Old name:	Not Reported		
Yr drilled:	2012		
Driller:	Not Reported		
Quad map:	0		
Long83dd:	-156.455236		
Lat83dd:	20.762039		
Gps:	0	Utm:	0
Owner user:	Not Reported	Old number:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	Not Reported	Casing dia:	6
Ground el:	11.41		
Well depth:	60		
Solid case:	35	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use:	Not Reported
Init head:	2.65	Init head2:	2.65
Init head3:	2.92		
Init cl:	120		
Test date:	9/17/2012	Test gpm:	90
Test ddown:	0.9	Test chlor:	120
Test temp:	73	Test unit:	F
Pump gpm:	90		
Draft mgy:	71	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Qa		
Pump yr:	2012		
Draft yr:	Not Reported	Bot hole:	-48.59
Bot solid:	-23.59	Bot perf:	Not Reported
Spec capac:	100		
Pump mgd:	.13		
Draft mgd:	Not Reported	Pump elev:	-12.59
Pump depth:	24	Tmk:	(2) 3-9-044:041
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	11/08/2012
Pir:	11/8/2012	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001111

**G20
SSW
1/2 - 1 Mile
Lower**

FED USGS USGS40000268864

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204544156271101		
Monloc name:	6-4527-08 PIILANI		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7590244
Longitude:	-156.4502368	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	35.75
Vert measure units:	feet	Vertacc measure val:	.1
Vert accmeasure units:	feet		
Vertcollection method:	Level or other surveying method		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19900426	Welldepth:	66
Welldepth units:	ft	Wellholedepth:	66
Wellholedepth units:	ft		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1990-04-26	35.25	

21
West
1/2 - 1 Mile
Lower

HI WELLS HI8000000001117

Objectid:	3062	Wid:	6-4627-019
Island:	Maui	Well name:	Maui Lu
Old name:	Not Reported		
Yr drilled:	1956		
Driller:	GIBSON		
Quad map:	8		
Long83dd:	-156.458055556		
Lat83dd:	20.7697222222		
Gps:	0	Utm:	-1
Owner user:	Maui Lu Resort	Old number:	Not Reported
Well type:	DUG	Casing dia:	Not Reported
Ground el:	Not Reported		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	IRR - Landscape/Water Features	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	600		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(2) 3-9-001:086
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	12/30/1899
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001117

G22
SSW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001107

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid:	3028	Wid:	6-4527-008
Island:	Maui	Well name:	Kihei-Piilani
Old name:	Not Reported		
Yr drilled:	1990		
Driller:	DAVID PICO		
Quad map:	8		
Long83dd:	-156.450277778		
Lat83dd:	20.7588888889		
Gps:	0	Utm:	-1
Owner user:	Blackfield Hawaii	Old number:	Not Reported
Well type:	ROT	Casing dia:	10
Ground el:	41		
Well depth:	71		
Solid case:	38	Perf case:	58
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Use year:	Not Reported
Init head:	0.75	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	4/26/1990	Test gpm:	25
Test ddown:	0.3	Test chlor:	420
Test temp:	23.3	Test unit:	C
Pump gpm:	40		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	1997		
Draft yr:	Not Reported	Bot hole:	-30
Bot solid:	3	Bot perf:	-17
Spec capac:	83		
Pump mgd:	.057		
Draft mgd:	Not Reported	Pump elev:	-9
Pump depth:	50	Tmk:	(2) 2-2-002:042
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	05/01/1990
Pir:	1/16/1997	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001107

**23
SW
1/2 - 1 Mile
Lower**

HI WELLS HI8000000001110

Objectid:	3029	Wid:	6-4527-010
Island:	Maui	Well name:	Kihei-Koa
Old name:	Not Reported		
Yr drilled:	1992		
Driller:	OWNER		
Quad map:	6		
Long83dd:	-156.4575		
Lat83dd:	20.7619444444		
Gps:	0	Utm:	-1
Owner user:	Koa Res Assoc	Old number:	Not Reported
Well type:	DUG	Casing dia:	24
Ground el:	7		
Well depth:	14		
Solid case:	7	Perf case:	12
Use:	IRR - Landscape/Water Features	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	335		
Test date:	8/6/1992	Test gpm:	20
Test ddown:	1.8	Test chlor:	697

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Test temp:	24.4	Test unit:	C
Pump gpm:	30		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	QD		
Pump yr:	1992		
Draft yr:	Not Reported	Bot hole:	-7
Bot solid:	0	Bot perf:	-5
Spec capac:	11		
Pump mgd:	.043		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(2) 3-9-001:134
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	07/24/1992
Pir:	8/8/1992	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001110

**H24
SSW
1/2 - 1 Mile
Lower**

FED USGS

USGS40000268863

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204540156271701		
Monloc name:	6-4527-07 W207		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7579134
Longitude:	-156.4519034	Sourcemap scale:	24000
Horiz Acc measure:	5	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	25.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19490101	Welldepth:	42
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**I25
NNW
1/2 - 1 Mile
Higher**

FED USGS

USGS40000268886

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204657156271301		
Monloc name:	6-4627.CA IWS		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7793005
Longitude:	-156.450792	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	110.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19740917	Welldepth:	30
Welldepth units:	ft	Wellholedepth:	30
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel

1974-09-17

Note: The site was dry (no water level recorded).

**H26
SSW
1/2 - 1 Mile
Lower**

HI WELLS HI800000001106

Objectid:	3027	Wid:	6-4527-007
Island:	Maui	Well name:	Tmk 3-9-23-30
Old name:	Not Reported		
Yr drilled:	1949		
Driller:	MULLIN		
Quad map:	8		
Long83dd:	-156.451944444		
Lat83dd:	20.7577777778		
Gps:	0	Utm:	-1
Owner user:	Uyeno H	Old number:	207-
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	42		
Solid case:	42	Perf case:	Not Reported
Use:	UNU - Unused	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(2) 3-9-023:030
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1949
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001106

**I27
NNW
1/2 - 1 Mile
Higher**

FED USGS USGS40000268887

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204657156271401		
Monloc name:	6-4627.BA IWS		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7793005
Longitude:	-156.4510699	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	110.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19740916	Welldepth:	23
Welldepth units:	ft	Wellholedepth:	23
Wellholedepth units:	ft		

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel

1974-09-16		

Note: The site was dry (no water level recorded).

**J28
NW
1/2 - 1 Mile
Lower**

HI WELLS HI8000000001126

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid:	3056	Wid:	6-4627-012
Island:	Maui	Well name:	Tmk 3-9-15-12
Old name:	Not Reported		
Yr drilled:	1950		
Driller:	MULLIN		
Quad map:	6		
Long83dd:	-156.457777778		
Lat83dd:	20.775		
Gps:	0	Utm:	-1
Owner user:	Fedalizo C	Old number:	235-
Well type:	Not Reported	Casing dia:	8
Ground el:	Not Reported		
Well depth:	31		
Solid case:	31	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr type:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1950
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001126

**J29
NW
1/2 - 1 Mile
Lower**

FED USGS USGS40000268875

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204642156273801		
Monloc name:	6-4627-12 W235		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7751343
Longitude:	-156.4577364	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	31
Construction date:	19500101	Wellholeddepth:	Not Reported
Welldepth units:	ft		
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**30
NW
1/2 - 1 Mile
Lower**

FED USGS USGS40000268878

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204646156273501		
Monloc name:	6-4627-01 W237		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7762453
Longitude:	-156.456903	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	23.00
Vert measure units:	feet	Vertacc measure val:	3
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholeddepth:	Not Reported
Wellholeddepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**J31
NW
1/2 - 1 Mile
Lower**

HI WELLS HI800000001128

Objectid:	3057	Wid:	6-4627-013
Island:	Maui	Well name:	Trnk 3-9-15-14
Old name:	Not Reported		
Yr drilled:	1950		
Driller:	MULLIN		
Quad map:	6		
Long83dd:	-156.457777778		
Lat83dd:	20.775277778		
Gps:	0	Utm:	-1
Owner user:	Bosque J	Old number:	236-
Well type:	Not Reported	Casing dia:	8
Ground el:	20		
Well depth:	29		
Solid case:	20	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugriat:	Not Reported
Init head:	3.1	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	-9
Bot solid:	9	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1950
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001128

**J32
NW
1/2 - 1 Mile
Lower**

FED USGS USGS40000268877

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204643156273801		
Monloc name:	6-4627-13 W236		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.775412
Longitude:	-156.4577364	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	20.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19500101	Welldepth:	29
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

**J33
NW
1/2 - 1 Mile
Lower**

HI WELLS HI8000000001130

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Objectid:	3045	Wid:	6-4627-001
Island:	Maui	Well name:	Tmk 3-9-01-24
Old name:	Not Reported		
Yr drilled:	0		
Driller:	Not Reported		
Quad map:	6		
Long83dd:	-156.4575		
Lat83dd:	20.7761111111		
Gps:	0	Utm:	-1
Owner user:	Uehara T	Old number:	237-
Well type:	Not Reported	Casing dia:	Not Reported
Ground el:	Not Reported		
Well depth:	0		
Solid case:	Not Reported	Perf case:	Not Reported
Use:	Other	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	12/30/1899
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001130

34
NNW
1/2 - 1 Mile
Lower

FED USGS USGS4000026888

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204657156272401		
Monloc name:	6-4627.AA IWS		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7793005
Longitude:	-156.4538476	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	58.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Aquifer type:	Not Reported	Welldepth:	28
Construction date:	19730720	Wellholeddepth:	28
Welldepth units:	ft		
Wellholeddepth units:	ft		

Ground-water levels, Number of Measurements: 1

	Feet below	Feet to
Date	Surface	Sealevel

1973-07-20

Note: The site was dry (no water level recorded).

K35
SSW
1/2 - 1 Mile
Lower

FED USGS USGS40000268861

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204533156271701		
Monloc name:	6-4527.AA IWS		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7559691
Longitude:	-156.4519034	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	19.00
Vert measure units:	feet	Vertacc measure val:	10
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILocal	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19741109	Welldepth:	60
Welldepth units:	ft	Wellholeddepth:	60
Wellholeddepth units:	ft		

Ground-water levels, Number of Measurements: 0

36
SW
1/2 - 1 Mile
Lower

HI WELLS HI800000001108

Objectid:	3031	Wid:	6-4527-014
Island:	Maui	Well name:	Kauhale Makai
Old name:	Not Reported		
Yr drilled:	2001		
Driller:	WAILANI DRLG		
Quad map:	6		
Long83dd:	-156.458333333		
Lat83dd:	20.759722222		
Gps:	0	Utm:	-1
Owner user:	Kauhale Makai	Old number:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Well type:	ROT	Casing dia:	6
Ground el:	9		
Well depth:	86		
Solid case:	57	Perf case:	Not Reported
Use:	IRR - Parks	Use year:	Not Reported
Init head:	1.69	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	2518		
Test date:	3/7/2001	Test gpm:	100
Test ddown:	5.77	Test chlor:	2897
Test temp:	74	Test unit:	F
Pump gpm:	150		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	Not Reported		
Pump yr:	2001		
Draft yr:	Not Reported	Bot hole:	-77
Bot solid:	-48	Bot perf:	Not Reported
Spec capac:	17		
Pump mgd:	.216		
Draft mgd:	Not Reported	Pump elev:	-15
Pump depth:	24	Tmk:	(2) 3-9-001:075
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	12/30/1899
Pir:	Not Reported	Surveyor:	KIRK T TANAKA
T:	4552	Site id:	HI8000000001108

**L37
NW
1/2 - 1 Mile
Lower**

HI WELLS HI8000000001135

Objectid:	3053	Wid:	6-4627-009
Island:	Maui	Well name:	Tmk 3-9-01-50
Old name:	Not Reported		
Yr drilled:	1948		
Driller:	MULLIN		
Quad map:	6		
Long83dd:	-156.458611111		
Lat83dd:	20.7780555556		
Gps:	0	Utm:	-1
Owner user:	Gusukuma T	Old number:	238-
Well type:	Not Reported	Casing dia:	4
Ground el:	Not Reported		
Well depth:	35		
Solid case:	35	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Init head2:	Not Reported
Init head:	Not Reported		
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1948
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001135

K38
SSW
1/2 - 1 Mile
Lower

FED USGS USGS40000268860

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204529156271601		
Monloc name:	6-4527-01 W200		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7548581
Longitude:	-156.4516257	Sourcemap scale:	24000
Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	18.00
Vert measure units:	feet	Vertacc measure val:	3
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19450101	Welldepth:	30
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

L39
NW
1/2 - 1 Mile
Lower

FED USGS USGS40000268883

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204653156274101		
Monloc name:	6-4627-09 W238		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7781896
Longitude:	-156.4585696	Sourcemap scale:	24000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	25.00
Vert measure units:	feet	Vertacc measure val:	5
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19480101	Welldepth:	35
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

K40
SSW
1/2 - 1 Mile
Lower

HI WELLS HI8000000001104

Objectid:	3021	Wid:	6-4527-001
Island:	Maui	Well name:	TMK 3-9-02-36
Old name:	Not Reported		
Yr drilled:	1945		
Driller:	MULLIN		
Quad map:	8		
Long83dd:	-156.451666667		
Lat83dd:	20.7547222222		
Gps:	0	Utm:	-1
Owner user:	Akina R	Old number:	200-
Well type:	Not Reported	Casing dia:	6
Ground el:	Not Reported		
Well depth:	30		
Solid case:	22	Perf case:	Not Reported
Use:	AGR - Crops and Processing	Use year:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	250
Test ddown:	2	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	120		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	TK		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	125		
Pump mgd:	.17		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	(2) 3-9-002:036
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1945
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI8000000001104

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database EDR ID Number

M41
NW
1/2 - 1 Mile
Lower

HI WELLS HI800000001131

Objectid:	3054	Wid:	6-4627-010
Island:	Maui	Well name:	Tmk 3-9-06-06
Old name:	Not Reported		
Yr drilled:	1948		
Driller:	MULLIN		
Quad map:	6		
Long83dd:	-156.460277778		
Lat83dd:	20.7766666667		
Gps:	0	Utm:	-1
Owner user:	Fujimoto I	Old number:	239-
Well type:	Not Reported	Casing dia:	7
Ground el:	Not Reported		
Well depth:	19		
Solid case:	19	Perf case:	Not Reported
Use:	IRR - Irrigation (non-domestic, non-agriculture)	Ugr nature:	Not Reported
Init head:	Not Reported	Init head2:	Not Reported
Init head3:	Not Reported		
Init cl:	0		
Test date:	Not Reported	Test gpm:	Not Reported
Test ddown:	Not Reported	Test chlor:	Not Reported
Test temp:	Not Reported	Test unit:	Not Reported
Pump gpm:	0		
Draft mgy:	Not Reported	Head feet:	Not Reported
Max chlor:	Not Reported	Min chlor:	Not Reported
Geology:	THO		
Pump yr:	0		
Draft yr:	Not Reported	Bot hole:	Not Reported
Bot solid:	Not Reported	Bot perf:	Not Reported
Spec capac:	Not Reported		
Pump mgd:	0		
Draft mgd:	Not Reported	Pump elev:	Not Reported
Pump depth:	Not Reported	Tmk:	Not Reported
Aqui code:	60304		
Latest hd:	Not Reported	Wcr:	01/01/1948
Pir:	Not Reported	Surveyor:	Not Reported
T:	Not Reported	Site id:	HI800000001131

M42
NW
1/2 - 1 Mile
Lower

FED USGS USGS40000268880

Org. Identifier:	USGS-HI		
Formal name:	USGS Hawaii Water Science Center		
Monloc Identifier:	USGS-204648156274701		
Monloc name:	6-4627-10 W239		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	20020000	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	20.7768008
Longitude:	-156.4602363	Sourcemap scale:	24000

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Horiz Acc measure:	1	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refs:	NAD83	Vert measure val:	10.00
Vert measure units:	feet	Vertacc measure val:	2
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refs:	HILOCAL	Countrycode:	US
Aquifername:	Not Reported		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	19480101	Welldepth:	19
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for MAUI County: 3

- Note: Zone 1 indoor average level > 4 pCi/L.
 : Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
 : Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 96753

Number of sites tested: 10

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.010 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)

Source: United States Geologic Survey

EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)

Source: United States Geologic Survey

A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System

Source: EDR proprietary database of groundwater flow information

EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit

Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services

The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database

Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)

Telephone: 800-672-5559

SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data

Source: EPA/Office of Drinking Water

Telephone: 202-564-3750

Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)

This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Well Index Database

Source: Commission on Water Resource Management

Telephone: 808-587-0214

CWRM maintains a Well Index Database to track specific information pertaining to the construction and installation of production wells in Hawaii

OTHER STATE DATABASE INFORMATION

RADON

Area Radon Information

Source: USGS

Telephone: 703-356-4020

The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones

Source: EPA

Telephone: 703-356-4020

Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities

Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater

Source: Department of Commerce, National Oceanic and Atmospheric Administration

PHYSICAL SETTING SOURCE RECORDS SEARCHED

STREET AND ADDRESS INFORMATION

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Piilani Promenade

Piilani Highway and Kaonoulu Street

Kihei, HI 96753

Inquiry Number: 3679434.3

July 29, 2013

Certified Sanborn® Map Report

Certified Sanborn® Map Report

7/29/13

Site Name:

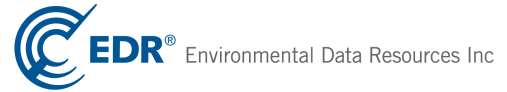
Piilani Promenade
Piilani Highway and Kaonoulu
Kihei, HI 96753

Client Name:

MEV, LLC
P.O. Box 880487
Pukalani, HI 96788

EDR Inquiry # 3679434.3

Contact: Amy Mathis



The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by MEV, LLC were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name: Piilani Promenade
Address: Piilani Highway and Kaonoulu Street
City, State, Zip: Kihei, HI 96753
Cross Street:
P.O. # 1307-0292
Project: Piilani Promenade
Certification # 72AB-40AE-9149



Sanborn® Library search results
Certification # 72AB-40AE-9149

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- Library of Congress
- University Publications of America
- EDR Private Collection

The Sanborn Library LLC Since 1866™

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MALAMA Environmental

July 18, 2013

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 308
Honolulu, HI 96814
Attn: Safe Drinking Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: (2) 2-2-2: 16 (portion) (2) 2-2-2: 77
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: (2) 2-2-2: 16 (portion) **Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) **Kaonoulu Ranch**
(2) 3-9-1: 34 (portion) **Harry H. Hashimoto Trust**
(2) 3-9-1: 170, 171, 172 **Piilani Promenade South**
(2) 3-9-1: 16 **Piilani Promenade North**
(2) 3-9-1: 169 **Honua'ula Partners LLC**

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King

>Jeffrey

>

>Regarding MEV Project Number 1307-0292, there are no UIC records
>associated with any of the 9 properties.

>

>Norris Uehara

>

>Supervisor, Groundwater Pollution Control Section

>

>Safe Drinking Water Branch

>

>808 586-4258



MALAMA Environmental

July 18, 2013

Hawaii State Department of Health
919 Ala Moana Blvd., Room 203
Honolulu, HI 96814
Attn: Wastewater Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: **(2) 2-2-2: 16 (portion) (2) 2-2-2: 77**
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: **(2) 2-2-2: 16 (portion) Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) Kaonoulu Ranch
(2) 3-9-1: 34 (portion) Harry H. Hashimoto Trust
(2) 3-9-1: 170, 171, 172 Piilani Promenade South
(2) 3-9-1: 16 Piilani Promenade North
(2) 3-9-1: 169 Honua'ula Partners LLC

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King



MALAMA Environmental

July 18, 2013

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 309
Honolulu, HI 96814
Attn: Clean Air Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: (2) 2-2-2: 16 (portion) (2) 2-2-2: 77
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: (2) 2-2-2: 16 (portion) **Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) **Kaonoulu Ranch**
(2) 3-9-1: 34 (portion) **Harry H. Hashimoto Trust**
(2) 3-9-1: 170, 171, 172 **Piilani Promenade South**
(2) 3-9-1: 16 **Piilani Promenade North**
(2) 3-9-1: 169 **Honua'ula Partners LLC**

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King



MALAMA Environmental

July 18, 2013

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 301
Honolulu, HI 96814
Attn: Clean Water Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: (2) 2-2-2: 16 (portion) (2) 2-2-2: 77
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: (2) 2-2-2: 16 (portion) **Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) **Kaonoulu Ranch**
(2) 3-9-1: 34 (portion) **Harry H. Hashimoto Trust**
(2) 3-9-1: 170, 171, 172 **Piilani Promenade South**
(2) 3-9-1: 16 **Piilani Promenade North**
(2) 3-9-1: 169 **Honua'ula Partners LLC**

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King



MALAMA Environmental

July 18, 2013

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 206
Honolulu, HI 96814
Attn: HEER Office

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: (2) 2-2-2: 16 (portion) (2) 2-2-2: 77
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: (2) 2-2-2: 16 (portion) **Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) **Kaonoulu Ranch**
(2) 3-9-1: 34 (portion) **Harry H. Hashimoto Trust**
(2) 3-9-1: 170, 171, 172 **Piilani Promenade South**
(2) 3-9-1: 16 **Piilani Promenade North**
(2) 3-9-1: 169 **Honua'ula Partners LLC**

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King



MALAMA Environmental

July 18, 2013

State of Hawaii Department of Health
Environmental Management Division
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814
Attn: Solid & Hazardous Waste Branch

Subject: REQUEST FOR PUBLIC RECORDS

Dear Sir/Madam:

We are requesting a search for any past or pending environmental permits, licenses, citations, releases, or other information pertaining to the site(s) described below.

SITE INFORMATION:

MEV Project Number: **1307-0292**

Tax Map Key No.: (2) 2-2-2: 16 (portion) (2) 2-2-2: 77
(2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion)
(2) 3-9-1: 16,169, 170, 171, 172

Address: **East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753**

Current Owners: (2) 2-2-2: 16 (portion) **Haleakala Ranch Company**
(2) 2-2-2: 77 & 82 (portion) **Kaonoulu Ranch**
(2) 3-9-1: 34 (portion) **Harry H. Hashimoto Trust**
(2) 3-9-1: 170, 171, 172 **Piilani Promenade South**
(2) 3-9-1: 16 **Piilani Promenade North**
(2) 3-9-1: 169 **Honua'ula Partners LLC**

Former Owner: **Unknown**

Current Occupant: **Unoccupied**

Type of Business: **Vacant land**

Tax Map Keys are enclosed.

Sincerely,

Jeffrey R. King



MALAMA Environmental

July 18, 2013

Maui County Fire Department
Hazardous Materials Division
200 Dairy Road
Kahului, Hawaii 96732
Attn: Acting Officer

RE: Request for Public Records

Dear Sir/Madam:

MEV is requesting any past or present information of environmental concern pertaining to the subject site and adjacent sites from the Maui County Fire Department's database. This could include information on environmental releases (spills), permits, citations, inspections, fires, etc.

SITE INFORMATION:

MEV Project Number:	1307-0292
Tax Map Key No.:	(2) 2-2-2: 16 (portion) (2) 2-2-2: 77 (2) 2-2-2: 82 (portion) (2) 3-9-1: 34 (portion) (2) 3-9-1: 16,169, 170, 171, 172
Address:	East of Piilani Highway, east of Ka'ono'ulu Street and south of Ohukai Road Kihei, HI 96753
Current Owners:	(2) 2-2-2: 16 (portion) Haleakala Ranch Company (2) 2-2-2: 77 & 82 (portion) Kaonoulou Ranch (2) 3-9-1: 34 (portion) Harry H. Hashimoto Trust (2) 3-9-1: 170, 171, 172 Piilani Promenade South (2) 3-9-1: 16 Piilani Promenade North (2) 3-9-1: 169 Honua'ula Partners LLC
Former Owner:	Unknown
Current Occupant:	Unoccupied
Type of Business:	Vacant land

Thank you for your assistance.

Sincerely yours,

Jeffrey R. King

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
DOH/CWB

R10D273.EXT.12

October 15, 2012

Mr. Douglas Gray
President
Piilani Promenade South LLC
178022 Sky Park Circle #200
Irvine, California 92614

Dear Mr. Gray:

**Subject: Administrative Extension of
Notice of General Permit Coverage (NGPC)
Kaonoulu Market Place / Piilani Promenade
Kihei, Island of Maui, Hawaii
File No. HI R10D273**

The Department of Health (DOH), Clean Water Branch (CWB), acknowledges receipt of your renewal Notice of Intent (NOI) and \$500 filing fee for coverage under the National Pollutant Discharge Elimination System general permit provisions, in accordance with the Hawaii Administrative Rules (HAR), Section 11-55-34.08.

The DOH is unable to complete the processing of your NOI prior to the current NGPC expiration date. Therefore, in accordance with HAR, Section 11-55-34.09(d), the DOH hereby administratively extends the subject NGPC until a notice of renewed coverage under the applicable general permit is issued or until notified by the DOH, whichever occurs first. Please note that the DOH may request you submit additional information in order to complete the processing of your NOI for renewed coverage.

The Permittee shall not be held in violation of Hawaii Revised Statutes, Chapter 342D-6(h), and HAR, Chapter 11-55, during the pendency of its renewal NOI, so long as it acts consistently with the NGPC presently granted. **Note: The Permittee shall continue any sampling required by the current NGPC.** Any non-compliance with the conditions of the administratively extended NGPC may be subject to penalties of up to \$25,000 per violation per day.

It is the Permittee's responsibility to ensure that anyone working under this administrative extension of your NGPC understands and complies with the terms and conditions therein.

Mr. Douglas Gray
October 15, 2012
Page 2

R10D273.EXT.12

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at (808) 586-4309.

Sincerely,



STUART YAMADA, P.E., CHIEF
Environmental Management Division

Enclosure: Receipt No. 41339 for \$500 Filing Fee

- c: Mr. Douglas Gray, Piilani Promenade South LLC (w/o encl.)
[via e-mail dgray@eclipsedevelopmentgroup.com]
- Mr. Charles Jenks, Piilani Promenade South LLC (w/o encl.)
[via e-mail charliej@pacificrimland.com]
- Mr. Derek Ono, Warren S. Unemori Engineering (w/o encl.) [via e-mail dono@wsui.com]

Amy, attached find the questionnaire you requested. The following addresses your questions:

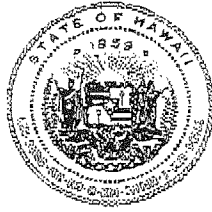
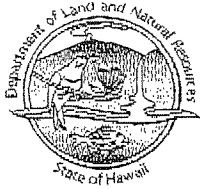
1. Could you please tell me what the intended use is for the property? Will some of it be residential?
At the present time there is a residential component of 200 rental units proposed for the project.

2. When I was walking around the baseyard, I noted 2 metal storage containers that were locked. Can you tell me what is inside of the containers?
General construction materials associated with the material already purchased and stored on site such as valves, fasteners, etc.

3. Are there any petroleum projects within the baseyard that you are aware of?
Not at present
4. Has there been a recent archaeological inspection conducted on the premises? If so, can I take a look at it?
Yes, the AIS was done in the early 90's and I have attached to this email.

CJ

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

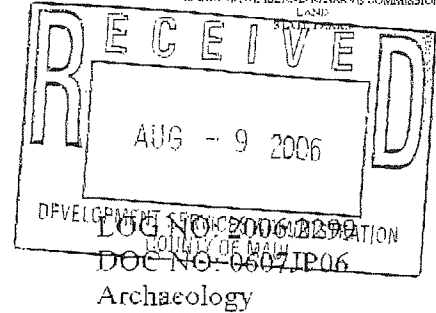
ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF COMPLIANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CORRECTION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND AND WATERS RESERVE COMMISSION
LAND

July 21, 2006

Mr. Bert Ratte
Department of Public Works and Environmental Management
Development Services Administration, County of Maui
250 South High Street,
Wailuku Hawai'i 96793



Dear Mr. Ratte:

**SUBJECT: Chapter 6E-42 Historic Preservation Review [County/DSA] –
Construction Plan Review and Drainage Report (File No: 2.2795) for the
Proposed Ka'onu'ulu Marketplace AKA Ka'onu'ulu Ranch Large Lot
Subdivision
Ka'onu'ulu Ahupua'a, Wailuku District, Island of Maui
TMK: (2) 2-2-002:015 & 3-9-001:016**

The proposed undertaking involves Lot 2 of Ka'onu'ulu Ranch (Large-Lot) Subdivision. Proposed plans involve the development of approximately eighty-eight (88) acres that includes a commercial center consisting of four (4) light industrial lots numbered 1 through 4. Development will include asphalt paved roadways, concrete curbing and gutters, concrete sidewalks, and landscaping. Utility improvements will consist of underground sewer, drainage, water, and electrical and telephone distribution center.

We have previously provided comments involving the subject parcel (LOG NO: 2004.3636/ DOC NO: 0412CD19; LOG NO: 2004.1249/ DOC NO: 0404CD42). We commented on the preliminary plat review that summarized the status of the subject parcel (LOG NO: 2003.2065/ DOC NO: 0310CD33). In 1994, Xamanek Researches conducted an archaeological inventory survey and documented twenty-one (21) historic sites that were issued twenty (20) State Inventory of Historic Places (SIHP) numbers 50-50-10-3727 through -3746. Of these sites, nineteen (19) were deemed significant for information content and have had sufficient data collected therefore no further archaeological work is necessary. One (1) site (petroglyph) was removed from the original location and slated for permanent preservation at a different location [TMK: (2) 2-2-006:009]. The present location of the petroglyph is specified in the preservation plan (after-the-fact) that was submitted by Xamanek for Munekiyo and Arakawa in 1994 (LOG NO: 1998.21157/ DOC NO: 9802BD21).

At the time of the preliminary plat review, we requested that no action be taken of the subdivision until we have received a site plan with the original and permanent locations of SIHP 50-50-10-3746

Mr. Bert Ratte
Page 2

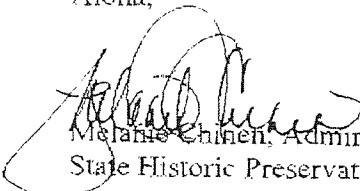
clearly demarcated by a licensed surveyor (LOG NO: 2003.2065/ DOC NO: 0310CD33). Our records indicate that we have not yet received a location map for the petroglyph.

We concur that **no historic properties will be affected** by this undertaking because:

- Intensive cultivation has altered the land
- Residential development/urbanization has altered the land
- Previous grubbing/grading has altered the land
- An accepted archaeological inventory survey (AIS) found no historic properties
- SHPD previously reviewed this project and mitigation has been completed
- Other: *We have previously investigated the subject property and documented twenty (20) historic archaeological sites. SIHP 50-50-10-3746 (petroglyph) was slated for permanent preservation and has an accepted preservation plan. It is unlikely that any historic properties will be affected by the proposed undertaking considering the specifics of the preservation plan are implemented.*

In the event that historic resources, including human skeletal remains, are identified during routine construction activities, all work needs to cease in the immediate vicinity of the find, the find needs to be protected from additional disturbance, and the State Historic Preservation Division, Maui Section, needs to be contacted immediately at (808) 243-5169.

Aloha,


Melanie Chinen, Administrator
State Historic Preservation Division

JP:kf:gvf

c: Michael Foley, Director, Department of Planning, FAX 808-270-7634
Maui Cultural Resources Commission, Dept. of Planning, 250 S. High St., Wailuku, HI 96793

Appendix C:

Qualifications of Environmental Professionals



MALAMA Environmental

STATEMENT OF QUALIFICATIONS

for

Amy Mathis, Environmental Scientist

Company Position

Environmental Scientist (Geologist)

Responsibilities and Duties:

- Project Coordinator on Phase I & II Environmental Site Assessments/Investigations
- Project Coordinator on Phase III Remediation Projects
- Assist on Underground Storage Tank (UST) Closures
- Asbestos Inspections and Sampling
- Assist on Lead-Based Paint Inspections
- Indoor Air Quality Investigations and Sampling
- Erosion Control Plan (BMP) Development
- QA/QC Officer for Sampling Projects

Experience:

- Soil Investigations/Remediation
- UST Removal and Closure
- Hazardous Materials Management
- Asbestos and Lead-Based Paint Projects (Inspections & Sampling)
- Air Quality Sampling for Particulate and Microbiological Contaminants
- Wetland Delineations
- Environmental Report Writing and Compilation
- Ornithological counts/data collections
- Entomological counts/data collections
- Chemical technician specializing in wet chemical methods, analytical instrumentation and sample preparation.
- Geological mapping
- Vegetation mapping

Training & Education

- Bachelor of Science, Geology with Environmental Science Option
New Mexico Institute of Mining and Technology, 1996-1999.
- Bachelor of Fine Arts, Music with minors in Fine Art and Theater
Kutztown University Pennsylvania 1991-1995.
- Registered Environmental Assessor I REA I - 30347
- 40-hr OSHA HAZWOPER Course
- AHERA Asbestos Building Inspector HIASB-3044
- Asbestos Air Quality Project Monitor
- Asbestos Contract Supervisor
- Lead-Based Paint Inspector PB-0446



MALAMA Environmental

STATEMENT OF QUALIFICATIONS

for

Jeffrey R. King, Manager-Technical Services

Company Position: Manager – Technical Services

Responsibilities and Duties:

- Phase I & II Environmental Site Assessments/Investigations
- Soil and Groundwater Investigation and Remediation Projects
- Underground Storage Tank (UST) Projects
- Asbestos, Lead-Based Paint, Hazardous Materials Inspections and Sampling
- Storm Water and Indoor Air Quality Investigations and Sampling
- Waste Management and Regulatory Compliance Projects
- Proposals, Contracts, Marketing

Experience:

- Soil and Groundwater Investigations/Remediation
- UST Investigations, Removal, and Closure
- Subsurface Investigations with Various Drill Rig Technologies
- Environmental Site Assessments, Property Condition Assessments
- Environmental Report Writing, Review, and Authorization
- Environmental Health and Safety
- Regulatory Compliance/Permitting
- Emergency Response

Training & Education:

- Bachelor of Science, Geology, University of California, Los Angeles, 1979
- Graduate Courses in Hazardous Materials Management, Wayne State University, Detroit, Michigan, 1988-89
- 40-hr OSHA HAZWOPER Course and current 8-hour refresher
- Certified Hazardous Materials Manager (CHMM) Overview Course, CHMM-Michigan
- Michigan Risk-Based Corrective Action (RBCA) Course
- Licensed Professional Geologist #1795, Indiana
- Certified Asbestos Inspector #HIASB-3545, Hawaii
- Certified Lead Risk Assessor #PB-0663, Hawaii

Appendix D:

Acronyms and Abbreviations

Abbreviation	Definition
AST	Aboveground Storage Tank
ASHERA	(Federal) Asbestos Hazard Emergency Response Act
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BLM	Bureau of Land Management
BTEX	Benzene, Toluene, Ethylbenzene, and Xylenes
CAA	Clean Air Act: Regulates Air Quality
CAMU	Corrective Action management Unit
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act: Federal Superfund for Cleanup of Environmental Contamination (1980, 1986)
CERCLIS	CERCLA Information System (data base)
CESQG	Conditionally Exempt SQG: Hazardous Waste Generator less than 100 kg/mo.
C.F.R.	Code of Federal Regulations: National Standard Regulations
COLIWASA	Composite Liquid Waste Sampler
CRC	Chlorofluorocarbon
CMU	Concrete Masonry Unit
CWA	Clean Water Act: Regulates Water Quality (1972, 1987)
CZMA	Coastal Zone Management Act
DLNR	Department of Land and Natural Resources
DOT	Department of Transportation: Administers hazardous Waste Containers-Marking-Labeling-Placarding and Transportation Procedures.
DOH	Department Of Health (State Of Hawaii)
DRASTIC	EPA Standardized System for Evaluating Groundwater Pollution Potential Using Hydrogeologic Settings.
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency: Administers CERCLA, RCRA and SARA
FID	Flame Ionization Detector
FIFRA	Federal Insecticide, Fungicide and Rodenticide Act: Regulates Pesticides (1972, 1988)
FSP	Field Sampling Plan
FWPCA	Federal Water Pollution Control Act
HAP	Hazardous Air Pollutant
HCS	(OSHA) Hazard Communication Standard
HSWA	(Federal) Hazardous and Solid Waste Amendments of 1984
LEL	Lower Explosive Limit
LQG	Large Quantity Generators; Hazardous Waste Generator in Excess of 100 kg/mo.
LUST	Leaking Underground Storage Tank.
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MSDS	Material Safety Data Sheets: Hazard Information Required for Chemical Substances by OSHA
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants (Under CAA Regulations)
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operating and Maintenance
OCS	Outer Continental Shelf
OSHA	Occupational Safety and Health Act: Established Hazard Communication Program and Employee Right-to-Know Law (1970)
OVA	Organic Vapor Analyzer
PCB	Polychlorinated Biphenyls: Toxic Substance Used in Electric-Device Cooling.
PCi/l	Picocuries Per Liter
PEL	Permissible Airborne Exposure Level
PID	Photoionization Detector
POTW	Publicly Owned Treatment Works

ppb	parts per billion
ppm	parts per million
PWP	Project Work Plan
PRPs	Potentially Responsible Parties
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RBCA	Risk Based Corrective Action and Decision-Making at Sites with Contaminated Soil and Groundwater. (Hawaii DOH)
RCRA	Resource Conservation and Recovery Act: Federal Hazardous Waste Management Law. Regulates Waste Generation, Transportation, Treatment, Storage or Disposal Sites (1976, 1984)
RQ	Reportable Quantity
RUST	Registry of Underground Storage Tanks
SAP	Sampling & Analysis Plan
SARA	Superfund Amendments and Reauthorization Act: Amends CERCLA and includes Community Right to Know Law. Requires facilities report their chemical inventories and emissions (1986).
SDWA	Safe Drinking Water Act: Establishes maximum contaminant levels for drinking water (1974, 1986).
SHSP	Site Health & Safety Plan
SIC	Standard Industrial Classification
SIP	State implementation plan
SPCC	Spill Prevention Control and Countermeasure
SQG	Small Quantity Generator: Hazardous Waste Generator between 100-1000 kg/mo.
TCLP	Toxicity Characteristic Leaching Procedure: A toxicity test for certain substances declared hazardous by the EPA.
TMK	(Hawaii) Tax Map Key
TPH	Total Petroleum Hydrocarbons
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act: Regulates PCBs in electrical devices and chromium in evaporative cooling towers, asbestos in schools. (1976)
TSD	Treatment, Storage, and Disposal
UEL	Upper Explosive Limit
UIC	Underground Injection Control
USGS	United States Geological Survey
UST	Underground Storage Tank
VOA	Volatile Organic Analyses
VOC	Volatile Organic Compound: EPA listed toxic or carcinogenic organic substances.
Minimal, Minor or Not Significant	1) An unlikely or remote event, i.e., possible, but not anticipated under current conditions and observed features. 2) Insignificant when compared to regulatory acceptance levels, guideline action levels or when compared to background and/or baseline conditions of the local environment. 3) Any potential effect or impact attributed to the subject factor may be considered as the least likely source among a number of potentially responsible factors. 4) Any potential effect may not be measurable or detected by current technology. 5) Education, experience, and background of the investigator were utilized to conclude the situation or condition as trifle.



APPENDIX C

Botanical Flora and Fauna Report

BOTANICAL AND FAUNA SURVEYS

PI'ILANI PROMENADE PROJECT

KIHEI, MAUI, HAWAII

ROBERT W. HOB DY
ENVIRONMENTAL CONSULTANT
Kokomo, Maui
July 2013

Prepared for: Sarofim Realty Advisors

BOTANICAL AND FAUNA SURVEY THE PI'ILANI PROMENADE - KIHEI, MAUI

INTRODUCTION

The Pi'ilani Promenade Project lies on approximately 80 acres of undeveloped land in upper Kihei, Maui. On its lower edge is Pi'ilani Highway. On its northern edge are commercially zoned properties. Its east and south edges border pasture lands of Ka'ono'ulu Ranch. This survey was initiated by the owners in fulfillment of environmental requirements of the planning process.

SITE DESCRIPTION

The project area was formerly a dry, seasonal pasture situated on gently sloping lands above the coastal plain in north Kihei. Elevations range from 15 feet along Pi'ilani Highway up to 220 feet on the top of the project. One large, rocky gulch, Kūlanihako'i, runs just south of the project area, and one small, unnamed gully runs through the project. Soils are all classified as Waiakoa Extremely Stony Silty Clay Loam, eroded (WID2) which is a light brown, well-drained soil with extensive surface rock (Foote et al, 1972). Rainfall averages a scant 8 – 10 inches per year, in this driest part of Maui (Armstrong, 1983). The vegetation consists of dry Savannah with scattered kiawe trees (*Prosopis pallida*) and an extensive, sparse grassland of buffelgrass (*Cenchrus ciliaris*).

SURVEY OBJECTIVES

This report summarizes the findings of a flora and fauna survey of the proposed Pi'ilani Promenade Project which was conducted in July 2013. The objectives of the survey were to:

1. Document what plant, bird and mammal species occur on the property or may likely occur in the existing habitat.
2. Document the status and abundance of each species.
3. Determine the presence or likely occurrence of any native flora and fauna, particularly any that are Federally listed as Threatened or Endangered. If such occur, identify what features of the habitat may be essential for these species.
4. Determine if the project area contains any special habitats which if lost or altered might result in a significant negative impact on the flora and fauna in this part of the island.

BIOLOGICAL HISTORY

Originally this area would have been a dry native forest/shrubland with such trees as wiliwili (*Erythrina sandwicensis*), 'ohe makai (*Reynoldsia sandwicensis*) and hao (*Rauvolfia sandwicensis*), shrubs such as 'a'ali'i (*Dodonaea viscosa*), ma'o (*Gossypium tomentosum*), 'ilima (*Sida fallax*) and grasses and vines such as pili (*Heteropogon contortus*), kalamalō (*Eragrostis deflexa*), huehue (*Cocculus orbiculatus*) and 'āwikiwiki (*Canavalia pubescens*).

For the past 150 years this area has been grazed by livestock, usually seasonally, following winter rains when the vegetation responds with a flush of growth. This land use has resulted in the gradual loss of native plants species and their replacement with hardy pasture grasses and weeds. During the past 40 years two other environmental disturbances have influenced conditions on the property. Introduced axis deer (*Axis axis*) have built up sizeable herds within this part of Maui. These animals are able to access steeper sites than cattle and have eliminated additional species of native plants. Also fires have swept through this area a number of times over the years. Charred stumps were encountered throughout the property. Fires, over time, eliminate species not adapted to this type of catastrophic environmental disturbance.

Today few plants species occur on the property and those that do tend to dominate. Few of these are native.

BOTANICAL SURVEY REPORT

SURVEY METHODS

A walk-through botanical survey method was used following routes to ensure maximum coverage of the many areas of this large property. Areas most likely to harbor native or rare plants such as gulches or rocky outcroppings were more intensively examined. Notes were made on plant species, distribution and abundance as well as terrain and substrate.

DESCRIPTION OF THE VEGETATION

The vegetation on this large property was dominated by just two species: kiawe (*Prosopis pallida*) and buffelgrass (*Cenchrus ciliaris*). These two species make up more than 95% of the plant cover. The kiawe trees create an open woodland across the entire property with denser growth along the rocky gully. The buffelgrass forms an almost uniform grassland under and between the trees. All other plant species were uncommon to rare on the property. Small parts of the property had no vegetation only bare patches of soil and surface stones.

A total of 10 species of plants were recorded during the survey. Of these 2 were native Hawaiian species, 'ilima (*Sida fallax*) and 'uhaloa (*Waltheria indica*). Both are indigenous to Hawaii as well as other countries and both are widespread and of common occurrence in Hawaii.

DISCUSSION AND RECOMMENDATIONS

The vegetation throughout the project is dominated by just two non-native plant species, kiawe and buffelgrass. The two native Hawaiian plant species recorded, 'ilima and 'uhaloa, although of uncommon or rare occurrence on the property, are widespread and common in Hawaii in general.

No Federally listed Endangered or Threatened native plants (USFWS, 2013) were encountered during the course of the survey nor were any species that are candidate for such status seen. No special habitats or rare plant communities were seen on the property, although there is a large protected reserve three to four miles up-slope near Pu'u o Kali containing some Endangered dryland plant species.

Because the vegetation is dominated by non-native plants, and no rare or protected species occur on or adjacent to the property, there is little of botanical concern and the proposed land uses are not expected to have a significant negative impact on the botanical resources in this part of Maui.

Because much of Kihei is a flood plain and because the soils on the property are subject to erosion, it is recommended that during any land clearing work special care be taken to use accepted contouring and terracing techniques to avoid significant soil runoff.

It is also recommended that native dryland plants known to occur in this area be incorporated into the landscape design of the completed project. The Maui County Planting Plan can be consulted for ideas.

PLANT SPECIES LIST

Following is a checklist of all those vascular plant species inventoried during the field studies. Plant families are arranged alphabetically within each of two groups: Monocots and Dicots. Taxonomy and nomenclature of the flowering plants (Monocots and Dicots) are in accordance with Wagner et al. (1999).

For each species, the following information is provided:

1. Scientific name with author citation
2. Common English or Hawaiian name.
3. Bio-geographical status. The following symbols are used:

endemic = native only to the Hawaiian Islands; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

non-native = all those plants brought to the islands intentionally or accidentally after western contact.

Polynesian = all those plants brought to the islands by the Hawaiians during the course of their migrations.

4. Abundance of each species within the project area:

abundant = forming a major part of the vegetation within the project area.

common = widely scattered throughout the area or locally abundant within a portion of it.

uncommon = scattered sparsely throughout the area or occurring in a few small patches.

rare = only a few isolated individuals within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MONOCOTS			
POACEAE (Grass Family)			
<i>Cenchrus ciliaris</i> L.	buffelgrass	non-native	abundant
<i>Eragrostis pectinacea</i> (Michx.) Nees	Carolina lovegrass	non-native	rare
DICOTS			
AMARANTHACEAE (Amaranth Family)			
<i>Amaranthus spinosus</i> L.	spiny amaranth	non-native	rare
EUPHORBIACEAE (Spurge Family)			
<i>Ricinus communis</i> L.	Castor bean	non-native	rare
FABACEAE (Pea Family)			
<i>Acacia farnesiana</i> (L.) Millsp.	klu	non-native	uncommon
<i>Desmanthus pernambucanus</i> (L.) Thellung	slender mimosa	non-native	rare
<i>Leucaena leucocephala</i> (Lamarck) de Wit	koa haole	non-native	uncommon
<i>Prosopis pallida</i> (Humb. & Bonpl. ex Willd.) Kunth	kiawe	non-native	common
MALVACEAE (Mallow Family)			
<i>Sida Fallax</i> Walp.	'ilima	indigenous	rare
<i>Waltheria indica</i> L.	'uhaloa	indigenous	uncommon

FAUNA SURVEY REPORT

SURVEY METHODS

A walk-through survey method was conducted in conjunction with the botanical survey. All parts of the project area were covered. Field observations were made with the aid of binoculars and by listening to vocalizations. Notes were made on species abundance, activities and location as well as observations of trails, tracks scat and signs of feeding. In addition an evening visit was made to the area to record crepuscular activities and vocalizations and to see if there was any evidence of occurrence of the Endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*) in the area.

RESULTS

MAMMALS

Four non-native mammal species were observed in the project area during two site visits. Taxonomy and nomenclature follow Tomich (1986).

The axis deer (*axis axis*) was abundant throughout the area. These herbivores spend the day bedded down in secluded areas, then come out during the evening to feed under cover of darkness. While not seen, their tracks, droppings and antler rubbings were everywhere.

Signs of domestic cats (*Felis catus*) and dogs (*Canis familiaris*) were seen sporadically. Old cattle (*Bos Taurus*) droppings were seen from former grazing in this area.

Other mammals that likely occur on the property, but which were not seen, include rats (*Rattus spp.*), mice (*Mus domesticus*) and mongoose (*Herpestes auropunctatus*). Rats and mice feed on seeds and herbaceous vegetation and mongoose hunt for the rodents as well as birds.

A special effort was made to look for the native Hawaiian hoary bat by making an evening survey on two areas of the property. These bats are known to occur sporadically across much of Maui.. When present in an area they can be easily identified as they forage for insects, their distinctive flight patterns clearly visible in the glow of twilight. In addition an electronic bat detector (Batbox IIID) was employed, set to the frequency of 27,000 Hertz that these bats are known to emit when echolocating for nocturnal flying insect prey. No bats were detected at either location using this device.

BIRDS

Birdlife was rather sparse in this dry habitat with few food resources. Seven species of birds were seen during two site visits. Taxonomy and nomenclature follow American Ornithologists' Union (2011). Two non-native bird species were of common occurrence: the zebra dove (*Geopelia striata*) and the gray francolin (*Francolinus pondicerianus*). The other five species were of uncommon to rare occurrence.

One flock of six nēnē or Hawaiian geese (*Branta sandvicensis*) were seen flying south above the project area. These endemic and Endangered geese are powerful and wide-ranging fliers that are capable of reaching anywhere on the island within an hour in their search for water and succulent herbaceous vegetation resources. They did not come from or land on the project area as there are no habitats or resources here to attract them. They were observed for about three minutes at which point they had covered about two miles and disappeared from sight.

A few other non-native birds could occasionally visit this project area such as the house finch (*Carpodacus mexicanus*), African silverbill (*Lonchura cantans*), nutmeg mannikin (*Lonchura punctulata*), northern cardinal (*Cardinalis cardinalis*), Japanese white-eye (*Zosterops japonicus*) and the northern mocking bird (*Mimus polyglottos*) although none of these were seen.

The habitat is also unsuitable for Hawaii's native forest birds which are presently restricted to higher elevation native forests beyond the range of mosquitoes and the deadly avian diseases they carry and transmit.

INSECTS

Insect life was sparse throughout the project area. Just six insect species were observed in five Orders. Taxonomy and nomenclature follow Nishida et al (1992). Two species were found to be common, the blowfly (*Lucilia sericata*) and the globe skimmer dragonfly (*Pantala flavescens*). The other four species were all rare. The two dragonfly species, the globe skimmer and the green darner (*Anax junius*) are native species. Both are indigenous and common throughout Hawaii and are also found in other parts of the world.

One native sphingid moth, Blackburn's sphinx moth (*Manduca blackburni*) has been put on the Federal Endangered species list and this designation requires special focus (USFWS 2000). Blackburn's sphinx moth is known to occur in parts of East Maui and Central Maui. Its native host plants are species of 'aiea (*Nothocestrum* spp.) and non-native alternative host plants are tobacco (*Nicotiana tabacum*) and tree tobacco (*Nicotiana glauca*). None of these plants were found on the property, and no Blackburn's sphinx moth or their larvae were seen.

CONCLUSIONS AND RECOMMENDATIONS

Diversity of species in this project area was generally low with just a few species dominating the landscape. Axis deer were abundant and zebra doves, gray francolins, blow flies and the globe skimmer dragonfly were common. This pattern mirrors the situation in the plant life with low diversity and just two hardy species dominating. This lack of species has resulted from the inordinate grazing pressure of deer and cattle, the effects of periodic wildfires and several years of severe drought that has plagued leeward Maui. Only the hardiest species are able to survive.

The two native dragonfly species are both widespread and common in Hawaii as well as in other parts of the world and are of no special conservation concern.

The sighting of six Endangered nēnē geese flying over the project area was recorded in the inventory, but has to be considered tangential in nature and not an indication of use of this habitat by these birds. There are no food or water resources that would lure these birds to feed or rest here.

No Hawaiian bats were recorded on the project area. These bats are wide ranging and opportunistic to spikes in insect activity. The general lack of insect food resources here does not promote the use of this habitat by these bats.

No Blackburn's sphinx moths or their larvae were found. The total lack of their required host plant species on the project area effectively prohibits their use of this habitat.

No native bird species were found on the property during two site visits and none are to be expected in this habitat. Nonetheless, there are native seabirds, the Endangered Hawaiian petrel (*Pterodroma sandwichensis*) and the Threatened Newell's shearwater (*Puffinus newelli*) that fly over these lowlands on the way to their burrows high in the mountains. These seabirds, and especially the fledglings, are attracted to bright lights in the evenings and early dawn hours and can become disoriented and crash. They are then vulnerable to injury, vehicle strikes and predators. It is recommended that any significant outdoor lighting in any proposed development on this property be shielded to direct the light downward to minimize disorientation of these protected seabirds.

No other issues are anticipated with wildlife species.

ANIMAL SPECIES LIST

Following is a checklist of the animal species inventoried during the field work. Animal species are arranged in descending abundance within three groups: Mammals, Birds and Insects. For each species the following information is provided:

1. Common name
2. Scientific name
3. Bio-geographical status. The following symbols are used:

endemic = native only to Hawaii; not naturally occurring anywhere else in the world.

indigenous = native to the Hawaiian Islands and also to one or more other geographic area(s).

migratory = all species that spend part of their annual life cycle in Hawaii and part of it elsewhere. Migrant birds typically spend their spring and summer months breeding in the arctic and their fall and winter months in Hawaii.

non-native = all those animals brought to Hawaii intentionally or accidentally after western contact.

4. Abundance of each species within the project area:

abundant = many flocks or individuals seen throughout the area.

common = a few flocks or well scattered individuals throughout the area.

uncommon = only one flock or several individuals seen within the project area.

rare = only one or two seen within the project area.

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
MAMMALS			
<i>Axis axis</i> Erxleben	axis deer	non-native	abundant
<i>Felis catus</i> L.	domestic cat	non-native	rare
<i>Canis familiaris</i> L.	domestic dog	non-native	rare
<i>Bos taurus</i> L.	domestic cattle	non-native	rare
BIRDS			
<i>Geopelia striata</i>	zebra dove	non-native	common
<i>Francolinus pondicerianus</i> Gmelin	gray francolin	non-native	common
<i>Streptopelia chinensis</i> Scopoli	spotted dove	non-native	uncommon
<i>Acridotheres tristis</i> L.	common myna	non-native	uncommon
<i>Branta sanvicensis</i> Vigors	nēnē, Hawaiian goose	endemic	rare
<i>Zenaida macroura</i> L.	mourning dove	non-native	rare
<i>Francolinus francolinus</i> L.	black francolin	non-native	rare

SCIENTIFIC NAME	COMMON NAME	STATUS	ABUNDANCE
INSECTS			
Order DIPTERA - flies			
CALLIPHORIDAE (Blow Fly Family)			
<i>Lucilia sericata</i> Meigen	blow fly	non-native	common
Order HETEROPTERA - true bugs			
APHIDIDAE (Aphid Family)			
<i>Aphis craccivora</i> Koch	cowpea aphid	non-native	rare
Order LEPIDOPTERA - butterflies & moths			
PAPILIONIDAE (Swallowtail Butterfly Family)			
<i>Papilio xuthus</i> L.	Asian swallowtail	non-native	rare
Order ODONATA)dragonflies & damselflies			
AESHNIDAE (Darner Dragonfly Family)			
<i>Anax junius</i> Drury	green darner	indigenous	rare
LIBELLULIDAE (Skimmer Dragonfly Family)			
<i>Pantala favegens</i> Fabricius	globe skimmer	indigenous	common
Order ORTHOPTERA - grasshoppers & crickets			
ACRIDIDAE (Grasshopper Family)			
<i>Oedaleus abruptus</i> Thunberg	short-horned grasshopper	non-native	rare



Figure 1. Project Area – view south from northeast corner.



Figure 2. Project Area – view west from the northeast corner.



Figure 3. Waterline Corridor –
view west showing area denuded of grass.



Figure 4. Waterline Corridor –
view east showing denuded rocky landscape.

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APPENDIX D

Air Quality Study

The Air Quality Study
will be included in the
Final Environmental Impact Statement



APPENDIX E

Acoustic Study

**ACOUSTIC STUDY FOR THE
PIILANI PROMENADE PROJECT
KIHEI, MAUI**

Prepared for:

SAROFIM REALTY ADVISORS

Prepared by:

**Y. EBISU & ASSOCIATES
1126 12th Avenue, Room 305
Honolulu, Hawaii 96816**

FEBRUARY 2014

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CHAPTER I. SUMMARY

The existing and future traffic noise levels in the vicinity of the planned Piilani Promenade in Kihei, Maui were evaluated for their potential impacts and their relationship to current FHA/HUD noise standards for noise sensitive land uses. The traffic noise level increases along the roadways servicing the project site (see Figure 1) were calculated. Significant increases in traffic noise levels at noise sensitive properties are not expected to occur as a result of project traffic following project build-out by CY 2018.

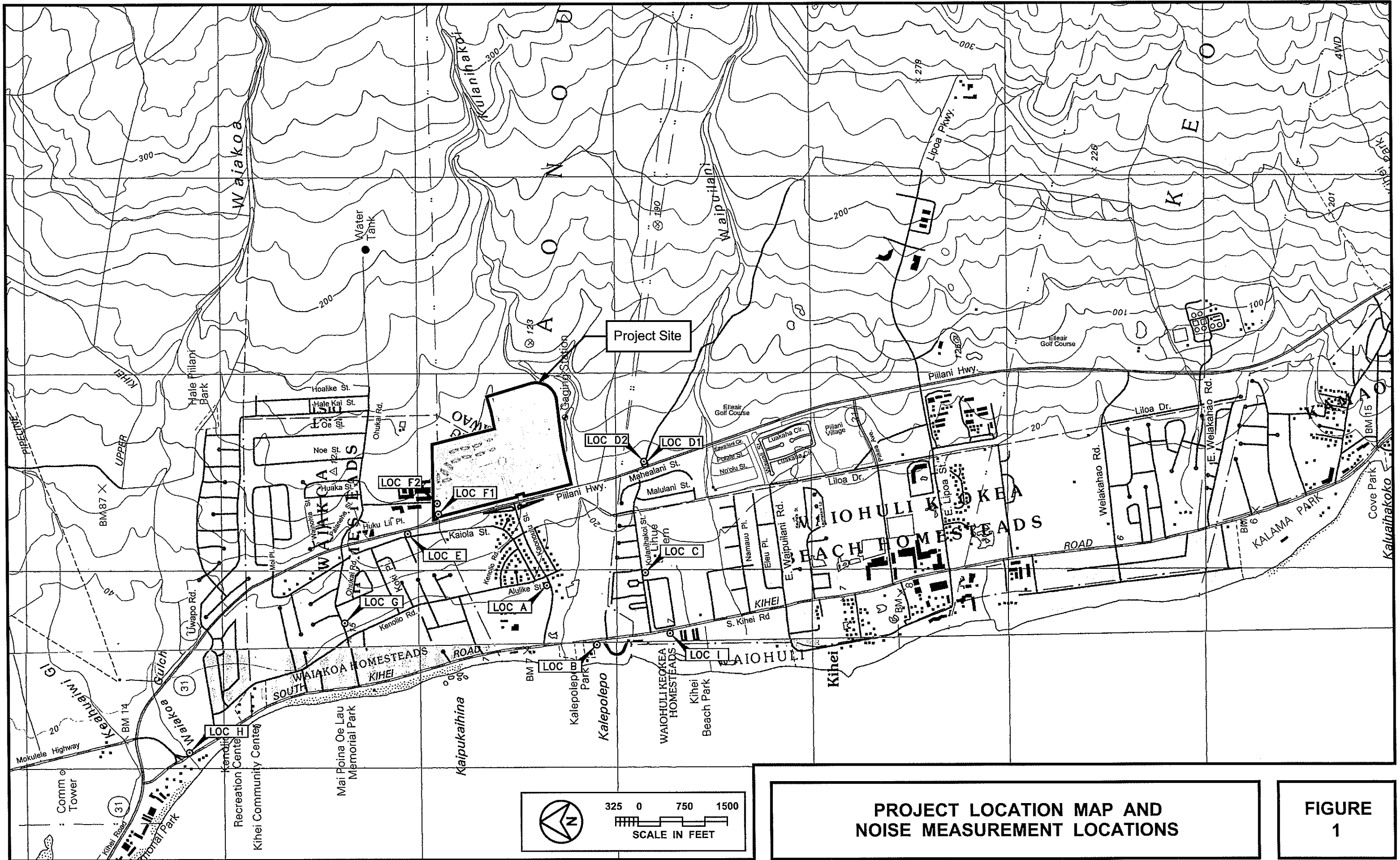
The dominant traffic noise sources in the project environs will continue to be traffic along Piilani Highway and South Kihei Road. Future traffic noise levels along Piilani Highway by CY 2018 are expected to remain in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL at the first row of existing homes on the makai side of the highway. The future traffic noise levels in the project environs along South Kihei Road are expected to be in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL within 60 to 63 feet of the roadway's centerline. Along the lower volume connector streets between Piilani Highway and South Kihei Road, future traffic noise levels are expected to remain in the "Moderate Exposure, Acceptable" category, and less than 65 DNL at 50 feet or greater distance from the roadways' centerlines.

Along Piilani Highway fronting the project site, traffic noise levels of approximately 68 to 69 DNL (Day-Night Average Sound Level) are expected to increase to approximately 69 to 70 DNL at 100 foot distance from the centerline of the highway by CY 2018 as a result of project and non-project traffic. Increases of 0.6 to 0.7 DNL are associated with non-project traffic, and increases of 0.8 DNL are associated with project traffic.

The largest increases (2.3 to 2.6 DNL) in project related traffic noise are predicted to occur along Kaonoulu Street between Piilani Highway and Alulike Street. Non-project traffic is expected to add 2.7 to 4.0 DNL of traffic noise to this section of Kaonoulu Street. Adverse traffic noise impacts along Kaonoulu Street are not expected to occur by CY 2018 since existing noise sensitive residences currently have adequate setbacks from the centerline of Kaonoulu Street and should remain in the "Moderate Exposure, Normally Acceptable" category. For these reasons, traffic noise mitigation measures should not be required.

The project site is planned such that future noise sensitive residential uses of the project are situated at very large setback distances from Piilani Highway, where existing and future traffic noise levels from Piilani Highway are predicted to be less than 60 DNL. The large buffer distances to the highway will allow for the use of naturally ventilated buildings on the project site.

However, the addition of the proposed extension of Kaonoulu Street mauka of



**PROJECT LOCATION MAP AND
NOISE MEASUREMENT LOCATIONS**

**FIGURE
1**

Piilani Highway will increase the existing background ambient noise levels along the center portion of the project site. Through project build-out in CY 2018, noise levels at the project's planned residential buildings fronting East Kaonoulu Street should not exceed the 65 DNL federal standard or the Hawaii State Department of Transportation (HDOT) 66 Leq noise abatement criteria as long as the residential buildings are located at least 51 feet from the centerline of East Kaonoulu Street. Following completion of the Upcountry Highway by CY 2025, a setback distance of 81 feet from the centerline of East Kaonoulu Street is required for 65 DNL and 66 Leq to not be exceeded at these residential buildings. Noise mitigation measures in the form of a sound attenuating wall or closure and air conditioning would be required if adequate setback distances are not available. The future traffic noise levels at all planned residential buildings will not exceed the HDOT's "15 dB increase" noise abatement criteria.

In order to minimize the potential for noise conflicts between the project's residential units and the project's light industrial, business, and commercial tenants, the inclusion of various provisions within the land conveyance documents are recommended. These include limits on noise emissions from the light industrial, business, and commercial tenants to levels allowed by the State Department of Health (DOH) for multifamily dwellings; and disclosure of potential noise from adjoining nonresidential uses to owners of the project's residential units. In addition, the use of project driveways at maximum setback from the project's residential units by nighttime and early morning delivery trucks, and the use of broadband backup alarms instead of beeper type backup alarms within the non-residential lots were recommended.

Unavoidable, but temporary, noise impacts may occur during construction of the proposed project, particularly during the excavation and earth moving activities on the project site. Because construction activities are predicted to be audible within the project site and at nearby properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of quiet equipment and compliance with State Department of Health construction noise regulations are recommended as standard mitigation measures.

CHAPTER II. PURPOSE

The primary objective of this study was to describe the existing and future traffic noise levels in the environs of the proposed Piilani Promenade in Kihei on the island of Maui (see Figure 1). Traffic forecasts for 2018 were used. Traffic noise level increases and impacts associated with the proposed development were to be determined within the project site as well as along the public roadways which are expected to service the project traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases.

Impacts from on-site activities and short term construction noise at the project site were also included as noise study objectives. Recommendations for minimizing identified noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies (such as FHA/HUD) to assess environmental noise is the Day-Night Average Sound Level (DNL). This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the DNL descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the DNL descriptor. A more complete list of noise descriptors is provided in APPENDIX B to this report.

Table 1, derived from Reference 1, presents current federal noise standards and acceptability criteria for residential land uses. Table 2, also extracted from Reference 1, presents the general effects of noise on people in residential use situations. Land use compatibility guidelines for various levels of environmental noise as measured by the DNL descriptor system are shown in Figure 2 (from Reference 2). As a general rule, noise levels of 55 DNL or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, DNL levels generally range from 55 to 65 DNL, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 DNL, and as high as 75 DNL when the roadway is a high speed freeway. In the project area, traffic noise levels associated with Piilani Highway and South Kihei Road are typically greater than 65 DNL along the Right-of-Way due to the relatively large volumes of traffic on these major thoroughfares.

For purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 DNL or less is considered acceptable for residences. This standard is applied nationally (Reference 3), including Hawaii. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 DNL does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 4, a lower level of 55 DNL is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 DNL, government agencies such as FHA/HUD and VA have selected 65 DNL as a more appropriate regulatory standard.

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 DNL are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 DNL.

On the island of Maui, the State Department of Health (DOH) regulates noise from construction activities through the issuance of permits for allowing excessive

TABLE 1

**EXTERIOR NOISE EXPOSURE CLASSIFICATION
(RESIDENTIAL LAND USE)**

NOISE EXPOSURE CLASS	DAY-NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.

TABLE 2
EFFECTS OF NOISE ON PEOPLE
(Residential Land Uses Only)

EFFECTS ¹	Hearing Loss	Speech Interference		Annoyance ²	Average Community ⁴ Reaction	General Community Attitude Towards Area
		Indoor	Outdoor			
DAY-NIGHT AVERAGE SOUND LEVEL IN DECIBELS	Qualitative Description	% Sentence Intelligibility	Distance in Meters for 95% Sentence Intelligibility	% of Population ³ Highly Annoyed		
75 and above	May Begin to Occur	98%	0.5	37%	Very Severe	Noise is likely to be the most important of all adverse aspects of the community environment.
70	Will Not Likely Occur	99%	0.9	25%	Severe	Noise is one of the most important adverse aspects of the community environment.
65	Will Not Occur	100%	1.5	15%	Significant	Noise is one of the important adverse aspects of the community environment.
60	Will Not Occur	100%	2.0	9%	Moderate to Slight	Noise may be considered an adverse aspect of the community environment.
55 and below	Will Not Occur	100%	3.5	4%		Noise considered no more important than various other environmental factors.

1. "Speech Interference" data are drawn from the following tables in EPA's "Levels Document": Table 3, Fig. D-1, Fig. D-2, Fig. D-3. All other data from National Academy of Science 1977 report "Guidelines for Preparing Environmental Impact Statements on Noise, Report of Working Group 69 on Evaluation of Environmental Impact of Noise."

2. Depends on attitudes and other factors.

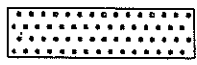
3. The percentages of people reporting annoyance to lesser extents are higher in each case. An unknown small percentage of people will report being "highly annoyed" even in the

quietest surroundings. One reason is the difficulty all people have in integrating annoyance over a very long time.

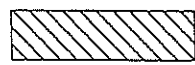
4. Attitudes or other non-acoustic factors can modify this. Noise at low levels can still be an important problem, particularly when it intrudes into a quiet environment.

NOTE: Research implicates noise as a factor producing stress-related health effects such as heart disease, high-blood pressure and stroke, ulcers and other digestive disorders. The relationships between noise and these effects, however, have not as yet been quantified.

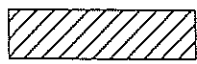
LAND USE	ADJUSTED YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS				
	50	60	70	80	90
Residential - Single Family, Extensive Outdoor Use	Compatible	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Residential - Multiple Family, Moderate Outdoor Use	Compatible	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Residential - Multi-Story Limited Outdoor Use	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Hotels, Motels Transient Lodging	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
School Classrooms, Libraries, Religious Facilities	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Hospitals, Clinics, Nursing Homes, Health Related Facilities	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Auditoriums, Concert Halls	Compatible	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Music Shells	With Insulation per Section A.4	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Sports Arenas, Outdoor Spectator Sports	Compatible	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Neighborhood Parks	Compatible	With Insulation per Section A.4	Marginally Compatible	Incompatible	Incompatible
Playgrounds, Golf courses, Riding Stables, Water Rec., Cemeteries	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Office Buildings, Personal Services, Business and Professional	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Commercial - Retail, Movie Theaters, Restaurants	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Commercial - Wholesale, Some Retail, Ind., Mfg., Utilities	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Livestock Farming, Animal Breeding	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Incompatible
Agriculture (Except Livestock)	Compatible	With Insulation per Section A.4	Marginally Compatible	Marginally Compatible	Marginally Compatible



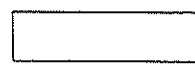
Compatible



Marginally Compatible



With Insulation per Section A.4



Incompatible

LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
 (Source: American National Standards Institute S12.9-1998/Part 5)

FIGURE 2

noise during limited time periods. State DOH noise regulations are expressed in maximum allowable property line noise limits rather than DNL (see Reference 5). Although they are not directly comparable to noise criteria expressed in DNL, State DOH noise limits for residential, commercial, and industrial lands equate to approximately 55, 60, and 76 DNL, respectively.

CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic noise levels were measured at eight locations (A, B, C, D1, D2, E, G, and H) along public roadways in the project environs to provide a basis for developing the project's traffic noise contributions along the roadways which will service the proposed development. In addition, existing background noise levels were obtained at two locations (F1 and F2) within the proposed project site to validate the traffic noise model used for predicting future traffic noise levels from Piilani Highway within the project area. The locations of the measurement sites are shown in Figure 1. Noise measurements were performed during the month of November 2013. The results of the traffic noise measurements were compared with calculations of existing traffic noise levels to validate the computer model used. The traffic noise measurement results and their comparisons with computer model predictions of existing traffic noise levels are summarized in Table 3.

Traffic noise calculations for the existing conditions as well as noise predictions for the Year 2018 were performed using the Federal Highway Administration (FHWA) Traffic Noise Model (Reference 6). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes; average vehicle speeds; estimates of traffic mix; and "Loose Soil" propagation loss factor. The traffic data and forecasts for the project (Reference 7), plus the spot traffic counts obtained during the noise measurement periods were the primary sources of data inputs to the model. Appendices C1 and C2 summarize the weekday AM and PM peak hour traffic volumes and the Saturday peak hour traffic volumes for CY 2013 and 2018 which were used to model existing and future traffic noise along the streets in the vicinity of the project site. For existing and future traffic along the streets in the vicinity of the project site, it was assumed that the average noise levels, or $Leq(h)$, during the weekday AM or PM peak traffic hour were equal to the 24-hour DNL along those roadways. This assumption was based on computations of both the hourly Leq and the 24-hour DNL of traffic noise on Piilani Highway (see Figure 3) and South Kihei Road (see Figure 4) using Hawaii State Department of Transportation hourly traffic counts from References 8 and 9.

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level receptors with and without the benefit of shielding from natural terrain features or man made obstructions. Traffic noise levels were also calculated for future conditions with and without the proposed project. The forecasted changes in traffic noise levels over existing levels were calculated with and without the project, and noise impact risks evaluated. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned dwellings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed.

TABLE 3
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

<u>LOCATION</u>	Time of Day <u>(HRS)</u>	Ave. Speed <u>(MPH)</u>	Hourly Traffic Volume -----			Measured Leq (dB)	Predicted Leq (dB)
			<u>AUTO</u>	<u>M.TRUCK</u>	<u>H.TRUCK</u>		
A. 50 FT from the center-line of Kaonoulu St. (Saturday, 11/9/13)	0728 TO 0824	34	152	0	0	55.4	55.3
B. 50 FT from the center-line of S. Kihei Rd. (Saturday, 11/9/13)	0841 TO 0941	37	821	6	5	63.4	63.3
C. 50 FT from the center-line of Kulanihako'i St. (Saturday, 11/9/13)	1010 TO 1055	35	165	1	1	58.9	57.9
D1. 50 FT from the center-line of Piilani Highway (Saturday, 11/9/13)	1118 TO 1216	55	2,487	31	10	74.5	74.2
D2. 93 FT from the center-line of Piilani Highway (Saturday, 11/9/13)	1118 TO 1216	55	2,487	31	10	68.6	68.3

TABLE 3 (CONTINUED)
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

<u>LOCATION</u>	<u>Time of Day</u> <u>(HRS)</u>	<u>Ave. Speed</u> <u>(MPH)</u>	<u>Hourly Traffic Volume</u>			<u>Measured</u> <u>Leq (dB)</u>	<u>Predicted</u> <u>Leq (dB)</u>
			<u>AUTO</u>	<u>M.TRUCK</u>	<u>H.TRUCK</u>		
E. 63 FT from the center-line of Piiilani Highway (Saturday, 11/9/13)	1237	46	2,375	26	10	69.9	70.0
	TO 1337						
F1. 112 FT from the center-line of Piiilani Highway (Saturday, 11/9/13)	1403	N/A	N/A	N/A	N/A	64.3	N/A
	TO 1500						
F2. 289 FT from the center-line of Piiilani Highway (Saturday, 11/9/13)	1416	N/A	N/A	N/A	N/A	54.0	N/A
	TO 1431						
G. 50 FT from the center-line of Ohukai St. (Saturday, 11/9/13)	1528	30	219	0	0	56.1	56.1
	TO 1628						
H. 50 FT from the center-line of S. Kihei Rd. (Saturday, 11/9/13)	1643	39	791	3	4	63.9	63.7
	TO 1743						

TABLE 3 (CONTINUED)
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

<u>LOCATION</u>	<u>Time of Day</u> <u>(HRS)</u>	<u>Ave. Speed</u> <u>(MPH)</u>	<u>Hourly Traffic Volume -----</u>			<u>Measured</u> <u>Leg (dB)</u>	<u>Predicted</u> <u>Leg (dB)</u>
			<u>AUTO</u>	<u>M.TRUCK</u>	<u>H.TRUCK</u>		
H. 50 FT from the center-line of S. Kihei Rd. (Wednesday, 11/13/13)	0642 TO 0742	41	829	8	5	65.4	65.1
G. 50 FT from the center-line of Ohukai St. (Wednesday, 11/13/13)	0752 TO 0852	30	198	3	0	55.5	55.5
I. 50 FT from the center-line of S. Kihei Rd. (Wednesday, 11/13/13)	1002 TO 1102	39	930	16	8	64.9	65.0
C. 50 FT from the center-line of Kulanihakai St. (Wednesday, 11/13/13)	1122 TO 1222	35	124	1	0	58.9	58.9
E. 63 FT from the center-line of Piilani Highway (Wednesday, 11/13/13)	1317 TO 1417	46	2,600	36	34	70.5	70.8

TABLE 3 (CONTINUED)
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

<u>LOCATION</u>	<u>Time of Day</u> <u>(HRS)</u>	<u>Ave. Speed</u> <u>(MPH)</u>	<u>Hourly Traffic Volume -----</u>		<u>Measured</u> <u>Leq (dB)</u>	<u>Predicted</u> <u>Leq (dB)</u>
			<u>AUTO</u>	<u>H.TRUCK</u>		
A. 50 FT from the center-line of Kaonoulu St. (Wednesday, 11/13/13)	1442 TO 1542	34	189	2 0	57.2	57.2
D1. 50 FT from the center-line of Piilani Highway (Wednesday, 11/13/13)	1607 TO 1707	55	3,311	16 10	75.2	75.1
D2. 93 FT from the center-line of Piilani Highway (Wednesday, 11/13/13)	1607 TO 1707	55	3,311	16 10	69.9	69.3
D1. 50 FT from the center-line of Piilani Highway (Wednesday, 11/13/13)	1710 TO 1810	55	2,838	18 7	74.5	74.2
D2. 93 FT from the center-line of Piilani Highway (Wednesday, 11/13/13)	1710 TO 1810	55	2,838	18 7	69.1	68.5

FIGURE 3
HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY
STA. B74003100000, PIILANI HIGHWAY BETWEEN KAONOULU ST. AND KULANIHAKOI RD., 9/28/11

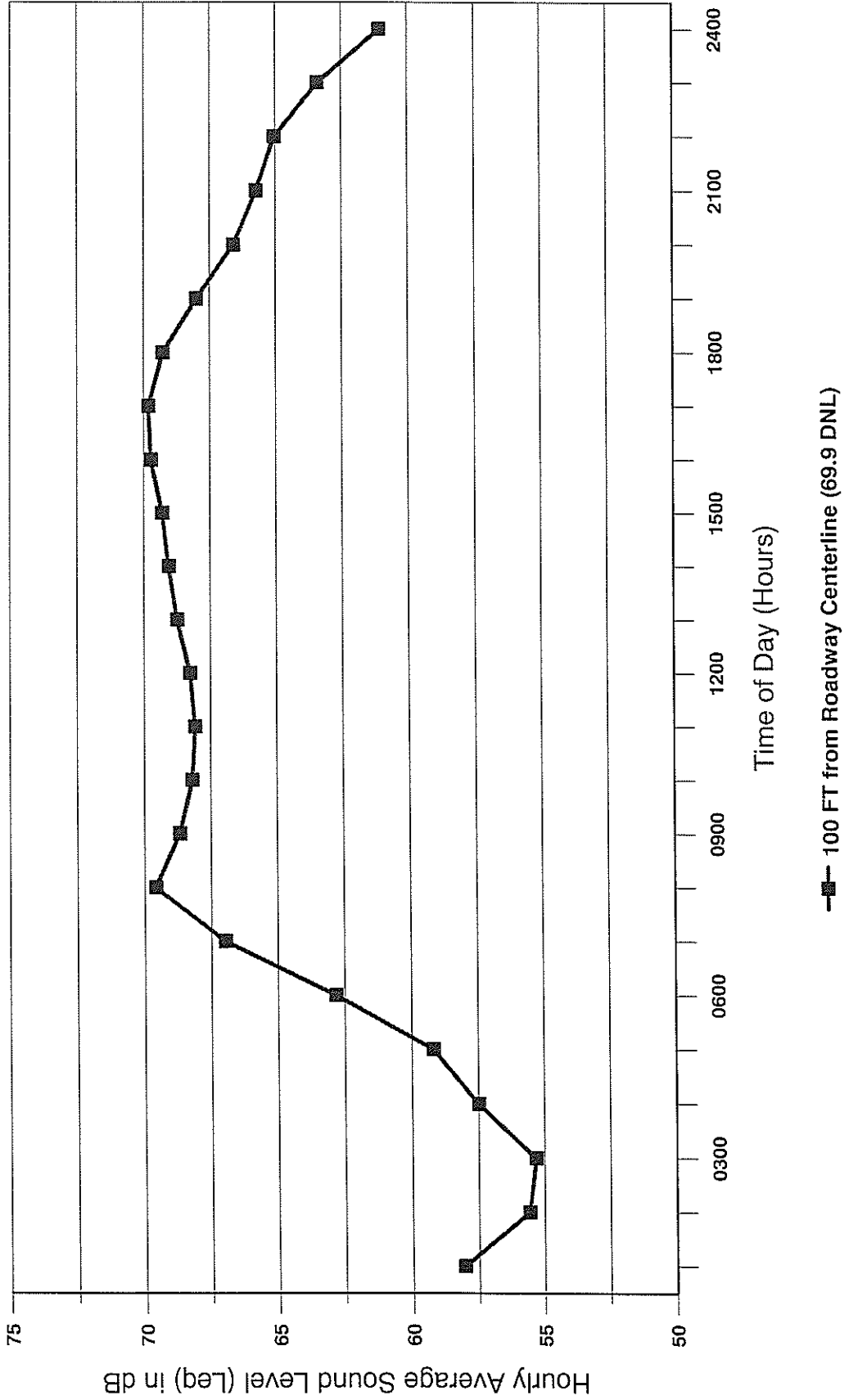
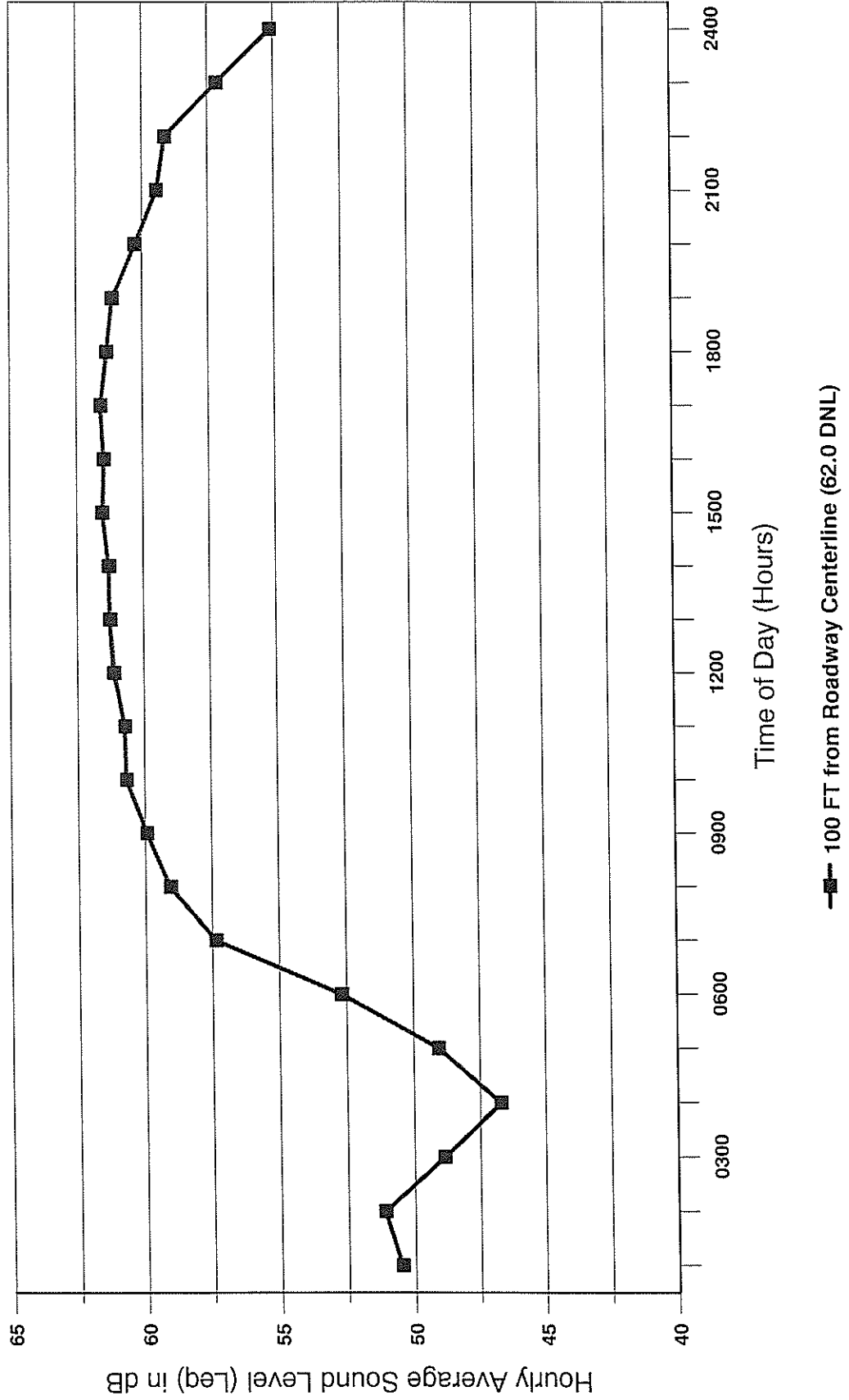


FIGURE 4
HOURLY TRAFFIC NOISE LEVELS VS. TIME OF DAY
STA. B74310000013, SOUTH KIHEI ROAD BETWEEN NOHOKAI ST. AND PIIKEA AVE., 8/19/10



V. EXISTING ACOUSTICAL ENVIRONMENT

The existing background ambient noise levels within the project site are relatively low at the mauka (east) end and high on the makai (west) end of the site. Traffic along Piilani Highway controls the background noise levels at the makai end of the project site, and diminishes to inaudible levels at the mauka end of the project site. On the makai side of Piilani Highway, existing traffic noise levels also diminish with increasing distances from Piilani Highway, and are controlled by the traffic on connector roads and South Kihei Road in areas between Piilani Highway and the shoreline.

Traffic and background ambient noise measurements along the public roadways in the project environs were obtained on a Saturday (September 9, 2013) and on a Wednesday (September 13, 2013) at eleven locations (A, B, C, D1, D2, E, F1, F2, G, H, and I) in the project environs. These locations are shown in Figure 1. The results of these traffic and background ambient noise measurements are summarized in Table 3, with measurement locations identified in Figure 1. The measurement locations were typically located at street level. As shown in Table 3, correlation between measured and predicted traffic noise levels was good. The Traffic Noise Model's "Loose Soil" propagation loss factor was used to obtain the good correlation.

Calculations of existing traffic noise levels along the public roadways in the project environs during the weekday PM peak traffic hour are presented in Table 4A. The hourly Leq (or Equivalent Sound Level) contribution from each roadway section in the project environs was calculated for comparison with forecasted traffic noise levels with and without the project. In Table 4A, the Leq values shown also represent the DNL values for the roadways shown. The existing setback distances from the roadways' centerlines to their associated 65 and 75 DNL contours were also calculated as shown in Table 5A for the weekdays. The contour line setback distances do not take into account noise shielding effects or the additive contributions of traffic noise from intersecting street sections. Tables 4B and 5B present similar calculations of existing traffic noise levels and setback distances to the 65 and 75 DNL contours for the Saturday peak hours.

The existing traffic noise levels in the project environs along Piilani Highway are in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL at the first row of existing homes on the makai side of the highway. The existing traffic noise levels in the project environs along South Kihei Road are in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL within 53 to 55 feet of the roadway's centerline. Along the lower volume connector streets, existing traffic noise levels are in the "Moderate Exposure, Acceptable" category, and less than 65 DNL at 50 feet or greater distance from the roadways' centerlines.

The existing background noise levels at the project site were estimated by measuring existing background noise levels at Locations F1 and F2, and by using these

TABLE 4A

EXISTING (CY 2013) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PM PEAK HOUR, WEEKDAYS)

LOCATION	SPEED (MPH)	TOTAL VPH	***** VOLUMES (VPH) *****			50' Leg	100' Leg	200' Leg
			AUTOS	M TRUCKS	H TRUCKS			
Mokulele Hwy., N. of N. Kihei Rd.	55	2,761	2,711	28	22	75.0	68.3	61.2
Piilani Hwy., Between Uwapo & N. Kihei *	50	2,916	2,864	29	23	74.1	70.6	61.1
Piilani Hwy., Between Uwapo & Ohukai	46	3,056	3,001	31	24	72.5	66.2	60.5
Piilani Hwy., Between Ohukai & Kaonoulu	46	3,083	3,027	31	25	72.7	67.7	62.3
Piilani Hwy., Between Kaonoulu & Kulanihakai	55	3,273	3,214	33	26	75.2	68.7	62.9
Piilani Hwy., Between Kulanihakai & Piikea	55	3,275	3,216	33	26	75.3	70.3	64.8
Piilani Hwy., South of Piikea	55	3,054	2,999	31	24	75.0	70.0	64.5
N. Kihei Rd., West of South Kihei	50	1,421	1,398	14	9	70.7	64.1	57.1
N. Kihei Rd., Between Piilani & S. Kihei	46	1,083	1,066	11	6	68.8	63.0	56.8
S. Kihei Rd., South of N. Kihei Rd.	41	1,004	988	10	6	65.6	59.4	53.2
Uwapo Rd., W. of Piilani	30	320	315	5	0	57.2	51.1	45.1
Ohukai Rd., W. of Piilani	30	471	464	7	0	58.9	52.8	46.8
Ohukai Rd., E. of Piilani	30	708	691	11	6	61.5	55.6	50.8
Kaonoulu St., Between Piilani & Kenolio	34	290	287	3	0	59.3	53.1	48.1
Kaonoulu St., Between Kenolio & Alulike	34	159	157	2	0	56.7	50.6	45.5
Kaonoulu St., Between Alulike & S. Kihei	34	250	247	3	0	58.7	52.5	47.5
S. Kihei Rd. N. of Kaonoulu	39	1,068	1,041	18	9	65.5	59.4	53.3
S. Kihei Rd. S. of Kaonoulu	39	1,172	1,143	20	9	65.9	59.8	53.7
E. Kaonoulu St. E. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kulanihakai Rd. W. of Piilani	35	292	290	2	0	62.5	56.3	50.0
Kulanihakai Rd. E. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Piikea Ave. W. of Piilani	35	1,120	1,111	9	0	63.7	57.5	51.3

*Piilani Hwy., Between Uwapo & N. Kihei's Leq shown in "50' Leq" column was calculated at 75' instead of 50'.

TABLE 4B

EXISTING (CY 2013) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PEAK HOUR, SATURDAY)

LOCATION	SPEED (MPH)	TOTAL VPH	***** VOLUMES (VPH) *****			50' Leg	100' Leg	200' Leg
			AUTOS	M TRUCKS	H TRUCKS			
Mokulele Hwy., N. of N. Kihei Rd.	55	2,160	2,125	26	9	73.8	67.1	59.9
Piilani Hwy., Between Uwapo & N. Kihei *	50	2,403	2,364	29	10	73.1	69.6	60.1
Piilani Hwy., Between Uwapo & Ohukai	46	2,267	2,231	27	9	71.1	64.7	59.0
Piilani Hwy., Between Ohukai & Kaonoulu	46	2,151	2,116	26	9	71.0	66.0	60.5
Piilani Hwy., Between Kaonoulu & Kulanihakai	55	2,212	2,176	27	9	73.4	66.9	61.0
Piilani Hwy., Between Kulanihakai & Piikea	55	2,213	2,177	27	9	73.5	68.5	63.0
Piilani Hwy., South of Piikea	55	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N. Kihei Rd., West of South Kihei	50	1,064	1,052	6	6	69.4	62.7	55.7
N. Kihei Rd., Between Piilani & S. Kihei	46	859	849	5	5	67.6	61.9	55.7
S. Kihei Rd., South of N. Kihei Rd.	39	787	777	5	5	63.9	57.7	51.6
Uwapo Rd., W. of Piilani	30	236	236	0	0	56.3	50.1	44.0
Ohukai Rd., W. of Piilani	30	485	485	0	0	59.4	53.2	47.2
Ohukai Rd., E. of Piilani	30	408	408	0	0	58.8	52.7	47.6
Kaonoulu St., Between Piilani & Kenolio	34	239	239	0	0	57.4	51.2	46.1
Kaonoulu St., Between Kenolio & Alulike	34	122	122	0	0	54.5	48.3	43.1
Kaonoulu St., Between Alulike & S. Kihei	34	202	202	0	0	56.7	50.4	45.3
S. Kihei Rd. N. of Kaonoulu	37	958	946	6	6	64.1	58.0	51.9
S. Kihei Rd. S. of Kaonoulu	37	1,093	1,079	7	7	64.7	58.6	52.5
E. Kaonoulu St. E. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Kulanihakai Rd. W. of Piilani	35	226	224	1	1	59.0	52.9	46.9
Kulanihakai Rd. E. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Piikea Ave. W. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Piilani Hwy., Between Uwapo & N. Kihei's Leq shown in "50' Leq" column was calculated at 75' instead of 50'.

TABLE 5A

**EXISTING AND CY 2018 DISTANCES TO 65
AND 75 DNL CONTOURS (WEEKDAYS)**

<u>STREET SECTION</u>	<u>65 DNL SETBACK (FT)</u>		<u>75 DNL SETBACK (FT)</u>	
	<u>EXISTING</u>	<u>CY 2018</u>	<u>EXISTING</u>	<u>CY 2018</u>
Mokulele Hwy., N. of N. Kihei Rd.	138	151	50	55
Piilani Hwy., Between Uwapo & N. Kihei	150	165	70	77
Piilani Hwy., Between Uwapo & Ohukai	116	136	38	44
Piilani Hwy., Between Ohukai & Kaonoulu	141	170	36	44
Piilani Hwy., Between Kaonoulu & Kulanihakoi	156	184	51	59
Piilani Hwy., Between Kulanihakoi & Piikea	195	233	52	63
Piilani Hwy., South of Piikea	188	218	50	59
N. Kihei Rd., West of South Kihei	91	107	32	37
N. Kihei Rd., Between Piilani & S. Kihei	79	91	24	28
S. Kihei Rd., South of N. Kihei Rd.	53	60	17	20
Uwapo Rd., W. of Piilani	21	26	< 12	< 12
Ohukai Rd., W. of Piilani	25	29	< 12	< 12
Ohukai Rd., E. of Piilani	33	35	< 12	< 12
Kaonoulu St., Between Piilani & Kenolio	26	46	< 12	15
Kaonoulu St., Between Kenolio & Alulike	19	41	< 12	13
Kaonoulu St., Between Alulike & S. Kihei	25	41	< 12	14
S. Kihei Rd. N. of Kaonoulu	53	60	17	19
S. Kihei Rd. S. of Kaonoulu	55	63	18	20
E. Kaonoulu St. E. of Piilani	N/A	88	N/A	30
Kulanihakoi Rd. W. of Piilani	38	42	12	14
Kulanihakoi Rd. E. of Piilani	N/A	24	N/A	< 12
Piikea Ave. W. of Piilani	43	48	14	16

Notes:

- (1) All setback distances are from the roadways' centerlines.
- (2) See Tables 4A and 6A for traffic volume, speed, and mix assumptions.
- (3) Setback distances are for ground level receptors.

TABLE 5B

**EXISTING AND CY 2018 DISTANCES TO 65
AND 75 DNL CONTOURS (SATURDAY)**

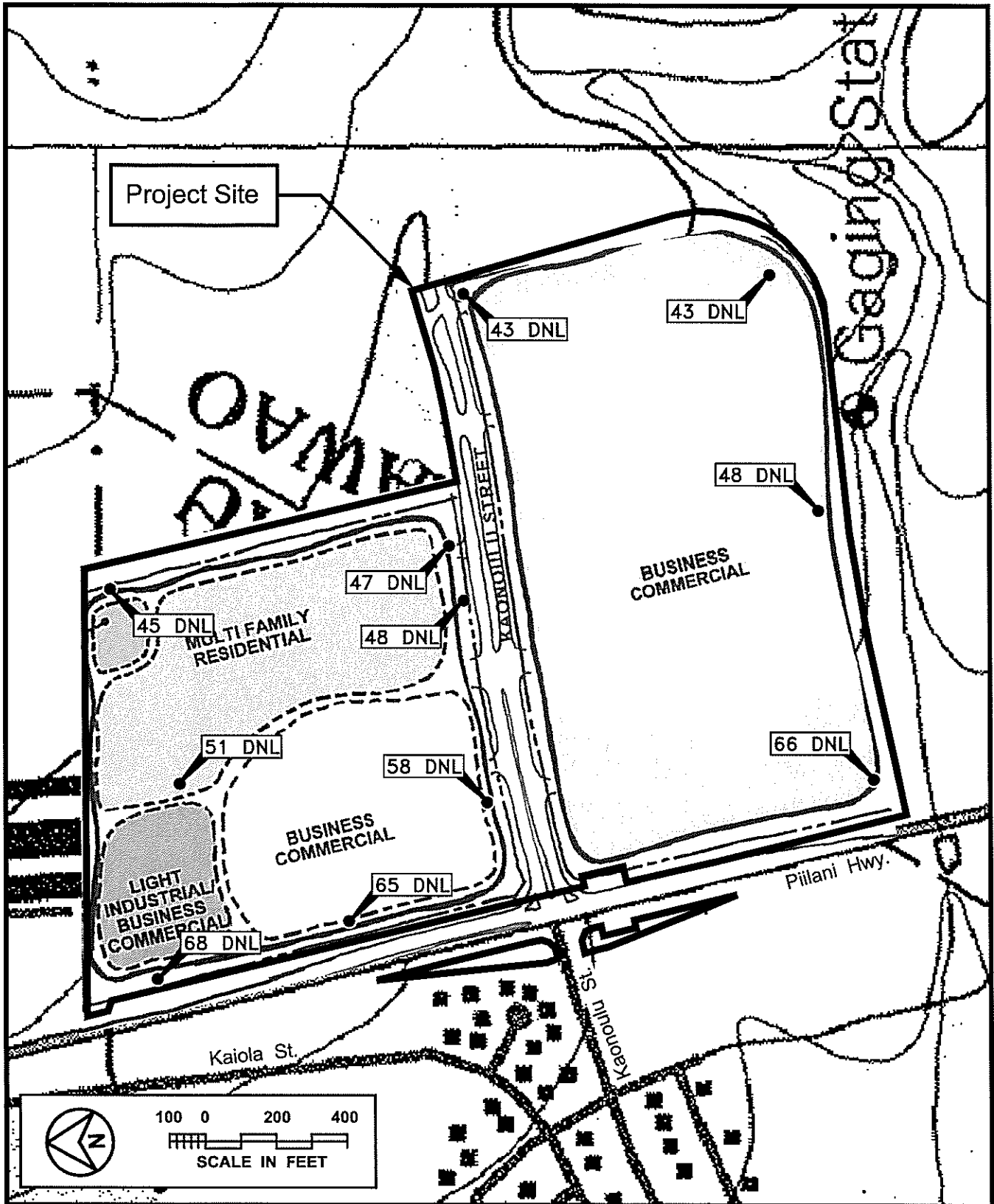
<u>STREET SECTION</u>	<u>65 DNL SETBACK (FT)</u>		<u>75 DNL SETBACK (FT)</u>	
	<u>EXISTING</u>	<u>CY 2018</u>	<u>EXISTING</u>	<u>CY 2018</u>
Mokulele Hwy., N. of N. Kihei Rd.	122	139	44	51
Piilani Hwy., Between Uwapo & N. Kihei	140	158	64	74
Piilani Hwy., Between Uwapo & Ohukai	96	124	33	41
Piilani Hwy., Between Ohukai & Kaonoulu	113	152	29	40
Piilani Hwy., Between Kaonoulu & Kulanihakoi	125	162	42	54
Piilani Hwy., Between Kulanihakoi & Piikea	155	203	41	54
Piilani Hwy., South of Piikea	N/A	N/A	N/A	N/A
N. Kihei Rd., West of South Kihei	79	100	28	35
N. Kihei Rd., Between Piilani & S. Kihei	69	84	20	25
S. Kihei Rd., South of N. Kihei Rd.	44	52	14	17
Uwapo Rd., W. of Piilani	19	25	< 12	< 12
Ohukai Rd., W. of Piilani	27	32	< 12	< 12
Ohukai Rd., E. of Piilani	25	28	< 12	< 12
Kaonoulu St., Between Piilani & Kenolio	21	43	< 12	14
Kaonoulu St., Between Kenolio & Alulike	15	39	< 12	13
Kaonoulu St., Between Alulike & S. Kihei	20	38	< 12	12
S. Kihei Rd. N. of Kaonoulu	45	53	14	17
S. Kihei Rd. S. of Kaonoulu	48	57	16	18
E. Kaonoulu St. E. of Piilani	N/A	83	N/A	29
Kulanihakoi Rd. W. of Piilani	25	30	< 12	< 12
Kulanihakoi Rd. E. of Piilani	N/A	N/A	N/A	N/A
Piikea Ave. W. of Piilani	N/A	N/A	N/A	N/A

Notes:

- (1) All setback distances are from the roadways' centerlines.
- (2) See Tables 4B and 6B for traffic volume, speed, and mix assumptions.
- (3) Setback distances are for ground level receptors.

measurements in conjunction with the FHWA Traffic Noise Model to calculate existing traffic noise level contributions from Piilani Highway at various locations within the Piilani Promenade Project site. The results of these existing traffic noise calculations are shown in Figure 5. From Figure 5, existing traffic noise levels on the project site are estimated to range from 65 to 68 DNL at the westernmost (makai) side of the project site to 43 to 47 DNL at the easternmost (mauka) corners of the project site. At the planned multifamily residential units, existing traffic noise levels are very low and less than 55 DNL at both ground floor and second floor dwelling units.

While existing traffic noise levels are very low (less than 55 DNL) at the planned residential portion of the project, noise emissions from the existing commercial buildings north of the planned multifamily residences were greater than 50 dBA (59 DNL) and could be a source of potential noise complaints from the project residents. Suggestions for reducing these noise emissions are provided in Chapter VII of this report.



**PROJECT LOCATION MAP AND
EXISTING TRAFFIC NOISE LEVELS**

**FIGURE
5**

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 7 for CY 2018 with and without the proposed project. The future projections of project plus non-project traffic noise levels for CY 2018 also included traffic on the new section of Kaonoulu Street east (mauka) of Piilani Highway through the project site. Appendices C1 and C2 summarize the traffic volumes for weekday AM and PM peak hours and for the Saturday peak hour for 2018 which were used to model future traffic noise along the streets in the vicinity of the project site. In general, the Saturday peak hour traffic volumes are lower than the weekday PM peak hour volumes, so the corresponding traffic noise levels are also lower during Saturdays.

Future traffic noise levels at distances of 50, 100, and 200 feet from the centerlines of the roadways which would service the project are shown in Tables 6A and 6B for the weekday PM peak and Saturday peak hours of traffic, under the Build Alternative. Predicted increases in the setback distances to the 65 and 75 DNL contours are shown in Tables 5A and 5B. The separate non-project and project traffic noise contributions for the Build Alternative for 2018 are shown in Tables 7A and 7B.

From Table 7A, increases in future traffic noise levels of 0.2 to 0.8 DNL are expected along Piilani Highway in the project environs by 2018 as a result of project traffic. The growth in non-project traffic by CY 2018 is predicted to result in traffic noise level increases of 0.6 to 0.8 DNL along Piilani Highway. Similar increases in future traffic noise levels due to non-project traffic are predicted to occur along South Kihei Road by CY 2018, with project traffic adding 0.3 to 0.6 DNL to the non-project noise levels by CY 2018. The largest total increase (6.6 DNL) in traffic noise level is anticipated to occur along Kaonoulu Street between Kenolio and Alulike Streets, and is primarily associated with non-project traffic. The next largest total increase (5.0 DNL) in traffic noise is anticipated to occur along Kaonoulu Street between Piilani Highway and Kenolio Street. Predicted increases in traffic noise by CY 2018 due to project traffic along Kaonoulu Street are 2.6 DNL or less. Along the other remaining roadways in the project environs, predicted increases in traffic noise by CY 2018 due to project traffic are 1.0 DNL or less.

Future traffic noise levels along Piilani Highway by CY 2018 are expected to remain in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL at the first row of existing homes on the makai side of the highway. The future traffic noise levels in the project environs along South Kihei Road are expected to be in the "Significant Exposure, Normally Unacceptable" category, and at or greater than 65 DNL within 60 to 63 feet of the roadway's centerline. Along the lower volume connector streets between Piilani Highway and South Kihei Road, future traffic noise levels are expected to remain in the "Moderate Exposure, Acceptable" category, and less than 65 DNL at 50 feet or greater distance from the roadways' centerlines.

TABLE 6A

FUTURE (CY 2018) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PM PEAK HOUR, WEEKDAYS, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	***** VOLUMES (VPH) *****			50' Leq	100' Leq	200' Leq
			AUTOS	MTRUCKS	HTRUCKS			
Mokulele Hwy., N. of N. Kihei Rd.	55	3,399	3,338	34	27	75.9	69.2	62.1
Piilani Hwy., Between Uwapo & N. Kihei *	50	3,887	3,817	39	31	75.3	71.8	62.4
Piilani Hwy., Between Uwapo & Ohukai	46	4,189	4,113	42	34	73.9	67.5	61.9
Piilani Hwy., Between Ohukai & Kaonoulu	46	4,335	4,257	43	35	74.1	69.2	63.7
Piilani Hwy., Between Kaonoulu & Kulanihakai	55	4,491	4,410	45	36	76.6	70.1	64.3
Piilani Hwy., Between Kulanihakai & Piikea	55	4,473	4,392	45	36	76.7	71.7	66.2
Piilani Hwy., South of Piikea	55	3,973	3,901	40	32	76.2	71.2	65.7
N. Kihei Rd., West of South Kihei	50	1,989	1,957	20	12	72.2	65.6	58.6
N. Kihei Rd., Between Piilani & S. Kihei	46	1,427	1,404	14	9	70.0	64.2	58.0
S. Kihei Rd., South of N. Kihei Rd.	41	1,248	1,229	12	7	66.6	60.4	54.1
Uwapo Rd., W. of Piilani	30	496	489	7	0	59.1	53.0	47.0
Ohukai Rd., W. of Piilani	30	623	614	9	0	60.1	54.0	48.0
Ohukai Rd., E. of Piilani	30	799	781	12	6	61.9	56.1	51.2
Kaonoulu St., Between Piilani & Kenolio	34	922	913	9	0	64.3	58.1	53.1
Kaonoulu St., Between Kenolio & Alulike	34	739	732	7	0	63.3	57.2	52.1
Kaonoulu St., Between Alulike & S. Kihei	34	733	726	7	0	63.3	57.1	52.1
S. Kihei Rd. N. of Kaonoulu	39	1,376	1,342	23	11	66.6	60.5	54.4
S. Kihei Rd. S. of Kaonoulu	39	1,554	1,516	26	12	67.1	61.0	54.9
E. Kaonoulu St. E. of Piilani	34	2,459	2,414	25	20	70.3	63.8	57.3
Kulanihakai Rd. W. of Piilani	35	365	362	3	0	63.5	57.3	51.0
Kulanihakai Rd. E. of Piilani	35	104	103	1	0	58.4	52.1	45.7
Piikea Ave. W. of Piilani	35	1,398	1,387	11	0	64.7	58.5	52.2

*Piilani Hwy., Between Uwapo & N. Kihei's Leq shown in "50' Leq" column was calculated at 75' instead of 50'.

TABLE 6B

FUTURE (CY 2018) TRAFFIC VOLUMES AND NOISE LEVELS
ALONG ROADWAYS IN PROJECT AREA
(PEAK HOUR, SATURDAY, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	***** VOLUMES (VPH) *****			50' Leq	100' Leq	200' Leq
			AUTOS	M TRUCKS	H TRUCKS			
Mokulele Hwy., N. of N. Kihei Rd.	55	2,935	2,888	35	12	75.2	68.4	61.2
Piilani Hwy., Between Uwapo & N. Kihei *	50	3,556	3,499	43	14	74.8	71.3	61.8
Piilani Hwy., Between Uwapo & Ohukai	46	3,643	3,584	44	15	73.2	66.8	61.0
Piilani Hwy., Between Ohukai & Kaonoulu	46	3,666	3,607	44	15	73.3	68.3	62.8
Piilani Hwy., Between Kaonoulu & Kulanihako'i	55	3,685	3,626	44	15	75.7	69.1	63.2
Piilani Hwy., Between Kulanihako'i & Piikea	55	3,596	3,539	43	14	75.6	70.6	65.1
Piilani Hwy., South of Piikea	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N. Kihei Rd., West of South Kihei	50	1,773	1,751	11	11	71.6	65.0	58.0
N. Kihei Rd., Between Piilani & S. Kihei	46	1,243	1,229	7	7	69.3	63.6	57.3
S. Kihei Rd., South of N. Kihei Rd.	39	1,122	1,108	7	7	65.4	59.3	53.1
Uwapo Rd., W. of Piilani	30	430	430	0	0	58.9	52.7	46.6
Ohukai Rd., W. of Piilani	30	686	686	0	0	60.9	54.7	48.7
Ohukai Rd., E. of Piilani	30	521	521	0	0	59.9	53.7	48.7
Kaonoulu St., Between Piilani & Kenolio	34	1,016	1,016	0	0	63.7	57.5	52.3
Kaonoulu St., Between Kenolio & Alulike	34	813	813	0	0	62.7	56.5	51.4
Kaonoulu St., Between Alulike & S. Kihei	34	783	783	0	0	62.5	56.3	51.2
S. Kihei Rd. N. of Kaonoulu	37	1,320	1,304	8	8	65.5	59.3	53.3
S. Kihei Rd. S. of Kaonoulu	37	1,526	1,508	9	9	66.1	60.0	53.9
E. Kaonoulu St. E. of Piilani	34	3,177	3,177	0	0	69.8	63.2	56.2
Kulanihako'i Rd. W. of Piilani	35	318	314	2	2	60.7	54.7	48.7
Kulanihako'i Rd. E. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Piikea Ave. W. of Piilani	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Piilani Hwy., Between Uwapo & N. Kihei's Leq shown in "50' Leq" column was calculated at 75' instead of 50'.

TABLE 7A

**CALCULATIONS OF PROJECT AND NON-PROJECT
TRAFFIC NOISE CONTRIBUTIONS (WEEKDAYS, CY 2018)**

<u>STREET SECTION</u>	NOISE LEVEL INCREASE DUE TO	
	<u>NON-PROJECT TRAFFIC</u>	<u>PROJECT TRAFFIC</u>
Mokulele Hwy., N. of N. Kihei Rd.	0.7	0.2
Piilani Hwy., Between Uwapo & N. Kihei	0.8	0.4
Piilani Hwy., Between Uwapo & Ohukai	0.7	0.6
Piilani Hwy., Between Ohukai & Kaonoulu	0.7	0.8
Piilani Hwy., Between Kaonoulu & Kulanihakoi	0.6	0.8
Piilani Hwy., Between Kulanihakoi & Piikea	0.7	0.7
Piilani Hwy., South of Piikea	0.6	0.6
N. Kihei Rd., West of South Kihei	0.8	0.7
N. Kihei Rd., Between Piilani & S. Kihei	0.6	0.6
S. Kihei Rd., South of N. Kihei Rd.	0.7	0.3
Uwapo Rd., W. of Piilani	1.0	0.9
Ohukai Rd., W. of Piilani	0.5	0.7
Ohukai Rd., E. of Piilani	0.0	0.5
Kaonoulu St., Between Piilani & Kenolio	2.7	2.3
Kaonoulu St., Between Kenolio & Alulike	4.0	2.6
Kaonoulu St., Between Alulike & S. Kihei	2.9	1.7
S. Kihei Rd. N. of Kaonoulu	0.6	0.5
S. Kihei Rd. S. of Kaonoulu	0.6	0.6
E. Kaonoulu St. E. of Piilani	N/A	63.8 *
Kulanihakoi Rd. W. of Piilani	0.0	1.0
Kulanihakoi Rd. E. of Piilani	52.1	0.0 *
Piikea Ave. W. of Piilani	0.4	0.6

Notes:

1. "*" Large DNL values result from comparisons of future roadway DNL values with currently non-existing roadways.
2. "N/A" results from lack of applicable traffic data for that roadway.

TABLE 7B

**CALCULATIONS OF PROJECT AND NON-PROJECT
TRAFFIC NOISE CONTRIBUTIONS (SATURDAY, CY 2018)**

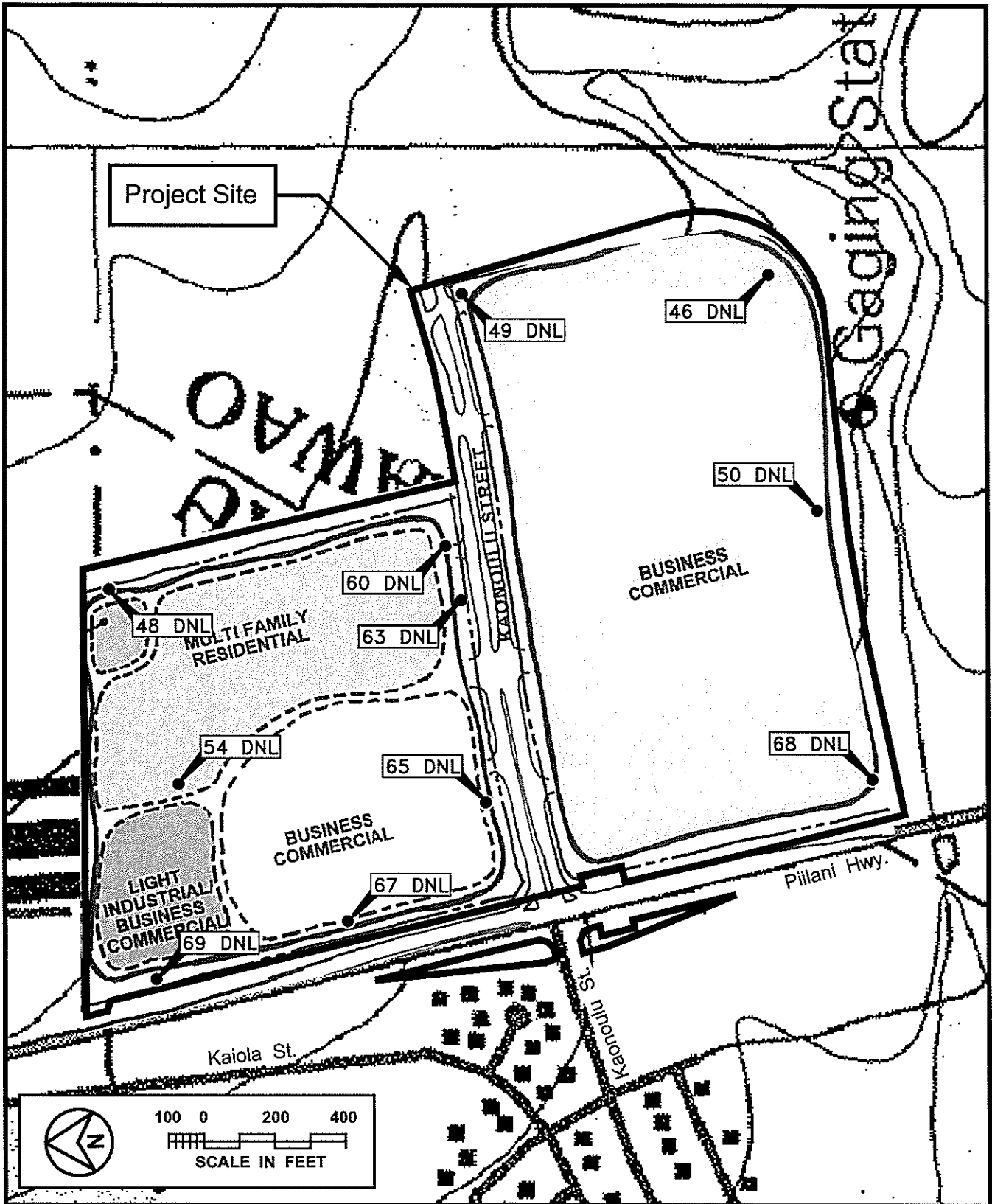
<u>STREET SECTION</u>	NOISE LEVEL INCREASE DUE TO	
	<u>NON-PROJECT TRAFFIC</u>	<u>PROJECT TRAFFIC</u>
Mokulele Hwy., N. of N. Kihei Rd.	1.0	0.3
Piilani Hwy., Between Uwapo & N. Kihei	1.1	0.6
Piilani Hwy., Between Uwapo & Ohukai	1.2	0.9
Piilani Hwy., Between Ohukai & Kaonoulu	1.1	1.2
Piilani Hwy., Between Kaonoulu & Kulanihakoi	1.0	1.2
Piilani Hwy., Between Kulanihakoi & Piikea	1.0	1.1
Piilani Hwy., South of Piikea	N/A	N/A
N. Kihei Rd., West of South Kihei	1.4	0.9
N. Kihei Rd., Between Piilani & S. Kihei	0.8	0.9
S. Kihei Rd., South of N. Kihei Rd.	1.1	0.5
Uwapo Rd., W. of Piilani	1.3	1.3
Ohukai Rd., W. of Piilani	0.8	0.7
Ohukai Rd., E. of Piilani	0.0	1.0
Kaonoulu St., Between Piilani & Kenolio	3.5	2.8
Kaonoulu St., Between Kenolio & Alulike	5.2	3.0
Kaonoulu St., Between Alulike & S. Kihei	3.7	2.2
S. Kihei Rd. N. of Kaonoulu	0.6	0.7
S. Kihei Rd. S. of Kaonoulu	0.8	0.6
E. Kaonoulu St. E. of Piilani	N/A	63.2 *
Kulanihakoi Rd. W. of Piilani	0.0	1.8
Kulanihakoi Rd. E. of Piilani	N/A	N/A
Piikea Ave. W. of Piilani	N/A	N/A

Notes:

1. "*" Large DNL value results from comparisons of future roadway DNL values with currently non-existing roadways.
2. "N/A" results from lack of applicable traffic data for that roadway.

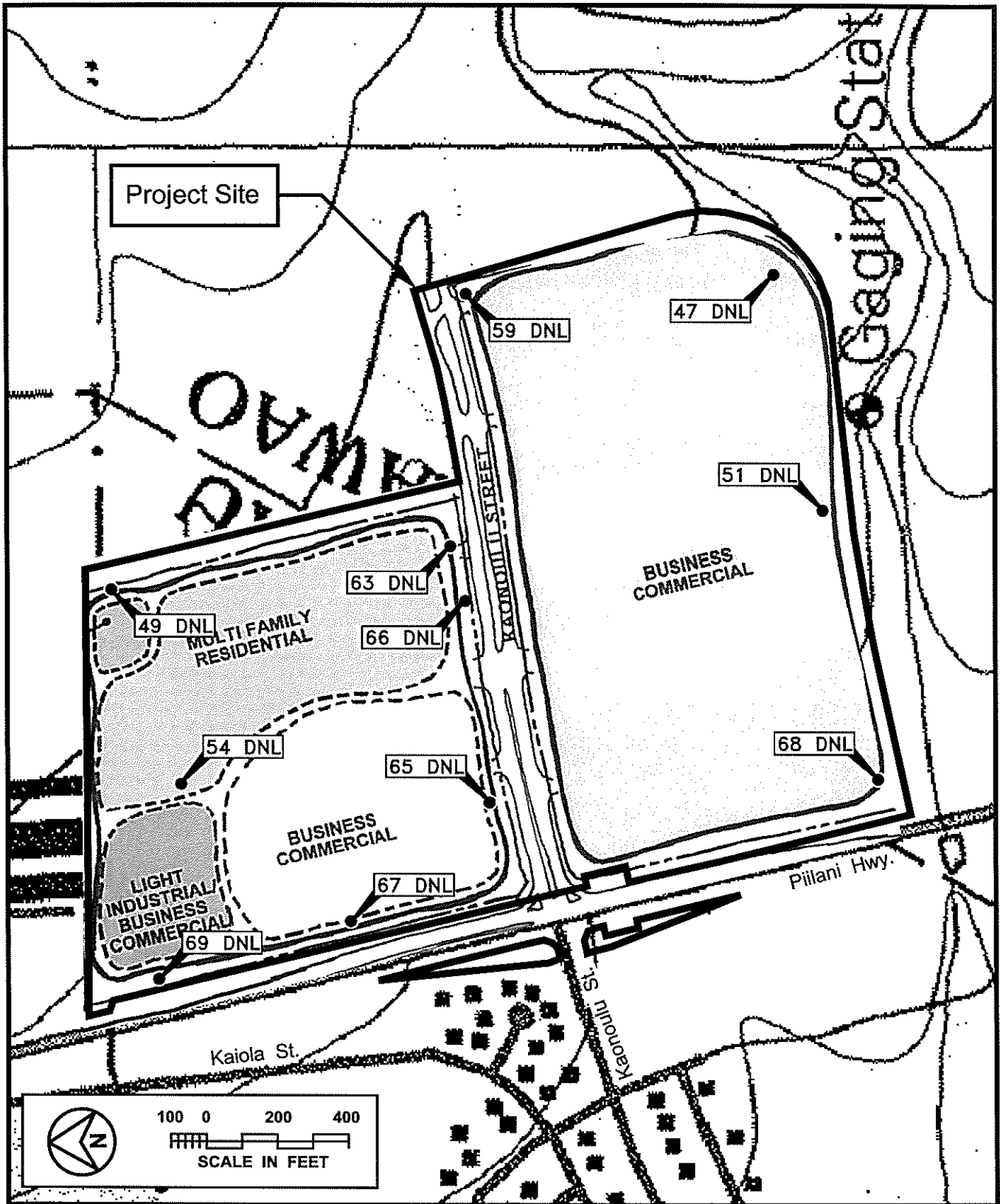
The dominant traffic noise sources in the project environs will continue to be traffic along Piilani Highway and South Kihei Road. The new section of Kaonoulu Street east of Piilani Highway will also be a dominant traffic noise source on the mauka side of Piilani Highway. Figure 6 depicts the predicted traffic noise levels over the project site under the Build Alternative by CY 2018. The planned multifamily residences of the project fronting East Kaonoulu Street should not experience future traffic noise levels greater than the 65 DNL FHA/HUD standard or the 66 Leq noise abatement criteria of the HDOT by 2018 as long as their setback distances from the centerline of Kaonoulu Street are at least 51 feet. While the predicted future traffic noise levels exceed 65 DNL at the project's lots which front Piilani Highway, these predicted levels are compatible with the planned business, commercial, or light industrial uses. The traffic noise levels shown in Figure 6 will probably increase from the values shown after CY 2018 following completion of the Upcountry Highway, particularly at the locations near the new section of Kaonoulu Street.

Figure 7 depicts the potential traffic noise levels over the project site following completion of the Upcountry Highway and with Kaonoulu Street accommodating the additional traffic from the Upcountry Highway. In Figure 7, the potential traffic noise contributions from Kaonoulu Street were increased in accordance with the traffic forecasts for Kaonoulu Street from Figure 22 of the traffic study (Reference 7). While the traffic noise contributions from Piilani Highway may decline following the completion of the Upcountry Highway, the higher CY 2018 values shown in Table 6A were used to develop the potential traffic noise levels shown in Figure 7 for the post-2018 period. As shown in Figure 7, the potential traffic noise levels along Kaonoulu Street will be approximately 3 DNL higher than those shown in Figure 6. The traffic noise levels at all units of the proposed multifamily residential parcel will not exceed the HDOT's "15 dB increase" noise abatement criteria by CY 2025. For the southernmost buildings of the residential parcel, a minimum setback distance of 81 feet from the centerline of Kaonoulu is required so that traffic noise levels do not exceed 65 DNL or the 66 Leq HDOT noise abatement criteria by CY 2025.



**PROJECT LOCATION MAP AND
FUTURE (CY 2018) TRAFFIC NOISE LEVELS**

**FIGURE
6**



PROJECT LOCATION MAP AND FUTURE TRAFFIC NOISE LEVELS WITH UPCOUNTRY HIGHWAY

FIGURE 7

CHAPTER VII. DISCUSSION OF PROJECT-RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES

Traffic Noise. Existing traffic noise levels along Piilani Highway and South Kihei Road are very high, and are expected to remain so through CY 2018. Traffic noise impacts along those two roadways will continue to occur at noise sensitive receptors which are not provided with noise mitigation measures such as sound attenuating walls and/or closure and air conditioning.

Project related traffic along Piilani Highway and South Kihei Road are not expected to cause significant increases in future traffic noise levels. Increases in future traffic noise levels along Piilani Highway resulting from project traffic are expected to range from 0.2 to 0.8 DNL by CY 2018. The largest increases (1.7 to 2.6 DNL) in project related traffic noise are predicted to occur along Kaonoulu Street. Adverse traffic noise impacts along Kaonoulu Street are not expected to occur since existing traffic noise levels are very low, and the addition of both project plus non-project traffic is not expected to cause traffic noise levels to exceed 65 DNL at existing residences along Kaonoulu Street by CY 2018. The noise sensitive residential buildings along Kaonoulu Street have adequate setback distances such that predicted CY 2018 traffic noise levels should remain in the "Moderate Exposure, Normally Acceptable" category at these buildings. For these reasons, traffic noise mitigation measures should not be required.

Potential Noise Impacts At Project's 226 Residential Units. Because the Piilani Promenade Project includes proposed residential units within the industrial zoned lands, noise impacts at the residential units from activities associated with the light industrial, business, and commercial uses are possible. In addition, traffic noise impacts from the future traffic on the new mauka section of Kaonoulu Street following completion of the Upcountry Highway are possible. Figure 6 indicated that the project's residential units should not experience traffic noise levels greater than 65 DNL by CY 2018. In order to examine the potential traffic noise levels following completion of the Upcountry Highway, Figure 7 was developed using data contained in Reference 7. Future traffic noise levels following completion of the Upcountry Highway could exceed 65 DNL at the southern end of the residential parcel at setback distances less than 81 feet from the centerline of East Kaonoulu Street. If this minimum setback distance cannot be achieved, the application of other traffic noise mitigation measures, such as the addition of sound attenuating walls or the use of closure with air conditioning should be considered.

Because the project's residential parcel is adjacent to existing and future nonresidential uses, potential noise impacts and noise complaints may occur due to audible noise emanating from these nonresidential uses. For multifamily residences, the State DOH noise limits are 60 dBA during the daytime (7:00 am to 10:00 pm) and 50 dBA during the nighttime (10:00 pm to 7:00 am). However, because the allowable State DOH noise limits are determined by the lot zoning at the source of the noise, a

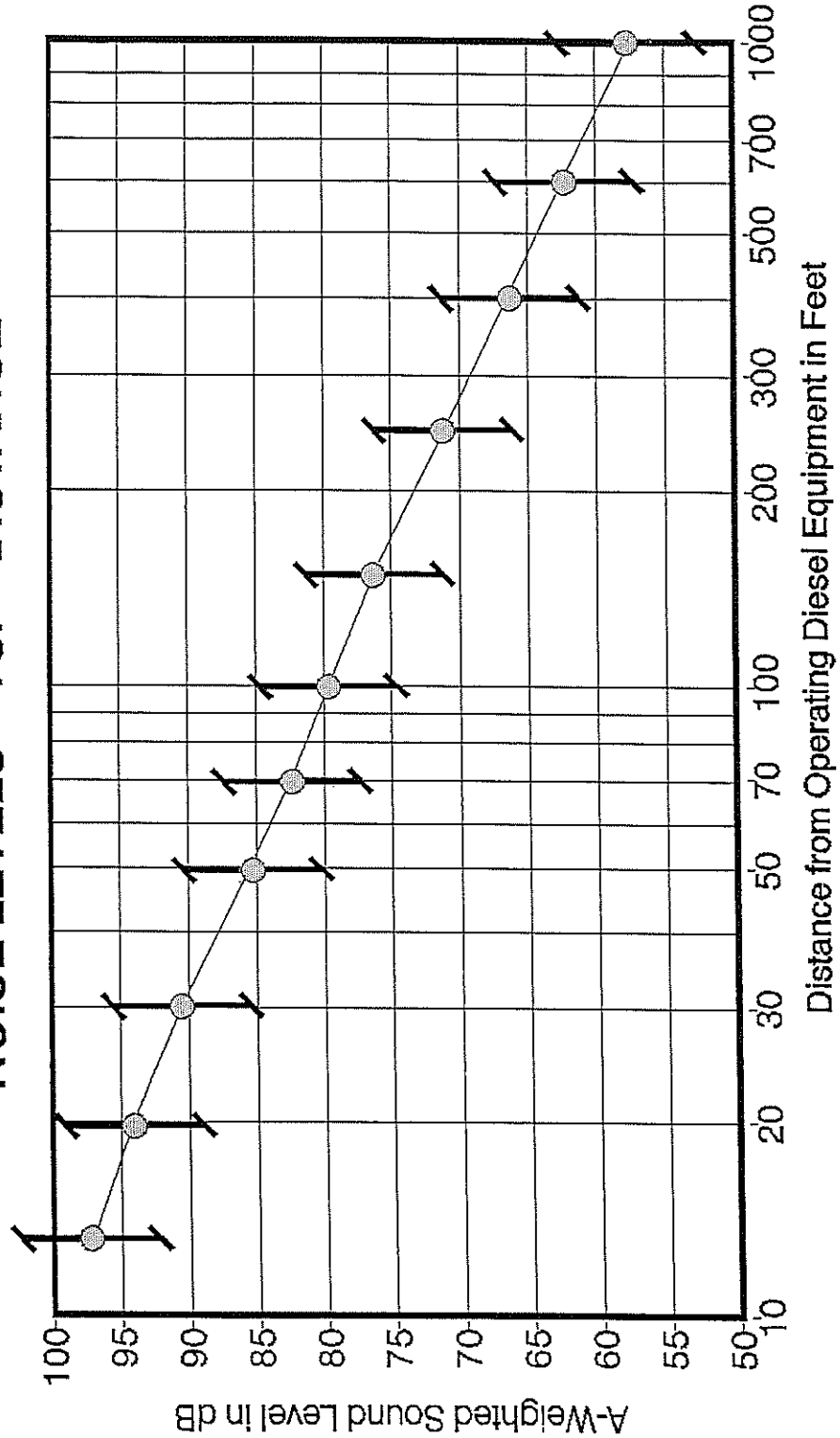
higher noise limit of 70 dBA during the daytime and nighttime will apply at the proposed residences in accordance with State DOH rules. Both the project and existing parcel north of the planned residential units are zoned Light Industrial, with applicable limits of 70 dBA during the daytime and nighttime periods. A steady noise level of 56 dBA during the daytime and nighttime would equate to the 65 DNL FHA/HUD standard for noise sensitive properties, so the potential exists for exceeding the 65 DNL standard by 14 dBA at the project's residential units. In situations like this, it would be prudent to include noise limits within the land conveyance documents to limit noise emissions from the tenants of the light industrial, business, and commercial lots to the State DOH limits for multifamily residential properties. These limits are 60 dBA and 50 dBA for the daytime and nighttime periods, respectively. These limits are also identical to the State DOH limits for business and commercial zoned lands.

It would also be prudent to include provisions for nighttime and early morning delivery trucks to ingress and egress the nonresidential lots via internal roadways which maximize the distances between the trucks and the project's residential buildings. These roadways could also include the circulation driveways within the parking areas. The use of beeper type backup alarms should be discouraged, and the use of broadband noise type backup alarms should be encouraged, primarily because the beeper type backup alarms are audible at longer distances than are the broadband noise backup alarms.

A noise conflict situation between light industrial zoned lands and residential uses on adjacent spaces may occur at the project's residential buildings at the north end of the project due to existing noise emissions from the existing light industrial subdivision to the north of the proposed residential buildings. Current noise emissions from the existing light industrial subdivision may be exceeding 50 dBA during the daytime and nighttime periods. These noise emission levels are probably in compliance with the State DOH noise limit of 70 dBA, but may be too high for future residences of the three project buildings. In situations like these, it may be prudent to include disclosure of the potential 70 dBA noise levels within the land conveyance documents of the proposed residential parcels. In addition, it may also be mutually beneficial to apply noise mitigation measures to the noise sources within the existing light industrial parcel(s) which exceed 50 dBA at the proposed residential dwellings.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction is unknown, but it is anticipated that the actual work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job site are shown in Figure 8. The impulsive noise levels of impact pile drivers are approximately 15 dB higher than the levels shown in Figure 8, while the intermittent noise levels of vibratory pile drivers are at the upper end of the noise level ranges depicted in the figure.

ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE



CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE
8

Figure 8 is useful for predicting exterior noise levels at short distances (within 100 FT) from the work when visual line of sight exists between the construction equipment and the receptor. Direct line-of-sight distances from the construction equipment operating on the mauka side of Piilani Highway to existing residential buildings will range from 150 FT to 1,850 FT, with corresponding average noise levels of 77 to 52 dBA (plus or minus 5 dBA). Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in Figure 8.

An existing residence located approximately 900 feet north of the project and south of Ohukai Road is the closest existing residence to the north of the project site. A large number of residences are located beyond 1,200 feet north of the project site across Ohukai Road. The highest noise levels at these residences from construction activities of 58 to 52 dBA are expected to occur during earthwork and site preparation activities near the north end of the Piilani Promenade development. The noise from construction activities on the project site will be audible at long distances from the Ohukai Road residences due to the relatively low (40 to 55 dBA) background noise levels at these residences.

The existing residences across Piilani Highway west of the project site would probably hear any construction activities involving earthwork or landscaping within the State Right-of-Way (ROW) on the makai side of Piilani Highway near the Kaonoulu Street intersection. The noise levels from these close-in construction activities may range from 80 to 95 dBA at existing residences along the makai ROW. Existing residences along the makai ROW may also hear the construction activities within the main project site mauka of Piilani Highway. The highest noise levels from construction activities of 75 to 77 dBA are expected to occur at these residences during earthwork and site preparation activities near the mauka ROW of Piilani Highway. The noise from construction activities will decrease and be masked by traffic noise along Piilani Highway at these residences along Piilani Highway as project construction activities move toward the east end of the project site. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work, and due to the administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project site.

Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 dBA at 100 FT distance), and due to the exterior nature of the work (rock breaking, grading and earth moving, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

Peak airborne noise levels from pile driving may be as much as 15 dBA greater than noise levels shown in Figure 8 for non-impulsive (steady) construction noise sources. Although the pile driving can produce more intense noise levels, each pulse is

of short individual duration (less than one second). Therefore, its impact on speech communication is not as severe as that of a steady source of the same noise level.

Severe noise impacts are not expected to occur inside air conditioned structures which are beyond 200 FT from the project construction site. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 65 to 53 dBA at 200 FT to 600 FT distances from the construction site. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii (Reference 5), is another noise mitigation measure which is normally applied to construction activities. Figure 9 depicts the normally permitted hours of construction. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

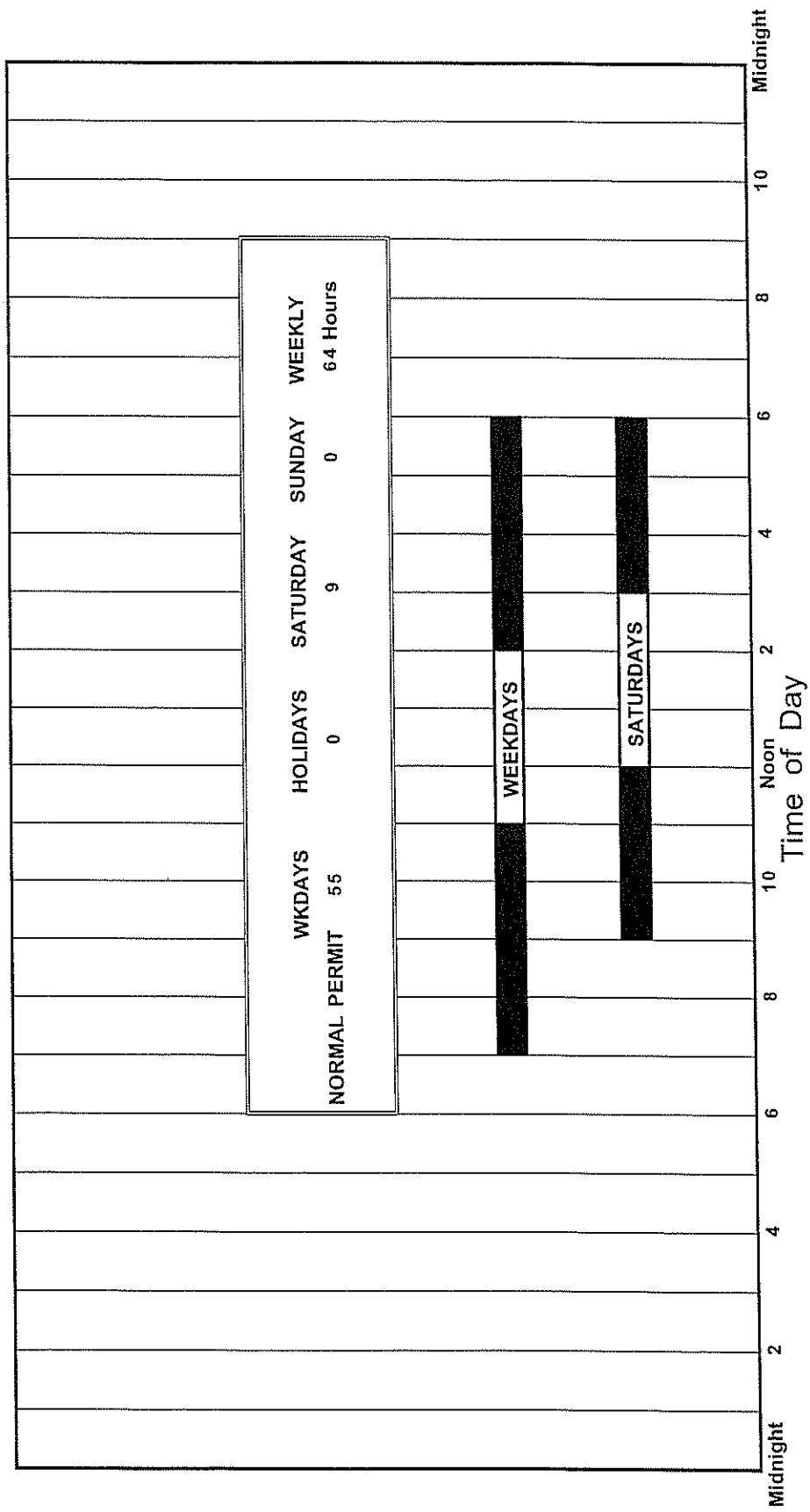


FIGURE 9

AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

APPENDIX A. REFERENCES

- (1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.
- (2) American National Standard, "Sound Level Descriptors for Determination of Compatible Land Use," ANSI S12.9-1998/ Part 5; Acoustical Society of America.
- (3) "Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.
- (4) "Information on Levels of Environmental Noise Requisite to Protect the Public Health and Welfare with an Adequate Margin of Safety;" U.S. Environmental Protection Agency; EPA 550/9-74-004; March 1974.
- (5) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.
- (6) "FHWA Highway Traffic Noise Model User's Guide;" FHWA-PD-96-009, Federal Highway Administration; Washington, D.C.; January 1998 and Version 2.5 Upgrade (April 14, 2004).
- (7) "Traffic Impact Analysis Report for Piilani Promenade;" Phillip Rowell and Associates; December 23, 2013.
- (8) Hourly Traffic Counts At Station B74003100000, Piilani Highway Between Kaonoulu Street and Kulanihako'i Road; Hawaii State Department of Transportation; September 28, 2011.
- (9) Hourly Traffic Counts At Station B74310000013, South Kihei Road Between Nohokai Street and Piikea Avenue; Hawaii State Department of Transportation; August 19, 2010.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PHL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I
A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

<u>TERM</u>	<u>SYMBOL</u>
1. A-Weighted Sound Level	L_A
2. A-Weighted Sound Power Level	L_{WA}
3. Maximum A-Weighted Sound Level	L_{max}
4. Peak A-Weighted Sound Level	L_{Apk}
5. Level Exceeded x% of the Time	L_x
6. Equivalent Sound Level	L_{eq}
7. Equivalent Sound Level over Time (T) ⁽¹⁾	$L_{eq(T)}$
8. Day Sound Level	L_d
9. Night Sound Level	L_n
10. Day-Night Sound Level	L_{dn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$
12. Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified a $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

APPENDIX B (CONTINUED)

TABLE II RECOMMENDED DESCRIPTOR LIST

<u>TERM</u>	<u>A-WEIGHTING</u>	<u>ALTERNATIVE⁽¹⁾ A-WEIGHTING</u>	<u>OTHER⁽²⁾ WEIGHTING</u>	<u>UNWEIGHTED</u>
1. Sound (Pressure) ⁽³⁾ Level	L_A	L_{pA}	L_B, L_{pB}	L_p
2. Sound Power Level	L_{WA}		L_{WB}	L_W
3. Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4. Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5. Level Exceeded x% of the Time	L_x	L_{Ax}	L_{Bx}	L_{px}
6. Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7. Equivalent Sound Level ⁽⁴⁾ Over Time(T)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8. Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9. Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10. Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12. Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13. Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15. Average L_x Value	L_x	L_{Ax}	L_{Bx}	L_{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified as $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine.

APPENDIX C1

SUMMARY OF BASE YEAR AND YEAR 2018
WEEKDAY TRAFFIC VOLUMES

ROADWAY LANES	*** CY 2013 ****		CY 2018 (NO BUILD)		CY 2018 (BUILD)	
	AM VPH	PM VPH	AM VPH	PM VPH	AM VPH	PM VPH
Mokulele Hwy., N. of N. Kihei Rd. (NB)	1,292	1,447	1,410	1,657	1,437	1,751
Mokulele Hwy., N. of N. Kihei Rd. (SB)	1,106	1,314	1,283	1,561	1,316	1,648
Two-Way	2,398	2,761	2,693	3,218	2,753	3,399
Piilani Hwy., Between Uwapo & N. Kihei (NB)	1,448	1,495	1,617	1,773	1,670	1,962
Piilani Hwy., Between Uwapo & N. Kihei (SB)	1,266	1,421	1,492	1,751	1,558	1,925
Two-Way	2,714	2,916	3,109	3,524	3,228	3,887
Piilani Hwy., Between Uwapo & Ohukai (NB)	1,278	1,601	1,369	1,904	1,448	2,189
Piilani Hwy., Between Uwapo & Ohukai (SB)	1,455	1,456	1,780	1,740	1,880	2,000
Two-Way	2,733	3,056	3,149	3,643	3,328	4,189
Piilani Hwy., Between Ohukai & Kaonoulu (NB)	1,115	1,548	1,181	1,820	1,288	2,199
Piilani Hwy., Between Ohukai & Kaonoulu (SB)	1,596	1,536	1,880	1,789	2,014	2,136
Two-Way	2,710	3,083	3,061	3,608	3,302	4,335
Piilani Hwy., Between Kaonoulu & Kulanihakoi (NB)	1,268	1,679	1,340	1,944	1,469	2,282
Piilani Hwy., Between Kaonoulu & Kulanihakoi (SB)	1,782	1,595	2,059	1,840	2,162	2,209
Two-Way	3,050	3,273	3,399	3,783	3,631	4,491
Piilani Hwy., Between Kulanihakoi & Piikea (NB)	1,298	1,704	1,510	1,992	1,626	2,296
Piilani Hwy., Between Kulanihakoi & Piikea (SB)	1,894	1,572	2,198	1,846	2,291	2,178
Two-Way	3,191	3,275	3,708	3,838	3,917	4,473
Piilani Hwy., South of Piikea (NB)	1,109	1,625	1,288	1,880	1,371	2,097
Piilani Hwy., South of Piikea (SB)	1,659	1,429	1,900	1,639	1,966	1,876
Two-Way	2,768	3,054	3,188	3,519	3,337	3,973
N. Kihei Rd., West of South Kihei (EB)	464	835	614	1,013	664	1,143
N. Kihei Rd., West of South Kihei (WB)	788	586	929	704	969	846
Two-Way	1,252	1,421	1,543	1,717	1,633	1,989
N. Kihei Rd., Between Piilani & S. Kihei (EB)	478	559	547	652	580	739
N. Kihei Rd., Between Piilani & S. Kihei (WB)	466	524	558	594	585	688
Two-Way	944	1,083	1,105	1,246	1,165	1,427
S. Kihei Rd., South of N. Kihei Rd. (NB)	555	414	624	472	637	520
S. Kihei Rd., South of N. Kihei Rd. (SB)	263	590	364	685	381	728
Two-Way	818	1,004	988	1,157	1,018	1,248

APPENDIX C1 (CONTINUED)

SUMMARY OF BASE YEAR AND YEAR 2018
WEEKDAY TRAFFIC VOLUMES

ROADWAY LANES	**** CY 2013 ****		CY 2018 (NO BUILD)		CY 2018 (BUILD)	
	AM VPH	PM VPH	AM VPH	PM VPH	AM VPH	PM VPH
Uwapo Rd., W. of Piilani (EB)	259	169	283	217	300	260
Uwapo Rd., W. of Piilani (WB)	64	151	106	188	119	236
Two-Way	323	320	389	405	419	496
Ohukai Rd., W. of Piilani (EB)	244	245	253	275	270	318
Ohukai Rd., W. of Piilani (WB)	109	226	146	257	159	305
Two-Way	353	471	399	532	429	623
Ohukai Rd., E. of Piilani (EB)	295	270	295	270	308	318
Ohukai Rd., E. of Piilani (WB)	427	438	428	438	445	481
Two-Way	722	708	723	708	753	799
Kaonoulu St., Between Piilani & Kenolio (EB)	225	159	322	283	392	466
Kaonoulu St., Between Piilani & Kenolio (WB)	87	131	209	257	265	456
Two-Way	312	290	531	540	657	922
Kaonoulu St., Between Kenolio & Aluliike (EB)	73	98	146	218	206	374
Kaonoulu St., Between Kenolio & Aluliike (WB)	49	62	223	194	271	365
Two-Way	121	159	368	412	476	739
Kaonoulu St., Between Aluliike & S. Kihei (EB)	82	170	162	281	222	438
Kaonoulu St., Between Aluliike & S. Kihei (WB)	95	81	255	210	279	295
Two-Way	176	250	417	491	501	733
S. Kihei Rd. N. of Kaonoulu (NB)	523	525	609	604	633	689
S. Kihei Rd. N. of Kaonoulu (SB)	367	543	428	608	458	687
Two-Way	890	1,068	1,037	1,212	1,091	1,376
S. Kihei Rd. S. of Kaonoulu (NB)	554	626	678	748	708	827
S. Kihei Rd. S. of Kaonoulu (SB)	427	546	512	642	536	727
Two-Way	981	1,172	1,190	1,390	1,244	1,554
E. Kaonoulu St. E. of Piilani (EB)	N/A	N/A	N/A	N/A	356	1,191
E. Kaonoulu St. E. of Piilani (WB)	N/A	N/A	N/A	N/A	290	1,268
Two-Way	N/A	N/A	N/A	N/A	646	2,459
Kulanihakoi Rd. W. of Piilani (EB)	173	131	178	132	191	166
Kulanihakoi Rd. W. of Piilani (WB)	67	161	71	161	81	199
Two-Way	240	292	249	293	272	365
Kulanihakoi Rd. E. of Piilani (EB)	N/A	N/A	228	49	228	49
Kulanihakoi Rd. E. of Piilani (WB)	N/A	N/A	108	55	108	55
Two-Way	N/A	N/A	336	104	336	104
Piikea Ave. W. of Piilani (EB)	439	509	472	542	505	629
Piikea Ave. W. of Piilani (WB)	459	611	527	675	554	769
Two-Way	898	1,120	999	1,217	1,059	1,398

APPENDIX C2

SUMMARY OF BASE YEAR AND YEAR 2018
SATURDAY TRAFFIC VOLUMES

ROADWAY LANES	CY 2013 VPH	CY 2018 (NO BUILD) VPH	CY 2018 (BUILD) VPH
Mokulele Hwy., N. of N. Kihei Rd. (NB)	1,026	1,269	1,377
Mokulele Hwy., N. of N. Kihei Rd. (SB)	1,134	1,439	1,558
Two-Way	2,160	2,708	2,935
Piilani Hwy., Between Uwapo & N. Kihei (NB)	1,107	1,424	1,640
Piilani Hwy., Between Uwapo & N. Kihei (SB)	1,296	1,679	1,916
Two-Way	2,403	3,103	3,556
Piilani Hwy., Between Uwapo & Ohukai (NB)	1,076	1,406	1,729
Piilani Hwy., Between Uwapo & Ohukai (SB)	1,191	1,558	1,914
Two-Way	2,267	2,964	3,643
Piilani Hwy., Between Ohukai & Kaonoulu (NB)	1,009	1,303	1,734
Piilani Hwy., Between Ohukai & Kaonoulu (SB)	1,142	1,457	1,932
Two-Way	2,151	2,760	3,666
Piilani Hwy., Between Kaonoulu & Kulanihakoi (NB)	1,070	1,369	1,833
Piilani Hwy., Between Kaonoulu & Kulanihakoi (SB)	1,142	1,432	1,853
Two-Way	2,212	2,801	3,685
Piilani Hwy., South of Kulanihakoi (NB)	1,109	1,408	1,824
Piilani Hwy., South of Kulanihakoi (SB)	1,104	1,394	1,772
Two-Way	2,213	2,802	3,596
N. Kihei Rd., West of South Kihei (EB)	548	768	946
N. Kihei Rd., West of South Kihei (WB)	516	665	827
Two-Way	1,064	1,433	1,773
N. Kihei Rd., Between Piilani & S. Kihei (EB)	449	532	651
N. Kihei Rd., Between Piilani & S. Kihei (WB)	411	485	593
Two-Way	859	1,016	1,243
S. Kihei Rd., South of N. Kihei Rd. (NB)	380	460	514
S. Kihei Rd., South of N. Kihei Rd. (SB)	407	549	608
Two-Way	787	1,009	1,122

APPENDIX C2 (CONTINUED)

SUMMARY OF BASE YEAR AND YEAR 2018
SATURDAY TRAFFIC VOLUMES

ROADWAY LANES	CY 2013 VPH	CY 2018 (NO BUILD) VPH	CY 2018 (BUILD) VPH
Uwapo Rd., W. of Piilani (EB)	126	169	228
Uwapo Rd., W. of Piilani (WB)	110	148	202
Two-Way	236	317	430
Ohukai Rd., W. of Piilani (EB)	327	363	422
Ohukai Rd., W. of Piilani (WB)	158	210	264
Two-Way	485	573	686
Ohukai Rd., E. of Piilani (EB)	242	242	296
Ohukai Rd., E. of Piilani (WB)	166	166	225
Two-Way	408	408	521
Kaonoulu St., Between Piilani & Kenolio (EB)	139	277	527
Kaonoulu St., Between Piilani & Kenolio (WB)	100	263	489
Two-Way	239	540	1,016
Kaonoulu St., Between Kenolio & Alulike (EB)	77	206	420
Kaonoulu St., Between Kenolio & Alulike (WB)	45	199	393
Two-Way	122	405	813
Kaonoulu St., Between Alulike & S. Kihei (EB)	114	244	458
Kaonoulu St., Between Alulike & S. Kihei (WB)	89	229	326
Two-Way	202	472	783
S. Kihei Rd. N. of Kaonoulu (NB)	503	589	686
S. Kihei Rd. N. of Kaonoulu (SB)	455	527	634
Two-Way	958	1,116	1,320
S. Kihei Rd. S. of Kaonoulu (NB)	575	711	818
S. Kihei Rd. S. of Kaonoulu (SB)	518	611	708
Two-Way	1,093	1,322	1,526
E. Kaonoulu St. E. of Piilani (EB)	N/A	N/A	1,645
E. Kaonoulu St. E. of Piilani (WB)	N/A	N/A	1,532
Two-Way	N/A	N/A	3,177
Kulanihakai Rd. W. of Piilani (EB)	125	125	173
Kulanihakai Rd. W. of Piilani (WB)	101	101	145
Two-Way	226	226	318
Kulanihakai Rd. E. of Piilani (EB)	N/A	N/A	N/A
Kulanihakai Rd. E. of Piilani (WB)	N/A	N/A	N/A
Two-Way	N/A	N/A	N/A



APPENDIX F
Archaeological Inventory Survey dated March 2014

**AN ARCHAEOLOGICAL INVENTORY SURVEY
FOR OFF-SITE IMPROVEMENTS ASSOCIATED WITH
THE PROPOSED PIILANI PROMENADE PROJECT, AND
UPDATED RECOMMENDATIONS FOR SITES
IDENTIFIED IN A PRIOR
1994 ARCHAEOLOGICAL INVENTORY SURVEY,
KA`ONO`ULU AHUPUA`A, WAILUKU
AND MAKAWAO DISTRICTS, ISLAND OF MAUI
(TMK 3-9-001: 16, 169, 170 - 174) AND VARIOUS OFF-SITE TMKS)**

Prepared on behalf of:

**Mr. Robert Poynor,
Vice President
Sarofim Realty Advisors**

Prepared by:

**Xamanek Researches, LLC
Pukalani, Maui**

**Jennifer J. Frey
Erik M. Fredericksen**

22 March 2014 (DRAFT)

ABSTRACT

Xamanek Researches previously conducted an archaeological inventory survey of an 88-acre portion of land in 1994 (TMK: (2) 3-9-001: 16, and (2) 2-2-02: Portion of 15). This project area is located in Ka'ono'ulu *Ahupua'a*, Makawao and Wailuku Districts, Maui. The current proposed development has a different landowner and is now known as the Piilani Promenade. This proposed project consists of a c. 75-acre portion of the original survey area. Lot 2-B, a c. 13-acre portion of the original 88-acre property covered in the 1994 AIS, is now owned by a separate entity, Honua'ula Partners, LLC. This portion of the original 88-acre property will be developed for an affordable housing project, and is not part of the proposed Piilani Promenade development.

About 14 acres of land that had not been previously surveyed at the inventory survey level will be used for proposed off-site improvements associated with the Piilani Promenade development. The proposed off-site improvements include a water storage tank facility, access roads, and improvements to the Piilani Highway. These TMK's include (2) 2-2-002: 077, 082, and 016, (2) 3-9-001: 148, and (2) 3-9-048: 122. Xamanek Researches LLC carried out an archaeological survey of the proposed off-site improvements project area in January and February 2014. Previous bulldozing activities, prior ranching and more recent farming activities, road construction activities, as well as erosion appear to have impacted the area. No significant material culture remains were located on this previously disturbed land during the 2014 archaeological survey.

As noted above, the 1994 AIS covered an 88-acre portion of land. The inventory survey identified a total of 20 archaeological sites (Fredericksen, et. al, 1994). These historic properties were designated Sites 50-50-10-3727 through 3746. The various sites included stone piles and cairns (8), enclosures (2), parallel alignments (3), erosion containment wall segments (1), surface scatters (5), and a petroglyph on a boulder. Some of the stone piles, the alignments and one of the enclosures appeared to be associated with previous military activities in the area. The surface scatters and the petroglyph were interpreted as possible precontact features. The erosion containment wall segments were interpreted as ranch era features. Portions of the project area were found to have been impacted by prior bulldozing activities, likely associated with military and ranching activities, and the construction of the Central Maui Transmission Waterline (completed in 1979). The previous installation of this large (36-inch diameter) County of Maui waterline was found to have impacted a portion of the project area along the boundary between Makawao and Wailuku Districts.

All of the sites identified in the 1994 AIS qualified for significance, because of their information content (Criterion “d”). The petroglyph (Site 3746) also qualified for cultural significance under Criterion “e”. The 1994 report recommended preservation for the Site 3746 petroglyph, and the State Historic Preservation Division concurred that no additional work was needed for the remaining sites. At this time there was no recommendation for archaeological monitoring. A prior landowner removed the petroglyph/boulder and transported it to a location in upcountry Kula. An after the fact preservation plan was prepared and the State Historic Preservation Division subsequently approved this plan.

Given the time that has elapsed since the 1994 inventory survey of the 88-acre parcel, a re-evaluation of the previously identified sites was conducted in 2014. Several sites were found to have been impacted/destroyed by prior bulldozing activities on the 88-acre property. While the significance assessments for Sites 50-50-10-3727 through 3746 remain the same, data recovery is now the recommended mitigation for several of the remaining sites. A forthcoming data recovery plan will be developed for Sites 3727, 3728, 3735, 3736, and 3741-3745. In addition, per input from the SHPD Maui office, a project specific archaeological monitoring plan will be prepared for the entire 88-acre property, including Lot 2-B that is owned by Honua’ula Partners, LLC, and the c. 14-acre portion of land slated for off-site improvements for the proposed Piilani Promenade development. While physically removed by a prior landowner, the Site 3746 petroglyph continues to retain its cultural significance under Criterion “e”.

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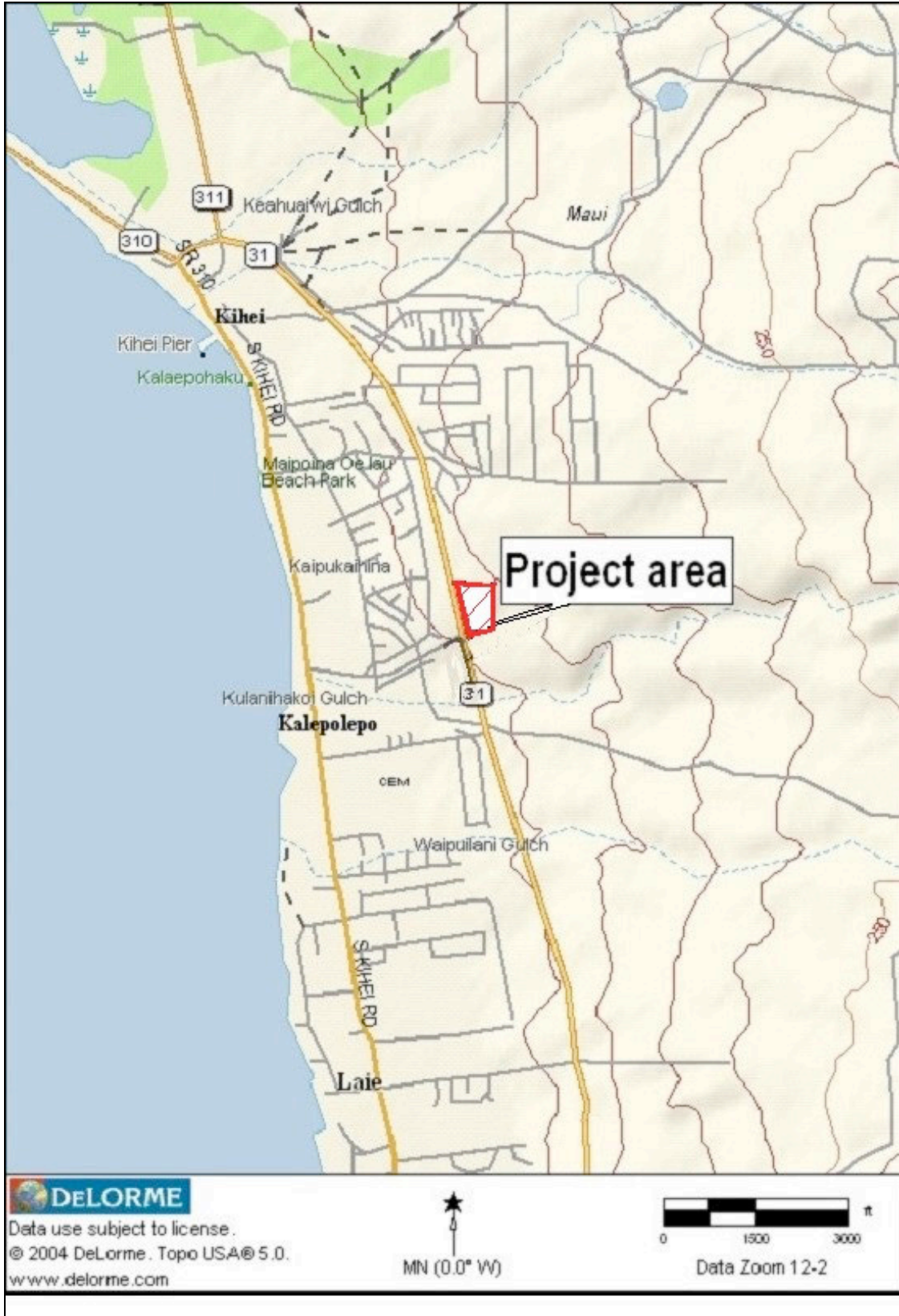


Figure 1: General project area location, Kihei, Maui.

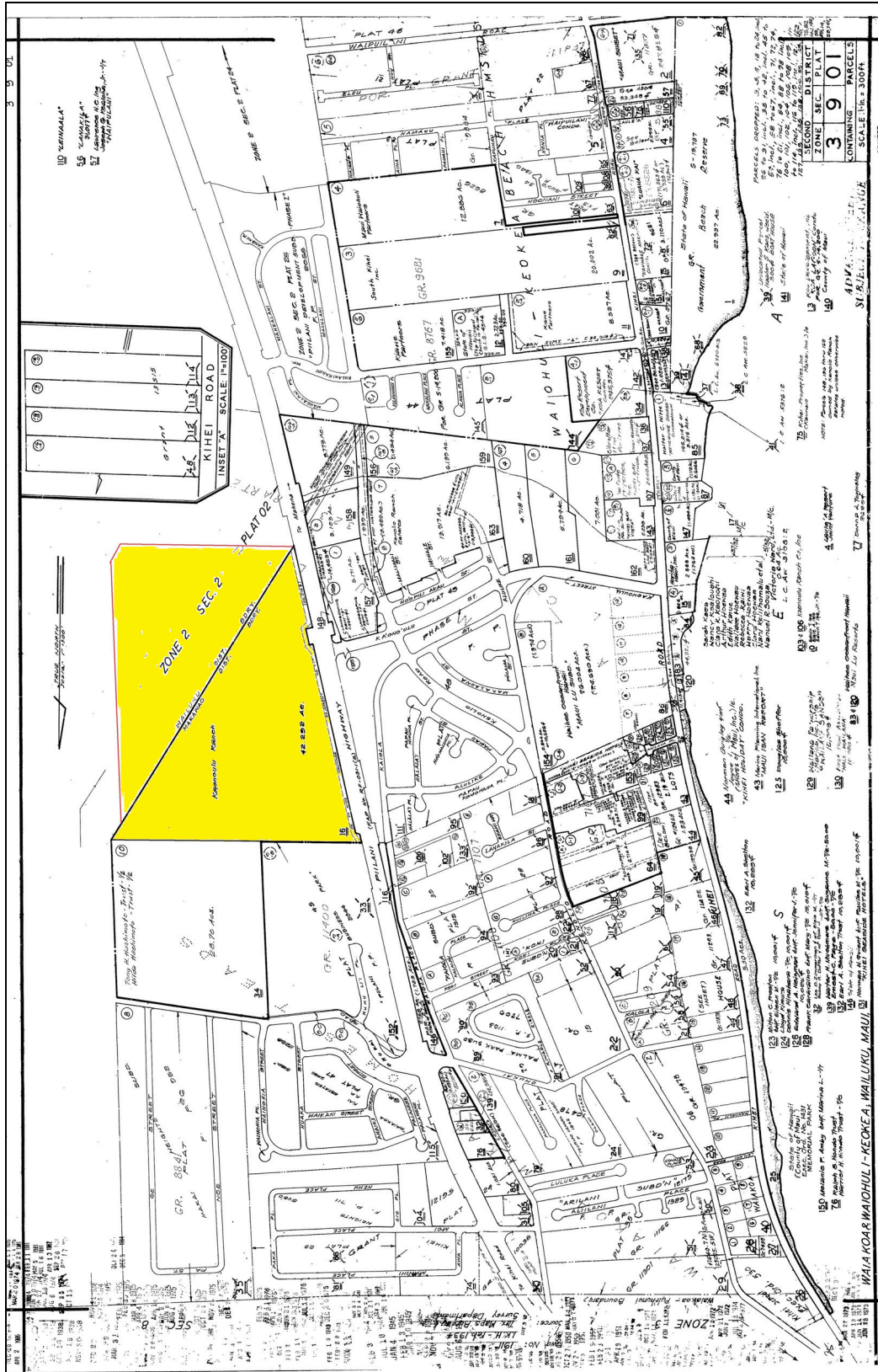


Figure 2: Tax Key Map with 1994 project area in yellow TMK: (2) 3-9-01: 16, 169, 170 - 174, Kihei. Off-site locations depicted on Figure 4.



Figure 3: Satellite view of the 1994 AIS project area in red. Note: Satellite photos taken during the dry season. The COM waterline easement is shown as a diagonal line near center of project area along the Makawao and Wailuku District line.



Figure 4: Satellite photo of general project area (in red) and off-site locations (in yellow).

INTRODUCTION

Mr. Charles Jencks, representative for the Piilani Promenade project, contacted Erik Fredericksen, Xamanek Researches LLC, in 2013 about a proposed development in Kihei, Maui (Figures 1-4 and 8). This project included the majority of a parcel that had been previously surveyed at the inventory level in 1994 (Fredericksen, et al., 1994). In addition, a c. 14-acre portion of land that had not been surveyed was proposed for off-site improvements. The proposed project is located in Ka'ono'ulu *ahupua'a*, Makawao and Wailuku Districts, Maui (see Figure 8). The current proposed development has a different landowner and is now known as the Piilani Promenade. Xamanek Researches previously conducted an archaeological inventory survey of the c. 88-acre parcel in 1994 (TMK: (2) 3-9-001: 16, and (2) 2-2-02: Portion of 15). The proposed Piilani Promenade development consists of a c. 75-acre portion of the original survey area. Lot 2-B, a c. 13-acre portion of the original 88-acre property covered in the 1994 AIS, is now owned by a separate entity, Honua'ula Partners, LLC (Figure 8). This portion of the original 88-acre property will be developed for an affordable housing project, and is not part of the proposed Piilani Promenade development.

About 14 acres of land that had not been previously surveyed at the inventory survey level will be used for proposed off-site improvements associated with the Piilani Promenade development. The proposed off-site improvements include a water storage tank facility, access roads, and improvements to the Piilani Highway. These TMK's include (2) 2-2-002: 077, 082, and 016, (2) 3-9-001: 148, and (2) 3-9-048: 122. Xamanek Researches LLC carried out fieldwork for the proposed off-site improvements in January and February 2014. Previous bulldozing activities, as well as prior ranching and more recent farming activities, and road construction activities appear to have impacted this land. No significant material culture remains were located on this previously disturbed land during the 2014 survey.

As noted above, the 1994 AIS covered an 88-acre portion of land, 75 acres of which are included in the proposed development. The inventory survey identified a total of 20 archaeological sites, all of which are located within the proposed Piilani Promenade development. These historic properties were designated Sites 50-50-10-3727 through 3746. The various sites included stone piles and cairns (8), enclosures (2), parallel alignments (3), erosion containment wall segments (1), surface scatters (5), and a petroglyph on a boulder. Some of the stone piles, the alignments and one of the enclosures appeared to be associated with previous military activities in the area. The surface scatters and the petroglyph were interpreted as possible precontact features. The erosion containment wall segments were interpreted as ranch era features. Portions of the

project area were found to have previously been impacted by bulldozing activities, likely associated with military and ranching activities, and the construction of a County of Maui waterline (completed in 1979). The previous installation of this large (36-inch diameter) County of Maui Central Maui waterline was found to have impacted a portion of the project area along the boundary between Makawao and Wailuku Districts.

All of the sites identified in the 1994 AIS qualified for significance, because of their information content (Criterion “d”). The petroglyph (Site 3746) also qualified for cultural significance under Criterion “e”. The 1994 report recommended preservation for the Site 3746 petroglyph, and the State Historic Preservation Division concurred that no additional work was needed for the remaining sites. At this time there was no recommendation for archaeological monitoring. A prior landowner removed the petroglyph/boulder and transported it to a location in upcountry Kula.

The following report presents the results of our current survey for the proposed off-site improvements for the Piilani Promenade development. Given the time that has elapsed since the 1994 inventory survey of the c. 88-acre parcel was carried out, a re-evaluation of mitigation treatment for the previously identified sites was conducted during 2014, and is included in the current document as well. The following report has been prepared on behalf of the Piilani Promenade development per the direction of Charles Jencks.

STUDY AREA

The project area is located in Kihei, Makawao and Wailuku Districts, within the Ka'ono'ulu *Ahupua`a*. Pi'ilani Highway borders the study area on the west, Monsanto leased land borders the north, and east. Kulanihakoi Gulch borders the property on the south. The Kihei Commercial Center is located to the north of the project area, as are agricultural land and a commercial nursery. Much of the land surrounding the project area have been previously disturbed by farming, ranching, road construction, and industrial use.

Surface visibility on the study area at the time of the original field visit and project testing during the 1994 AIS was fair to good. At the time of the current AIS Kihei experienced heavy rains prior to the survey and vegetation growth was heavy. Observed vegetation was dominated by non-native grass species (primarily buffelgrass). In addition, a few scattered *kiawe* (*Prosopis pallida*) trees (young), as well as *koa haole* (*Leucaena leucocephala*) shrubs and various annual weeds were also noted. Two pioneering native plants species, *'ilima* (*Sida fallax*) and *'uhaloa* (*Waltheria americana*), were noted in low quantities in some open portions of this previously disturbed parcel. The project lies an estimated 600 m inland from the Kihei coastline.

This arid portion of Maui is typical of the inland Kihei region, with soil components primarily composed of aeolian sands, silty clay, and weathered parent material and shallow bedrock. This dry region receives an average annual rainfall of c. 10 to 15 inches. The general area has been identified as the "barren zone" or "intermediate zone" by previous researchers (e.g. Cox, 1976; and Cordy, 1977).

As previously noted, the proposed development is located in Makawao and Wailuku Districts, Maui. The approximate elevation of the on- and off-site project area ranges from c. 30 ft. to 234 ft. AMSL. The project area presently contains large amounts of imported fill (including boulders), a large sand stockpile, a base yard, and informally deposited fill/debris. The off-site water storage tank is partially within an area that Monsanto has cultivated over a number of years. The other proposed off-site improvements are located in previously disturbed areas, including the road shoulder area *makai* (west) of Piilani Highway.

BACKGROUND RESEARCH

Pre-contact period/Early Post-contact Period

As previously noted, the project area lies within Ka`ono`ulu *Ahupua`a*, Wailuku and Makawao Districts. While much of the project area is contained within Wailuku District, for the purposes of this report background information is included about Makawao District, which encompasses the traditional district of Kula. This traditional district included all of Ka`ono`ulu *Ahupua`a*. The traditional district of Kula was known for the propagation of *`uala* or sweet potato in prehistoric times.

The “potatoes were planted in crumbling lava with humus, as on eastern Maui and in Kona....the soil is softened and heaped carelessly in little pockets and patches using favorable spots on slopes.... rocky lands in the olden days were walled up all around with the big and small stones of the patch until there was a wall about 2 feet high” (Handy and Handy, 1972).

Kula had the combination of good volcanic soil, cool temperatures, arid climate and frequent cloud cover that provided the ideal growing environment for the sweet potato.

The archaeological evidence supports the claims of a considerable population in the Kula area of the early Hawaiians. Walker (1931) recorded many *heiau* in the Makawao district, which includes Ka`ono`ulu, around the 2000 – 3000 ft elevation indicating a large level of human activity. The slopes of Haleakala provided wood for fuel, shelter and canoe building. There were also a large variety of plants used to make medicines and native birds, which were caught for a variety of uses. Residents of Kula traveled down slope to the “coastal zone” in order to exploit the ocean resources (Cordy, 1977). This along with the resources of the upper Kula area made it possible for habitation on the slopes of Haleakala.

The slopes of Haleakala were also well suited for raising pigs. The abundance of *`uala* was ideal for feeding the pigs. Pigs were a supplementary food source, used as sacrifices in elaborate ceremonies and collected as taxes from chiefs. Later, pigs were provided to the sailors entering Lahaina to replenish their food supply.

Post-contact Period/Early Historic Period

The traditional district of Kula was a relatively minor political territory under the jurisdiction of the West Maui chiefs. It is an arid region with no perennial streams, located on the western slope of Haleakala Crater. The primary resources of the upland area of Kula district were dry forest products, and dry land agricultural products, e.g. sweet potatoes (Kolb, July 1997, p. 25). Within this larger traditional land division (*moku*) there are several long, narrow *ahupua`a* that stretch to the ocean shore (See Figures 5 and 6).

While the bulk of Ka`ono`ulu *Ahupua`a* lies within Makawao District (traditional District of Kula), a small portion of this land unit is located in Wailuku District. Nearly the entire *ahupua`a* of Ka`ono`ulu was included in Land Commission Award 3237, to H. Hewahewa, and consisted of 5715 acres. The current project area is located within Ka`ono`ulu *Ahupua`a*, and is a part of a portion of Royal Patent Number 7447, Land Commission Award Number 3237 part 2 also to H. Hewahewa.

The nearby *ahupua`a* of Keokea became part of the Hawaii Government Lands during the Mahele of 1848. Perusal of the Land Commission Awards data reveal that no *kuleana* were awarded in the coastal portion of the *ahupua`a*. A total of 52 claims were recorded, all of which were in the traditional Kula District. Of these claims, more than half (28) were not awarded (Waihona `Aina data base). Awarded LCA's were for house lots, and/or garden plots (*kula* lands). A number of claimants lived in Wailuku and Waikapu, where they had primary claims, their claims in Keokea being subsidiary claims on small farm plots. All of the awarded plots are located above the 750-foot contour line, on both sides of the Old Government road that follows the general route of the *alanui apuni* (See Figure 6) [Kolb et al., 1997, pp. 50-60].

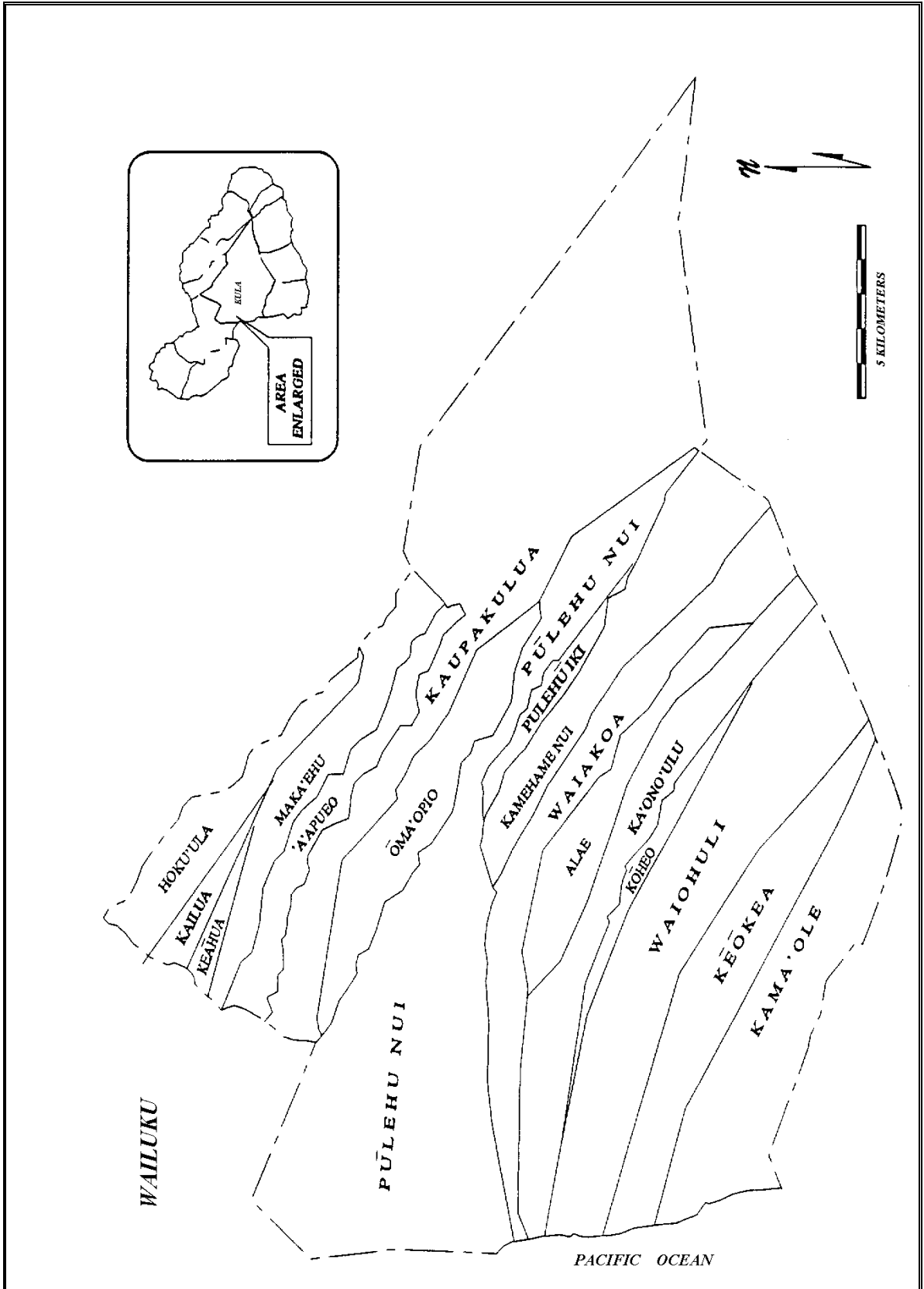


Figure 5: Map showing the Kula lands (Kolb et al., 1997, p. 24).

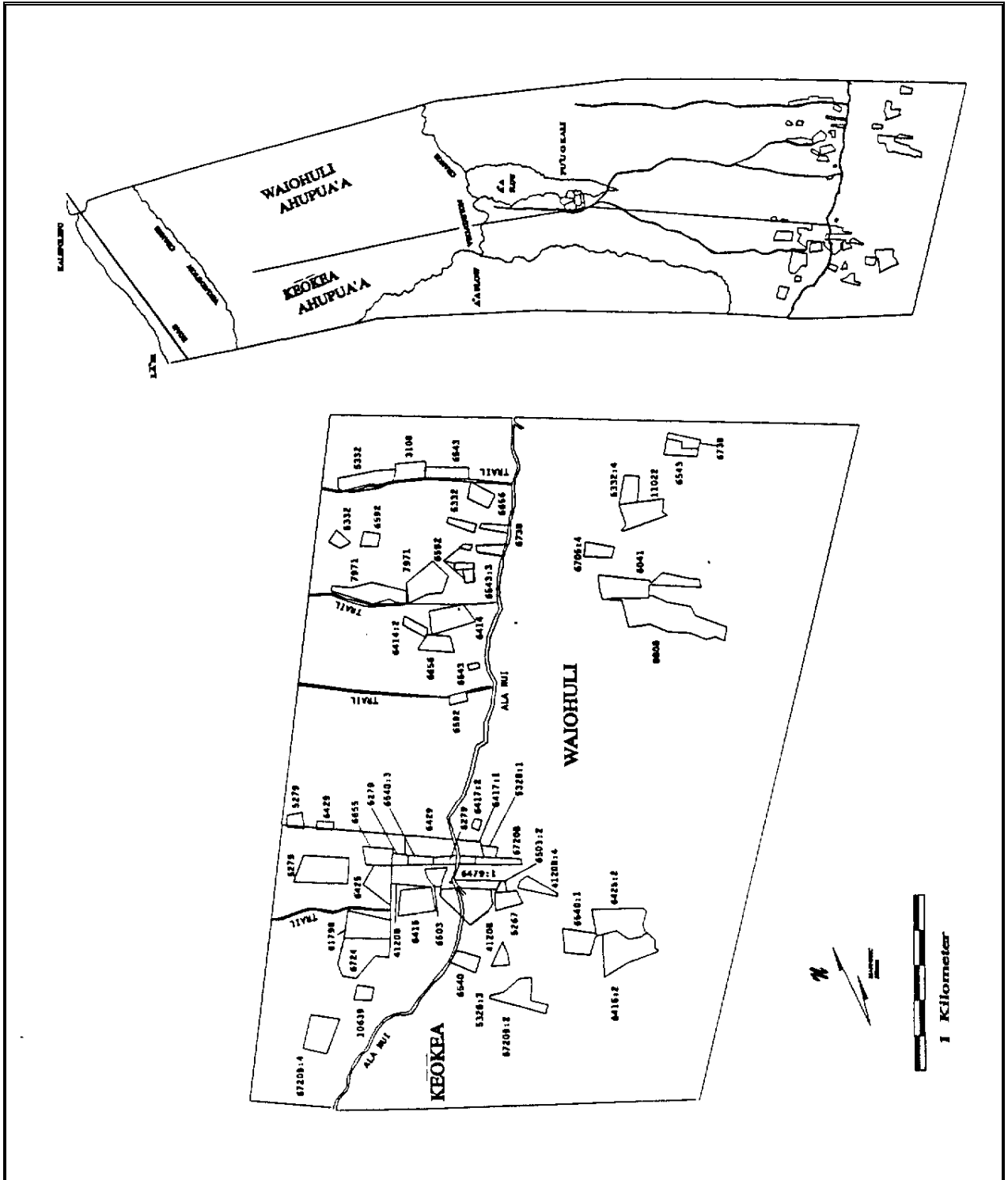


Figure 6: Map showing the distribution of LCA's in adjacent Waiohuli and nearby Keokea Ahupua`a (Kolb et al., 1997, p. 54).

Kula land is described by Handy and Handy (1972, pg. 510) as:

“...open country, or plain, as distinct from valley or stream bottom, and has long been used as a term to distinguish between dry, or “kula land” and “wet-taro land”. This is an essential characteristic of Kula, the central plain of Maui which is practically devoid of streams. ...Kula was widely famous for its sweet-potato plantations. `Uala was the staple of life here.”

By the 1840s, the increased number of whaling ships anchoring off Maui shores created a substantial market for produce such as sweet and Irish potatoes, which grew well in the Kula region. Irish potatoes were coveted more highly, however, and became of greater importance in the produce trade. They were transported from the Kula fields to the shore, where they were often sold directly to ships that called at Kalepolepo. From there they were shipped to Lahaina, where the bulk of the whaling fleet moored.

The California Gold Rush began in 1848, and resulted in a potato “boom” on Maui that began in the fall of 1849. Captain John Halstead established a trading post¹ in 1849 in the village of Kalepolepo, in order to take advantage of this commercial activity. He built a large Pennsylvania Dutch-style, 3-story residence next to the south wall of Kalepolepo Fishpond. His trading station was located on the first floor of this structure. It was known locally as the *Koa House*. Halstead’s large prominent house stood as a landmark for nearly one hundred years² —and was visited by Kamehamehas III, IV and V between 1850 and 1870.

Kuykendall (1938, p. 313) refers to an article in the Polynesian in November of 1849:

“The call for [potatoes] is loud and pressing, as some vessels bound for California have taken as many as 1,000 barrels each. The price is high, and the probability is that the market cannot be supplied this autumn. Kula, however, is full of people...preparing the ground for planting, so that if the demand from California shall be urgent next spring as it is now the people will reap a rich harvest.”

The coastal portions of Ka`ono`ulu, Keokea and Waiohuli *Ahupua`a* appear to have been relatively unaffected by the upland “potato boom”, which lasted only a few years. For the most part, the coastal area was fairly sparsely, and occupied by people who primarily concentrated on the exploitation of marine resources.

¹ Captain Halstead arrived in Lahaina from New York in 1838, and married the chiefess Kauwikikilani Davis, granddaughter of Isaac Davis, Kamehameha I’s advisor.

² In 1946 it was abandoned and was leased by the Kihei Yacht Club, the members of which tried to burn it down because it was so unsafe. Several attempts failed, but eventually the Maui Fire Department was called in and succeeded in reducing it to ashes in August of 1946 (Kolb, 1997, p. 70).

Despite the relatively low population reported living in the overall Kihei area, the trading village of Kalepolepo (to the west) represented a concentration of people, and it was felt that they were in need of spiritual guidance. To this effect, construction of a small stone church was begun in 1843 at Kalepolepo near the trading post, under the direction of David Malo.

David Malo was the son of a soldier in the army of Kamehameha I, and was born in 1793 on the Big Island. He later moved to Lahaina in the 1820s, where he came under the influence of Reverend William Richards and was converted to Christianity. With the establishment of Lahainaluna high school in 1831, David Malo enthusiastically enrolled as one of its first students. In 1843 he was licensed to the Christian ministry, and assigned to a congregation in Kalepolepo. He began construction of Kilolani Church, which continued until 1852. It was completed shortly before the death of David Malo on October 21, 1853. Following his death, his Kilolani congregation dispersed, and never met again at Kalepolepo. A fire is said to have damaged the structure, while a flood in the 1880s also impacted the little stone church. The ruins of this church are listed on the National Register of Historic Places (SIHP NO 50-50-09-1587). Religious services were once again conducted at the ruins of this church in 1976. It is locally known today as “Trinity-Church-By-The-Sea”.

Another economic activity in the traditional district of Kula was cattle ranching, which had become a booming enterprise by the 1880s.

History of Ka`ono`ulu Ranch Land and Land Commission Awards (LCA)

The ranch is made up of portions of three *ahupua`a*: Ka`ono`ulu, Alae, and Koheo. The subject parcel is located near the western border of the 5966.72 acre Ka`ono`ulu Ranch. The bulk of the *ahupua`a* of Ka`ono`ulu was included in Land Commission Award 3237, to H. Hewahewa, and consisted of 5715 acres. Land Commission Award 3237: 20 consisted of a portion of the *ahupua`a* of Alae to A. Keohokaole, identified as Alae 3 of an unknown size. Land Commission Award 8452: 19 gave title to a portion of the *ahupua`a* of Koheo, again to A. Keohokaole. The acreage was not specified in the LCA listings.

A Chinese immigrant on Maui, Young Hee, obtained the Ranch lands during the 1860's – 70's from A. Keohokaole, (who was granted the lands from Kamehameha IV on June 8, 1858). In the early 1980's, Young Hee returned to China because of personal family problems, and while there, decided to sell his Maui properties. Clause Spreckels, a major entrepreneur on Maui at that time, heard about Young Hee's property and was determined to buy it. To that end, he sent an offer to buy and a check for the amount of the offer via sailing ship to Young Hee in China.

At that time, William H. Cornwall, who was also looking for land on Maui, heard that the Young Hee property was for sale. He literally “caught the ship” to China, in

hopes of meeting Young Hee and purchasing the property. During a conversation with the Captain he learned that Claus Spreckels' letter to Young Hee was onboard. Cornwall then arranged to be put ashore before reaching the final port. During the interim, he found Young Hee, offered to buy the property, paid for it, obtained the land title and was sailing back to Hawaii by the time Mr. Spreckels' offer reached the former owner.

Harold W. Rice purchased the property from the Cornwall family in 1916. An article in The Maui News, dated August 25, 1916, states that Mr. Rice became the largest individual landowner on Maui with the purchase of the Hee Property. It also goes on to say that Mr. Rice resigned as the assistant manager of Maui Agricultural Company, where he had worked for five years, to devote himself to his ranching activities. In 1918 he was elected senator from Maui to the territorial legislature, and served in that capacity for many terms.

In another article dated December 4, 1926, The Maui News mentions the success of Ka'ono'ulu Ranch:

“Ka'ono'ulu Ranch, the property of Senator Harold Rice, is a combination of five different ranch properties which were known as the Robinson Ranch, The Enos Ranch, the Frank Correra Ranch, and the old Cornwall Ranch. It is one of the largest properties of its kind in the whole territory and from the outset has met with the greatest success. Cattle from its pastures, horses from its breed farm and hogs from its fattening lot are eagerly sought on the markets of the territory...

Ka'ono'ulu Ranch is a business concern pure and simple and Senator Rice gives it his personal supervision throughout the entire year. The ranch property extends over a wide area and there is not a month in the year in which the genial owner does not visit every portion of the property to keep in touch with the various phases of the industry of cattle raising.”

The article continues with a discussion of the Senator's love for polo, and for selecting and training colts for playing the game. It says:

“Senator Rice is of the firm belief that this will result in Maui having a string of ponies in the not distant future that will equal anything anywhere in the world and go a long way towards perpetuating the name of the Valley Isle in polo circles the world over.”

Always on the lookout for ways to improve the products of the Ranch, Senator Rice began shipping beef, which had been fattened on pigeon peas, to market in Honolulu. The Maui News reports (August 3, 1927):

“A unique feature of Senator Rice’s new enterprise is the fact that he will do all his slaughtering at his Maui plant, shipping the dressed beef to Honolulu in cold storage.

‘It has been my experience that livestock is frequently badly bruised when shipped from other islands’, said Rice, ‘and this results in an inferior grade of beef. I believe we will obtain much better results by slaughtering on Maui and shipping the dressed beef.’

Senator Rice’s cattle ranch on Maui is one of the showplaces of that island. All his stock is finished off on pigeon peas before being sent to market.”

The Ka`ono`ulu Ranch Co., Ltd. purchased Ka`ono`ulu Ranch from Senator Rice in 1956. In 1982, this company entered into a Limited Partnership.

In her discussion of land use in the upper and lower Kula areas, Wong-Smith (in, Donham, April 1990, Appendix B, p. B-6) points out that by the 1880’s, lower Kula sections had largely become pastureland for the booming cattle industry. Large sections of Crown land were leased for grazing acreage. By 1918, Harold Rice was purchasing large tracts of land from Kula farmers for the purpose of establishing a ranch.

Previous researchers have categorized this region as the “intermediate” or “barren zone”, probably used intermittently by humans for subsistence and perhaps some agricultural activities (e.g., Cox, 1976, Cordy 1977). Although more recent work supports this idea, and even implies greater usage than initially suspected, it is still likely that the “intermediate” or “barren zone” was more an area of transit between the marine resources of the coastal zone and the inhabited inland zone (Corey and Athens, 1988; Dobyns, 1988).

During the latter half of the 19th century, cattle ranching became well established in the Kihei region. During World War II, Kihei was utilized in various military training programs. Many of the military activities imposed physical changes on the land. Firing ranges for small and large-bore weapons were developed; areas for “mock” combat training exercises were constructed; and mechanized combat equipment was used to practice beach assault landings (Oral history from Jack Crouse, 1993).

Large portions of Ka`ono`ulu Ranch were used by military. The Army, Navy and Marines engaged in practice maneuvers on the property. Henry Rice recounts one occasion when he and other family members were caught on a shelling practice session and had to take refuge in the small gulch, which bisects the property. He described the many kinds of military machinery used in modifying the property, and the dummy pillboxes that were built in this area. He said that Wailea area also had pillboxes, and that it was a practice area for the Iwo Jima landing.

Since World War II, the general Kihei region has undergone rapid commercial and residential development. The Maui Lu Resort had been part of the Ranch and was purchased by a Canadian named Gibson. Prior to its development, the property on which it is located, had been the base for a large piggery which extended mauka to what is now Pi'ilani Highway.

A smaller ranch was located in the general vicinity of the project area—Kama'ole Ranch. An article in The Maui News (December 19, 1908) states that Antone F. Tavares of Makawao “purchased S. Ahmi's Kama'ole Ranch property for \$8,500.00. The ranch, located in droughty Kula district was a fine piece of property.” It goes on to say that Mr. Ahmi refused a former offer for \$9,500.00 when he was asking \$15,000.00 for it.³

The Maui News (March 7, 1928) noted:

“Senator A.F. Tavares has sold Kama'ole Ranch to Haleakala Ranch for approximately \$110,000. For himself he retains the title to the cottage on the place and about 5.95 acres surrounding it... At present there are about 500 head of cattle running over the ranch and the purchasers have an option on this livestock at \$40 per head. Kama'ole ranch has an area of approximately 1500 acres. It adjoins the Ulupalakua ranch, which is owned by Frank F. Baldwin. Alexander and Baldwin, Ltd., is agent for Haleakala ranch and the purchase of Kama'ole brings together two properties, which occupy many thousands of acres of cattle land on the slopes of Haleakala. Kama'ole is to be continued by the purchasers as a cattle ranch.”

The bulk of the *ahupua`a* of Ka`ono`ulu lies within Makawao District, which was considered to be government lands after the Great Mahele. While a good deal of agricultural activity took place in the mid- and latter 1800's in the upland Kula region, little activity is noted for the lower portions of the *ahupua`a* where the current project area is located.

Since the early part of the 20th century portions of the Kihei area have been used primarily for cattle ranching. The importation of alien grass species such as buffel grass (*Cenchrus ciliaris*) for livestock feed has greatly altered the natural flora of the general area. In addition, ranching activities have no doubt impacted archaeological features that are present in the general area.

During the early 20th century, there was little to attract people to South Maui, except good fishing and fine beaches. Only about 350 people made Kihei their home at this time. Finally, in 1932, the government offered 11 beach lots for sale—the Waiohuli-

³ Mr. Ahmi was also known as Sun Mei, a notable personage in Kula in the early part of the century. In 1901 he was arrested for stealing cattle, and he sued for false imprisonment a few weeks later. In 1903 he was indicted in a police bribery case, but was later acquitted. He was also involved in civil suits, and tax cases, as well as being outspoken in political matters during 1904 and 1905. By 1906 his property was listed in a sheriff's sale, and sold in 1908 (Bartholomew, 1985).

Keokea Homesteads—with the hope of spurring development of a desirable residential district. These homestead lands lie to the west of the present study area.

An article in *The Maui News* dated November 11, 1931 reports that the coveted Kihei Beach lands “will be opened for Public Sale in the near future for home building”. Those in favor of the sale, say that it would promote development of the Kihei area into a better-class residential district. The chief of the opposition for the sale was Senator Harold W. Rice, who maintained that the area should be preserved as government property and should be turned over to homesteaders.

As it turned out there was little interest in Kihei lands, and only 6 of the parcels were sold. By 1950, farmland could be gotten for about \$225 per acre and residential lots sold for 5 to 10 cents a square foot (Bartholomew and Bailey, p. 142). Kihei was not thought of as a desirable living area, for the most part, due to the general dry, dusty and hot conditions.

A few years after the partition of these homestead lots, World War II erupted, and this part of South Maui was soon dominated by the military. As previously mentioned, during World War II, military activity impacted portions of Kihei. Such activities included operations of the Naval Combat Demolition Training and Experimental Base, the Kama`ole Amphibious Training Base, and the Pu`unene Naval Air Station. The present study area may likely have been impacted as well. Archaeological evidence of such military activity was found by the authors during an inventory survey of this subject parcel in 1994 (Fredericksen, et. al., July 1994).

An article on the front page of *The Maui News* dated June 9, 1945, gave information about the placing off-limits of land located in Kihei-Makena. It reads:

“Beginning at the north at the southern boundary of the property of William Harvey, tax map key 390257, which is approximately 3.3 miles south of the pier located across Makena road from the Kihei Store and ending at the south of the southern end of the Naval Air Station, Pu`unene, recreation beach five miles south of the pier across from the Kihei Store, and extending from the western boundary of Makena road to an imaginary extension of the shore line of Ma`alaea bay extending at all point 2000 yards seaward of the actual shoreline thereof. The northern and southern boundaries of the area described herein have been identified by placing of out-of-bounds signs thereon.”

The prohibition applied to military as well as civilian personnel, with the exception of those attached to the Naval Combat Demolition Training and Experimental Base, the Kama`ole Amphibious Training Base, and the Pu`unene Naval Air Station. They were allowed to use the facilities of the Naval Air Station recreation beach situated within the area. Kalama Park was accessible, but persons had to remain within the park boundaries, and could not swim, wade, or fish in the waters adjacent

to the park under any circumstances. Civilians living within the restricted area were allowed access to their homes, however.

Only in fairly recent times—from the 1960s on—has Kihei taken on importance as a place of residence and commerce. At present it is one of Maui’s busiest tourist areas, with condominium/hotel development, and associated commercial activities. At the same time, with the increase of population, it has become a major residential area.

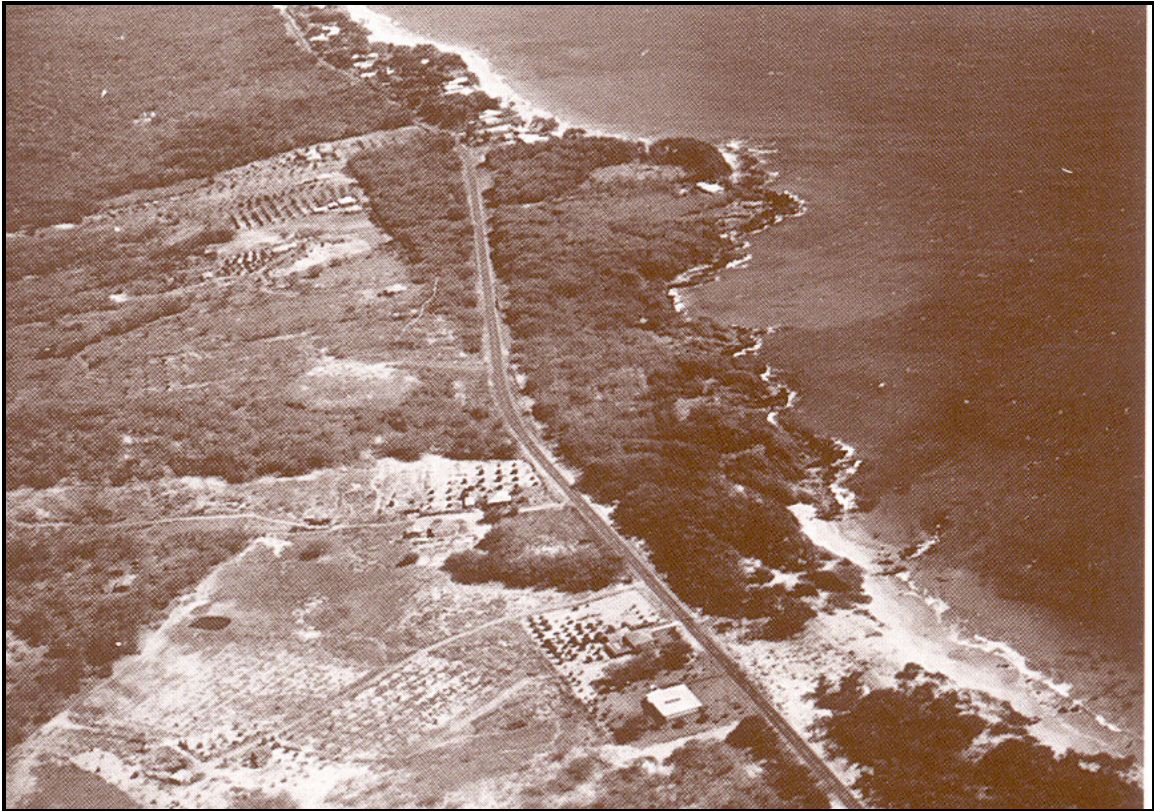


Photo 1: Aerial view of Kama`ole Beach area in Kihei during the 1940s, showing military installations (probably the Kama`ole Amphibious Training Base). [Bartholomew and Bailey, p. 142]

Previous Archaeological Work in the Kihei Area

As previously noted, the current project area lies within Ka`ono`ulu *Ahupua`a*. Archaeologists have studied this land division and others in the Kihei area over the last 20+ years, in conjunction with tourist resort, community housing, and commercial development.

Previous work on the Piilani Promenade project area

Xamanek Researches conducted an archaeological inventory survey of the c. 88-acre parcel of land in 1994. As previously noted, approximately 75 acres of this parcel will form the on-site portion of the Piilani Promenade development (Figure). A total of 20 sites, designated Sites 50-50-10-3727 through 3746, were located during this survey. These sites consisted of rock piles and cairns (8), enclosures (2), parallel alignments (3), erosion containment wall segments (1), surface scatters (5), and a petroglyph on a boulder. Some of the stone piles, the alignments and one of the enclosures appeared to be associated with previous military activities in the area. The surface scatters and the petroglyph were interpreted as possible precontact features. The erosion containment wall segments were interpreted as ranch era features. Portions of the project area had been previously impacted by bulldozing activities, likely associated with previous military and ranching activities. The previous installation of a large (36-inch diameter) waterline that runs diagonally through the parcel was found to have impacted this portion of the project area. This 1994 report is included in its entirety in Appendix A of this document.

Archaeological monitoring plan

Archaeological monitoring was recommended by the State Historic Preservation Division (SHPD) in a 2011 letter that cites the 1994 Xamanek Researches AIS of the c. 88-acre parcel that contains the on-site project area for the proposed Piilani Promenade (SHPD DOC #1103MD05). This letter can be found in Appendix B of the current report. Pursuant to this SHPD comment letter, an archaeological monitoring plan was prepared for a larger portion of land in Ka`ono`ulu *ahupua`a* (Chafee and Dega, 2011). This AMP was submitted to the SHPD and approved in a March 2011 review letter (SHPD DOC NO: 1108MD12). While this monitoring plan includes much of the current project area, it is not project specific. Per input from SHPD, Xamanek Researches LLC will prepare an updated monitoring plan for the proposed Piilani Promenade development.

Previous nearby archaeological work

In 2008 (Shefcheck et al.) conducted an inventory survey of a c. 515-acre portion of land in Ka`ono`ulu *Ahupua`a*, just adjacent to the current project area. During this 2008 survey 40 new archaeological sites were identified and recorded. Of the 40 sites, eight were associated with precontact activities. These sites consisted of a temporary rock shelter with petroglyphs, enclosures, platforms, a rock mounds and a rock wall. The remaining sites are associated with the WWII era and ranching activities. Two sites – 6405 and 6412 were slated for Data Recovery. Site 6405 was a lithic scatter. Site 6412 was a mix of precontact and historic military components showing evidence of adaptive re-use. A number of sites were recommended for preservation because they represent Hawaiian traditional structures. These sites included Sites 6390, 6413, 6414, 6415, 6416, 6419, and 6420. The above sites were located within an area that has been referred to by some as the “barren zone” - where habitation is limited and temporary. SHPD approved mitigation measures consisting of monitoring, data recovery, and preservation (DOC No 0809PC17). This letter is included in Appendix B.

Environmental Impact Study Corp (EISC) conducted an archaeological study in Kihei in 1982. A second study was undertaken by PHRI in July of 1989, for Baldwin Pacific’s Pi`ilani Residential Community, Phase I (TMK 2-2-02: poor 42). These studies took place to the south of the project area

The EISC study located one site that was described as “a possible alignment of very loosely stacked basalt extending downslope from an outcrop knoll” (1982, pg. B-4), and did not recommend further work because of low research potential. The PHRI survey, conducted by Theresa Donham (July, 1989), encompassed 114 acres situated along the western side of Pi`ilani Highway, between Kihei Elementary School and Lokenani Intermediate School and the northern border of Waiohuli *Ahupua`a*. During that survey five new sites were discovered, and two others relocated—Site 2476 identified by EISC, and Site 1705 initially recorded by Cordy during his reconnaissance survey for the Corps of Engineers (1977).

Donham’s work on all 7 identified sites determined that two sites were bulldozer push piles, and these were not assigned SIHP numbers. The other five sites were mapped and tested in order to determine their significance. Site 1705 was described as a faced wall, possibly a corral. Sites 2473 and 2475 are thought to be historic dependency structures associated with ranching activities. Site 2475 consists of two stone cairn features, one of which was recommended for data recovery, as it was thought it might contain human remains. The fifth site, Site 2476 is a complex of five rock alignments, which may have had an agricultural function (Donham, 1989, pp. 8-14).

Archaeological data recovery was undertaken in 1990 on Site 2475, to determine if it was a burial complex. Subsurface test excavations did not produce human remains, or evidence of cultural deposits, midden or charcoal. However, further data recovery “indicated that it was a terrace complex covering a major portion of the natural terrace crest and its slopes” (Donham, 1990, p. 10). The site was interpreted as an agricultural complex and appeared “to represent relatively intensive modification of natural slopes for

purposes of planting” (Ibid.). The rock alignments that compose Site 2476, which lies nearby, may also be additional terracing. The location of the site, one-half mile mauka of the coastal zone”, an area which was exploited more heavily than the “intermediate zone” in general. She suggests the possibility of seasonal usage during periods of increased rainfall, or simply the response to land availability pressures in the coastal zone (Donham, 1990, p. 10).

Two of the first studies in the lowland portion of the *ahupua`a*, were conducted in association with the construction of Pi`ilani Highway (Cox, 1976; Cordy, 1977). The studies by Cox (1976) along the coastal area included information about two heiau, Kalaihi Heiau (in Ka`ono`ulu *Ahupua`a*), and Kealaipoa Heiau in the adjacent Waiohuli *Ahupua`a*. He also mentions 3 fishponds noted from historic sources, one of which may have been rebuilt by Kamehameha I. Cordy found wall remnants at the mouth of Waipuilani Gulch (Site 1704), which may be the remains of one of these ponds (1977). He also located Site 1705, mentioned earlier, which was in the Pi`ilani Residential Subdivision, which lies to the south of the current project.

In 1986, Kennedy conducted a surface reconnaissance survey for the Silversword Golf Course, and reported in a brief letter that no archaeological features were found in the approximate 125-acre survey area. This golf course lies to the southeast of the present project area.

On the grounds of Lokelani Intermediate School, about 2 km southwest of the project area, Xamanek Researches excavated a rock shelter, Site 3193, in July of 1993 (Fredericksen, et al., September 1993). This shelter was 5.5 meters in length, extended a maximum of 1.6 meters inward, and had a maximum interior height that was 0.85 m. The ceiling was dome shaped and dropped to the ground level at either side. A large kiawe tree, which had recently burned, had formerly grown at the drip line of this overhang. The site appears to have been used intermittently, and contained midden, artifacts and over 100 pieces of volcanic glass. Much of the volcanic glass was waste material, the by-product of knapping activity. Midden consisted primarily of *pipipi* (*Nerita picea*), cowry (*Cypraea* sp.), and cone shell (*Conus* sp.). Recovered artifacts included bone picks, coral abraders and a piece of worked faunal bone. Three hearths were excavated, and charcoal from one yielded a radiocarbon date of AD 1560-1800 (270 +/- 120 RCYBP).

Other archaeological work southwest or *makai* of the study area in Waiohuli *Ahupua`a* was carried out by Xamanek Researches for the Azeka II Shopping Center and Longs Drug Center (Fredericksen, et. al., 1990a and 1990b). No significant archaeological finds were made. However, identification of the wetland areas was established at this time, and subsequently the Federal and State Wetlands Sanctuary were developed. A parcel at the intersection of Lower Kihei Road and Lipoa was also surveyed (Fredericksen, et. al., February 1994), and no significant archaeological finds were made. The above study areas would have likely been within a wetlands area directly east or *mauka* of the coastal zone sand dunes in precontact times.

In the upland region, PHRI carried out an inventory survey of Keokea and Waiohuli Subdivision for the Department of Hawaiian Home Lands (Brown and Haun, 1989). The University of Hawaii-Manoa held an archaeological field school there in the summer of 1994, under the direction of Michael Kolb. Both of these studies identified numerous precontact sites, indicating fairly extensive habitation and agricultural activity in the uplands region.

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing, of a 28.737-acre portion of the Maui Research and Technology Park, within the area investigated by Kennedy in 1986. The only observation was a small arrangement of stacked boulder interpreted as a “push pile”. No other historic or precontact features were noted.

McGerty et al. (2000) surveyed 15 selected areas within the Elleair Maui Golf Club. Five archaeological sites were identified. State Site Nos. 50-50-10- 5043 -5047 contained a total of seven surface features. These features were interpreted as agricultural terraces, perhaps dating from the precontact periods while the C-shaped rock formations were built during the WWII training era. Ten test units were excavated which did not yield any further cultural material.

Additional testing was carried out along the northeastern flank of the Elleair Maui Golf Club property (Tome and Dega, 2002). This study identified an historic ranching corral and a short agricultural wall, collectively Site 5233. No other structures or subsurface deposits were identified. Another inventory survey along the southern flank of the Elleair Maui Golf Course failed to yield any additional archaeological features (Dega 2003).

In 2004, Scientific Consultant Services (SCS), Inc. conducted an archaeological inventory survey on two undeveloped lots totaling approx. 56.647 acres near the Elleair Maui Golf Club Course, across Ka`ono`ulu to the south of the Piilani Promenade project area. A surface survey and subsurface testing was performed. Four surface features consisting of stacked basalt stones were located within the project area, each was assigned a separate state site number, 50-50-10-5506-5509. Test excavations yielded buried cultural material consistent with precontact era in three of these sites. Site -5509 however was a C-shaped rock pile and did not yield any cultural material and was interpreted as WWII era. No additional work was recommended (Monahan 2004).

Xamanek Researches, LLC carried out a field inspection of a c. 9.5-acre parcel known as Ka`Ono`Ulu Estates Phase V to the west of the Piilani Promenade project area. This previous field inspection of this parcel was carried out in early 2006. The property was found to have been extensively disturbed and no further work was recommended (Fredericksen, 2006). The SHPD subsequently issued a no-effect letter, following review of the field inspection report (SHPD DOC NO: 0607JP19).

In 2013 Xamanek Researches, LLC completed an assessment survey of an 8.274-acre parcel for the Ka`ono`ulu 201-H Housing project (formerly known as Ka`ono`ulu

Phase VI). This project is located directly across Pi'ilani Highway (west) from the proposed Piilani Promenade development. Test results indicate that the study area had been heavily impacted by previous earth moving activities associated with the construction of access roads along on its southern half, as well as large amounts of imported fill (including boulders), a stock pile, a base yard, informally deposited fill/debris, and a portable office complex. The southern portion of the project area was previously altered for a permitted flood control project in 2000, which leads into a water retention area that cannot be developed. There was no evidence of any significant material culture remains encountered during this prior assessment survey. (Fredericksen, 2013)

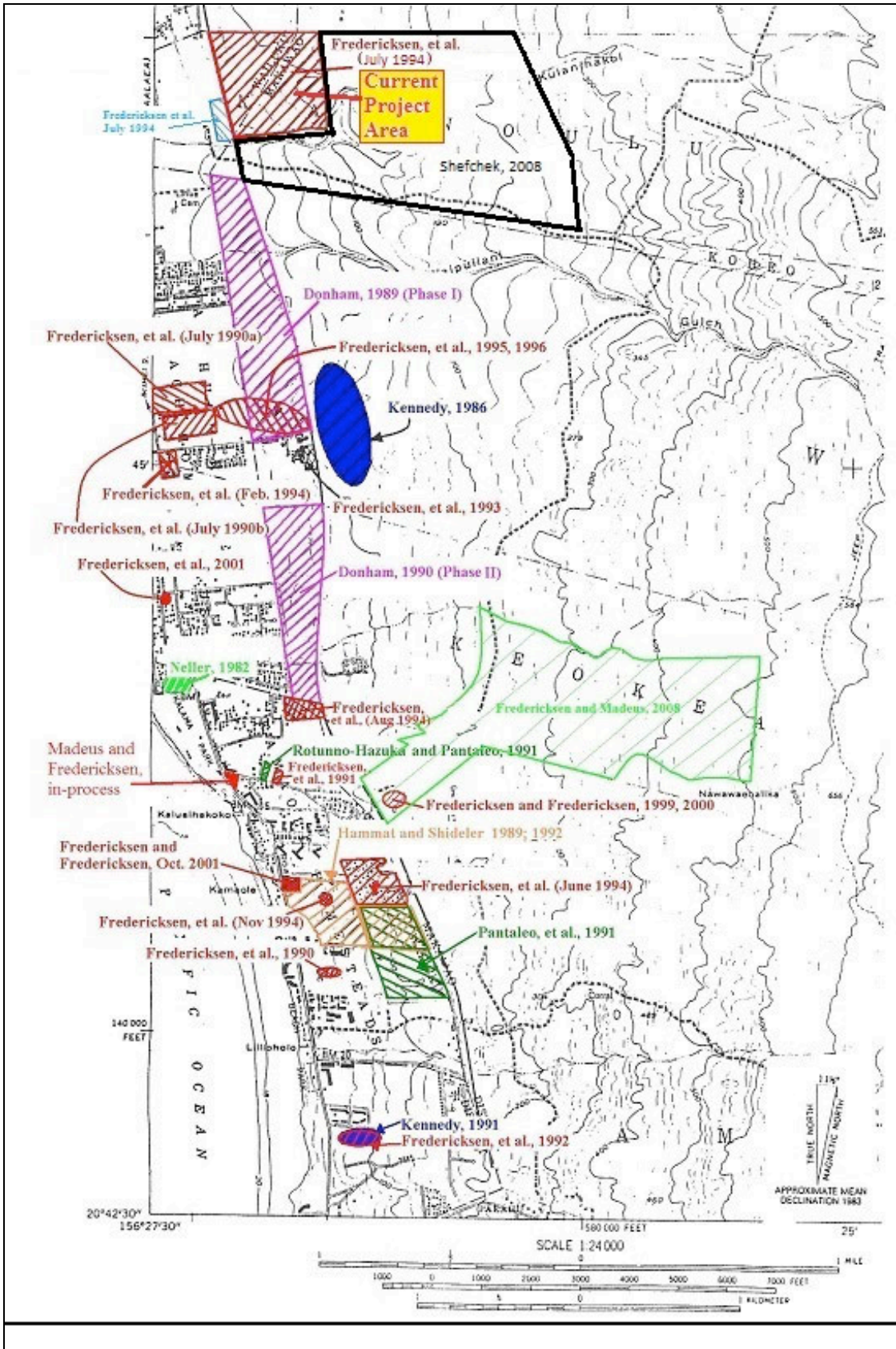


Figure 7: Previous archaeological studies in the Kihei area.

Table 1: Selected Archaeological Studies in the Kihei Area

Authors	Date	Nature of Work	Findings
Burgett, McGerty Dunn and Spear	June 1996	TMK: 3-9-12: 13, Monitoring at Kihei Public Library, Kama`ole <i>Ahupua`a</i>	Five sites with 20 features – 2 habitation sites, 1 habitation and shrine (<i>ko`a</i>), 1 habitation and probable burial and 1 scatter of human remains. Date ranges AD 1280 to c. 1800.
Donham, Theresa	1989	Inventory survey of Pi`ilani Residential Community, Phase I—TMK 2-2-02: por. 42. Waiohuli <i>Ahupua`a</i> and Phase II-Keokea <i>Ahupua`a</i>	5 Surface sites, including agricultural terrace (Site 2475). Suggests “coastal perimeter zone” be added to Cordy’s model. Similar, but fewer features
Fredericksen, Walter and Demaris	1990	TMK: 3-9-20: 7. Inventory survey.	No significant findings
	July 1990a	Monitoring for Azeka Place.	Wetlands-no significant archaeological findings.
	July 1990b	Monitoring for Longs Drugs	Wetlands-no significant archaeological findings.
	1991	TMK: 3-9-17: 26. Inventory survey.	No significant findings
	1992	TMK: 3-9-04: 79. Additional inventory work.	Scattered surface human remains in large sand dune area.
Fredericksen, Demaris, Erik and Walter	September 1993	TMK: 2-2-02: 21. Inventory survey and data recovery	Rock shelter (Site 3193) with hearths and volcanic glass debitage, shellfish midden. Dated AD 1560-1800 (270 +/- 120 RCYBP).
	August 1994	TMK: 3-9-30: 21. Inventory survey.	No significant findings
Fredericksen, Erik, Demaris, and Walter	June 1994	TMK: 3-9-18: 1. Inventory survey	11 sites including rock shelter (Site 3541) dated AD 1520 to c. 1800 (220 +/- 60 RCYBP).
	July 1994	TMK: 3-9-01: 16 and 2-22-02: por. 15. Inventory survey.	20 surface sites, including walls, military cairns, modified rock piles, and 1 petroglyph (Site 3746).
	February 1994	TMK: 3-9-02: 91-94, 133-135. Inventory survey.	Wetlands—no significant archaeological findings.
	November 1994	TMK: 3-9-18: 17 and 3-9-20: 27. Subsurface testing Site 2636	Open area site, indigenous artifacts, and hearth—radiocarbon date: AD 1295 to 1495 (530 +/- 80 BP)
Fredericksen, Erik and Demaris	April 1995	TMK: 2-2-02: portion 66, 67; 3-9-02: 109. Inventory survey	Wetlands near South Kihei Road. Rock overhang shelter (Site 3529). Volcanic glass debitage, indigenous artifacts, shellfish midden.
	September 1996	Data recovery on Site 3529.	Additional indigenous artifacts. 3 radiocarbon dates: AD 1470-c.1800 (260 +/- 70 BP; 240 +/- 60 BP; 230 +/- 60 BP).
	February 1999	TMK: 2-2—02: por. 69 - Inventory survey	Rock enclosures, temporary habitation (Sites 4725-4727)
Fredericksen, Demaris and Erik	2000	TMK: 2-2-02: por. 69. Data recovery on Site 4727	Rock enclosure, temporary habitation, and activity area of coral tool manufacture
	2001	TMK: 3-9-10: 75 and 78	Habitation site remnant (Site 5003) with possible associated human burial.
	2002	TMK: 3-9-20: 34	Coastal habitation site remnant (Site 5170). Radiocarbon date of 220 +/- 50 BP.
Fredericksen, Erik	2013	TMK: 3-9-001: 157 and 158 - Assessment survey	No significant findings during this survey project.

Table 1 continues

Authors	Date	Nature of Work	Findings
Hammatt and Shideler	1989 and 1992	Inventory survey, Kama`ole <i>Ahupua`a</i>	Historic house platform, 2 <i>ko`a</i> (Sites 2633 and 2637).
Kennedy	1986	Archaeological reconnaissance of Silversword golf course.	No significant findings in 125-acre area.
McCurdy, T. and H. Hammatt	2013	AIS for the Kulanihako'i Bridge Replacement TMK: 3-9-001, 999, 162, and 143 pos	No significant findings, bridge built in 1911- SIHP 7606
Neller, Earl	1982	TMK: 3-9-12: 3. Reconnaissance survey of Kalama Park	Investigated finds of human remains.
Pantaleo et al., 1991	1991	Inventory Survey of Kihei school lots. Kama`ole lands.	Historic sites, food midden scatter.
Rotunno-Hazuka and Pantaleo 1991	1991	TMK: 3-9-18: 1—Diamond Resort parcel.	No significant findings.
Shefcheck, D., S. Cordle, M. Dega	2008	TMK: 2-2-002: 015 por	40 new sites located, 8 identified as precontact

ADDITIONAL REFERECES ARE LOCATED IN THE "REFERENCES" SECTION IN THIS REPORT

Settlement Patterns and Predicted Findings

The study area lies in the “intermediate zone” beyond the “coastal zone”, which is an area of habitation, using the model developed by Cordy (1977). There are no *kuleana* claims in this near coastal portion of the *ahupua`a*, suggesting that habitation was likely temporary in these arid lands. Ross Cordy (1977) identified the occurrence of three ecological “zones” in the Kihei area. These included the coastal zone of habitation, the intermediate, or barren zone, and the inland habitation zone. The “coastal zone” was one of habitation and marine resource exploitation (i.e., the fishponds). The “intermediate or barren zone” was generally considered to be an inhospitable area, in which little human activity was to be expected, with the exception of intermittent and/or transitory habitation along *makai-mauka* trails inland. The “inland habitation zone” was an area above c. 1500 feet of elevation, where conditions were ideal for growing sweet potatoes and other subsistence crops.

The “intermediate zone” has proven to be less barren than was originally thought, as more studies have identified sites used for intermittent habitation scattered along inland trail routes. Donham’s identification of agricultural terraces in a similar elevation of the study area suggests that the perimeter of the coastal zone may have been more heavily utilized for food production activities than had been previously thought. However, she also noted that agricultural activity could have been intermittent during seasonal increases in rainfall, or periods of overall increased moisture. She proposed another zone, the “coastal perimeter zone” to designate this area (Donham, 1990).

The “inland zone” has also been more intensively studied, principally with the research done for Department of Hawaiian Home Lands, in Waiohuli and Keokea Subdivisions (Brown and Haun, 1989; Riford, 1987; Kolb, Conte and Cordy, 1997). All of the *kuleana* claims and awards in Waiohuli, Keokea and Kama`ole are in this *mauka* habitation zone, as well.

The overall pattern of this part of the island is fairly well understood, with relatively intensive activity on the coast, and further inland (*mauka*). These two areas are connected by *makai-mauka* trails, along which economic goods were transported for exchange. The existence of such a trail in Kama`ole has been suggested by several archaeological studies.

Post-contact land usage consisted primarily of pasture for cattle grazing on lands *mauka* of the coastal zone. During World War II, the near coastal area was impacted by military activity, which no doubt altered the topography to some degree. Refer to Photograph 1 for an aerial view of the Kama`ole Beach area, which lies c. 3 km to the southwest of the study area. This photograph was taken during WWII, and shows the extent of clearing and construction carried out by the military in this portion of Kihei.

The predicted findings, based on background research, could include remnants of temporary habitation areas, trails, remnants of *mauka/makai* trails, ranch-era features such as rock walls and enclosures, and military features.

Overview of the Kihei Piilani Promenade Project

Xamanek Researches previously conducted an archaeological inventory survey (AIS) of a c. 88-acre parcel in 1994 (TMK: (2) 3-9-001: 16, and (2) 2-2-02: Portion of 15). This property is located in Ka`ono`ulu *Ahupua`a*, Makawao and Wailuku Districts. The current proposed development area, now known as the Piilani Promenade, consists of a c. 75-acre portion of this original survey area (Figure 8). In addition, about 14 acres of land that had not been previously surveyed at the inventory survey level will be used for proposed off-site improvements (Figure 8, TMK: (2) 2-2-02: 170-174). Previous bulldozing activities, as well as prior ranching and more recent farming activities, and road construction activities have impacted this land that is slated for off-site improvements. Lot 2-B, a c. 13-acre portion of the original 88-acre property covered in the 1994 AIS, is now owned by a separate entity, Honua`ula Partners, LLC. This portion of the 88-acre property will be developed for an affordable housing project, and is not part of the proposed Piilani Promenade development. Xamanek Researches LLC recently completed fieldwork for the c. 14-acre portion of land that is slated for off-site improvements for the proposed Piilani Promenade development, and did not locate any archaeological sites.

As noted above, the 1994 AIS covered an 88-acre portion of land (Figures 8 and 9). The inventory survey identified a total of 20 archaeological sites. These historic properties were designated Sites 50-50-10-3727 through 3746. The various sites included stone piles and cairns (8), enclosures (2), parallel alignments (3), erosion containment wall segments (1), surface scatters (5), and a petroglyph on a boulder (Table 2). Some of the stone piles, the alignments and one of the enclosures appeared to be associated with previous military activities in the area. The surface scatters and the petroglyph were interpreted as possible precontact features. The erosion containment wall segments were interpreted as ranch era features. Portions of the project area were found to have previously impacted by earthmoving activities, likely associated with previous military, ranching activities, and the construction of a County of Maui waterline (completed in 1979). The prior installation of this large (36-inch diameter) County of Maui Central Maui waterline was found to have impacted a portion of the project area around the boundary between Makawao and Wailuku Districts.

All of the sites identified in the 1994 AIS qualified for significance, because of their information content (Criterion “d”). The petroglyph (Site 3746) also qualified for cultural significance under Criterion “e”. The 1994 AIS recommended preservation for the Site 3746 petroglyph, and the State Historic Preservation Division concurred that no additional work was needed for the remaining sites. At this time there was no

recommendation for archaeological monitoring. A prior landowner removed the petroglyph/boulder and relocated it to upcountry Kula.

Given the time that has elapsed since the 1994 inventory survey of the 88-acre parcel, a re-evaluation of the previously identified sites was conducted. Nine of the original sites appear to have been impacted/destroyed by bulldozing activities on the property. While the significance assessments for Sites 50-50-10-3727 through 3746 remain the same, data recovery is now the recommended mitigation for several of these sites. A forthcoming data recovery plan will be developed for Sites 3727, 3728, 3735, 3736, and 3741-3745. In addition, an archaeological monitoring plan will be developed for the entire 88-acre property, including Lot 2-B that is owned by Honua’ula Partners, LLC, and the c. 14-acre portion of land for the proposed off-site improvements for the Piilanai Promenade project. While physically removed from TMK: (2) 3-9-001: 16 by a prior landowner, this site continues to retain its cultural significance.

Table 2: Summary of Sites and artifacts during the 1994 AIS – Xamanek Researches.

Site # 50-50-10-	Site Type	Findings
3727*	Stone pile	Basalt core, worked basalt flakes, ww rock
3728*	Stone pile	Water worn rock
3729*	Stone cairn	Utilized basalt flake, basalt core, ww rock
3732	Stone cairn	Coral chunk
3735*	Enclosure	Ww rocks, food can metal key
3737*	Parallel alignment	Basalt core, ww hammer stone, ww rock, coral chunk, lead slug
3738	Parallel alignment	Utilized cobble
3741*	Surface scatter	Basalt flakes, ww rocks, coral
3743	Surface scatter	Basalt cores, basalt flakes, ww rocks, coral
3744*	Surface scatter	Utilized basalt flakes, basalt core, grinding stone, ww rock, coral, volcanic glass flake and core
3745*	Surface scatter	Basalt flakes, basalt core, ww rock, utilized basalt, coral
3746	Petroglyph boulder	N/A

* = Tested sites

ww - water worn

To see a more detailed description of these sites refer to Appendix A for the 1994 AIS report.

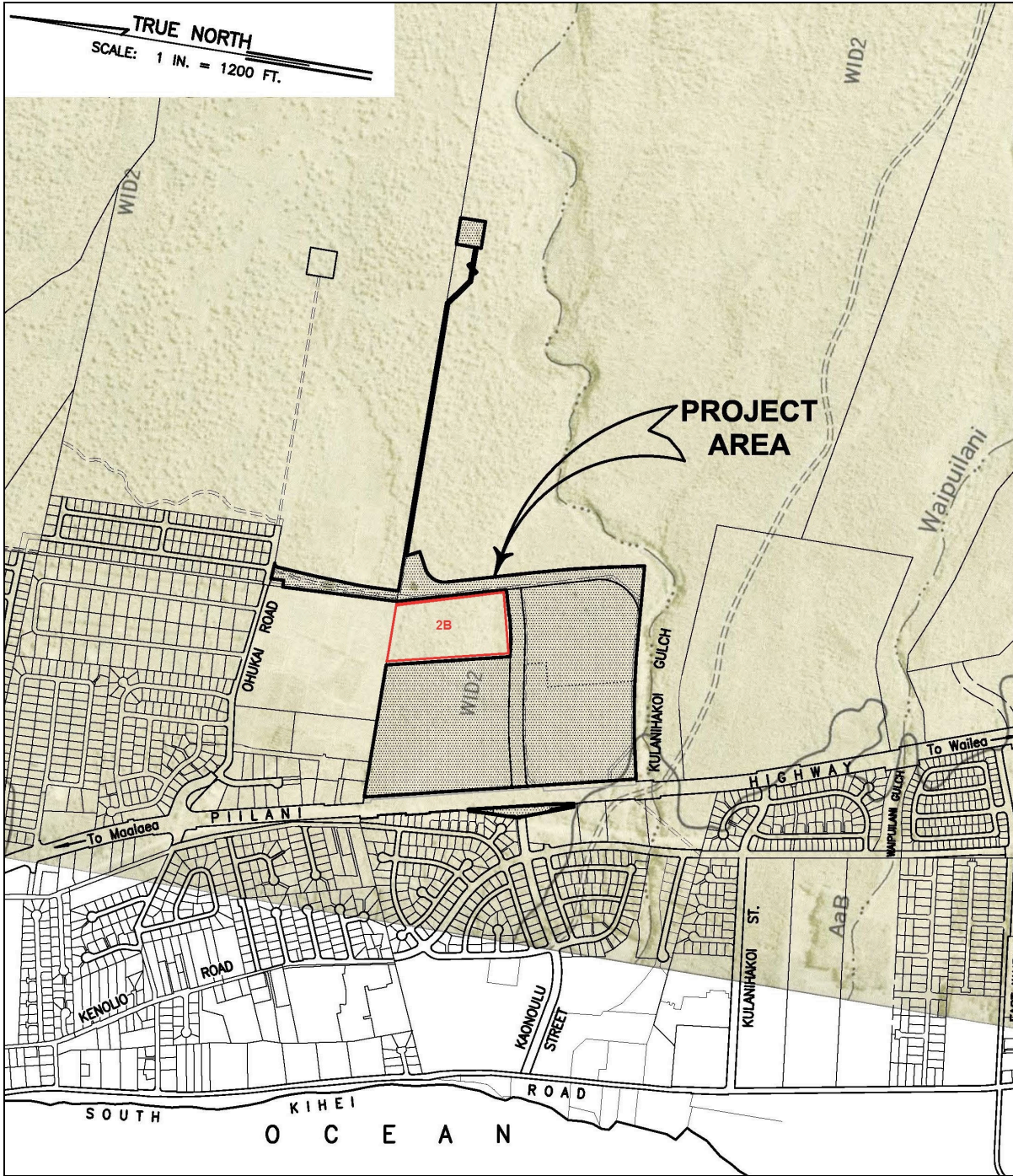


Figure 8: Piilani Promenade project area, with Lot 2B outlined in red (owned by Honua`ula Partners, LLC). This c. 13-acre portion of land is not included in the proposed Piilani Promenade development.

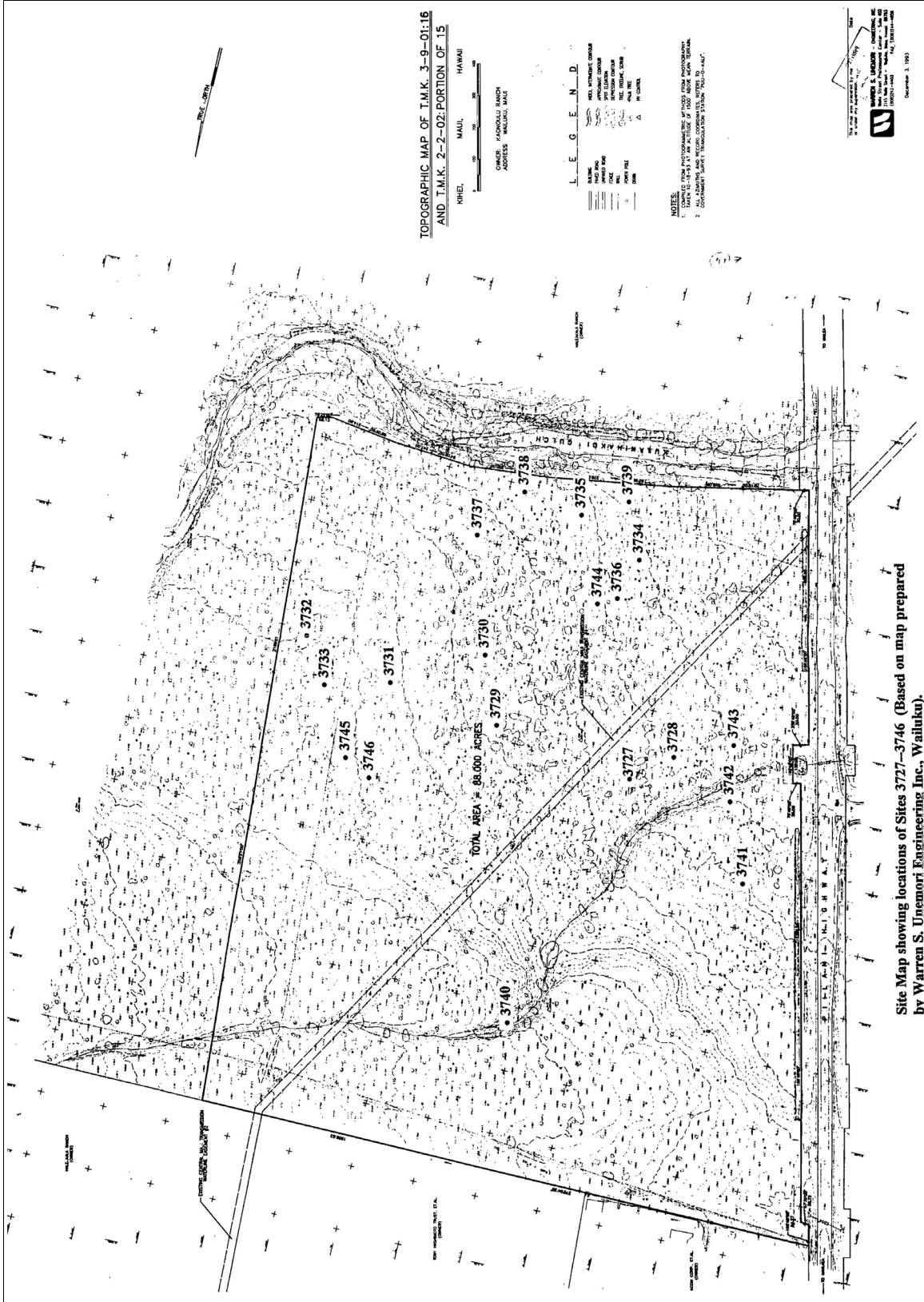


Figure 9: Topographic map with 1994 AIS site locations.

Table 3: Sites located during the 1994 AIS – Xamanek Researches.

STATE SITE #50-50-10-	DESCRIPTION	FUNCTION/AGE	SIGNIFICANCE/ ADDITIONAL WORK**
3727*	Stone piles	Agricultural/indeterminate	“D”/no
3728*	Stone piles	Agricultural/indeterminate	“D”/no
3729*	Stone cairn	Marker/indeterminate	“D”/no
3730	Stone cairn	Marker/indeterminate	“D”/no
3731	Stone cairn	Marker/post contact	“D”/no
3732	Stone cairn	Marker/indeterminate	“D”/no
3733	Stone cairn	Marker/post contact	“D”/no
3734	Stone pile	Agricultural/indeterminate	“D”/no
3735*	Enclosure	Military/WW II	“D”/no
3736*	Enclosure	Possible shelter/pre contact	“D”/no
3737	Parallel alignment	Military/WW II	“D”/no
3738	Parallel alignment	Military/WW II	“D”/no
3739	Parallel alignment	Military/WW II	“D”/no
3740	Erosion containment walls	Ranching/post contact	“D”/no
3741*	Surface scatter	Temp habitation/pre contact	“D”/no
3742	Surface scatter	Temp habitation/indeterminate	“D”/no
3743	Surface scatter	Temp habitation/pre contact	“D”/no
3744*	Surface scatter	Temp habitation/pre contact	“D”/no
3745*	Surface scatter	Temp habitation/pre contact	“D”/no
3746	Petroglyph	Marker/pre contact	“D” and “E”/ yes, move to a new location

* = Tested sites

**Updated mitigation recommendation are noted in Table 4.

Table 4: Updated 2014 Mitigation Recommendations

Site # 50-50-10-	Site Type	2014 Mitigation Recommendation
3727	Stone piles	Data Recovery (DR)
3728	Stone piles	DR
3729	Stone cairn	No further work (NFW)
3730	Stone cairn	NFW
3731	Stone cairn	NFW
3732	Stone cairn	NFW
3733	Stone cairn	NFW
3734	Stone pile	NFW
3735	Enclosure	DR
3736	Enclosure	DR
3737	Parallel alignment	NFW
3738	Parallel alignment	NFW
3739	Parallel alignment	NFW
3740	Erosion containment walls	NFW
3741	Surface scatter	DR
3742	Surface scatter	DR
3743	Surface scatter	DR
3744	Surface scatter	DR
3745	Surface scatter	DR
3746	Petroglyph	Preservation*

DR = Data Recovery

*This petroglyph boulder was physically removed by a previous property owner in the 1994, and is not located on the proposed Piilani Promenade development area.

Of the 20 identified sites during the 1994 AIS, 8 were sampled with a total of 10 test units. Out of those 10 test units, only two yielded any subsurface cultural remains. The majority of the recovered cultural material consisted of shell midden. Other portable remains included one utilized-basalt flake fragment, several unworked basalt flakes, and several pieces of coral and water worn rocks. No suitable charcoal for radiometric analysis was located during subsurface testing. These results are summarized in Table 2 of the 1994 AIS, which is included in Appendix A of the current document. Refer to Figures 10-29 below for plan views of previously identified Sites 3727 through 3746.

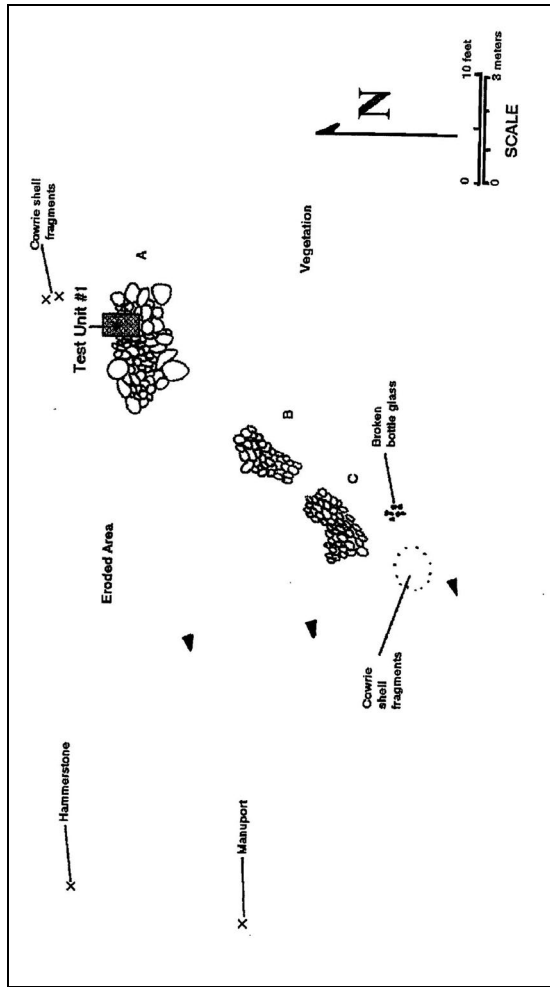


Figure 10: Site 3727 – Plan View.

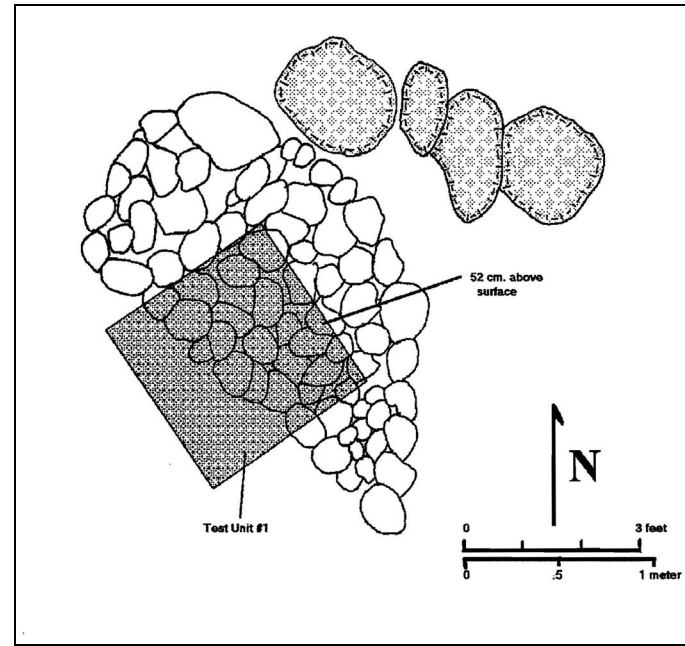


Figure 11: Site 3728 – Plan View.

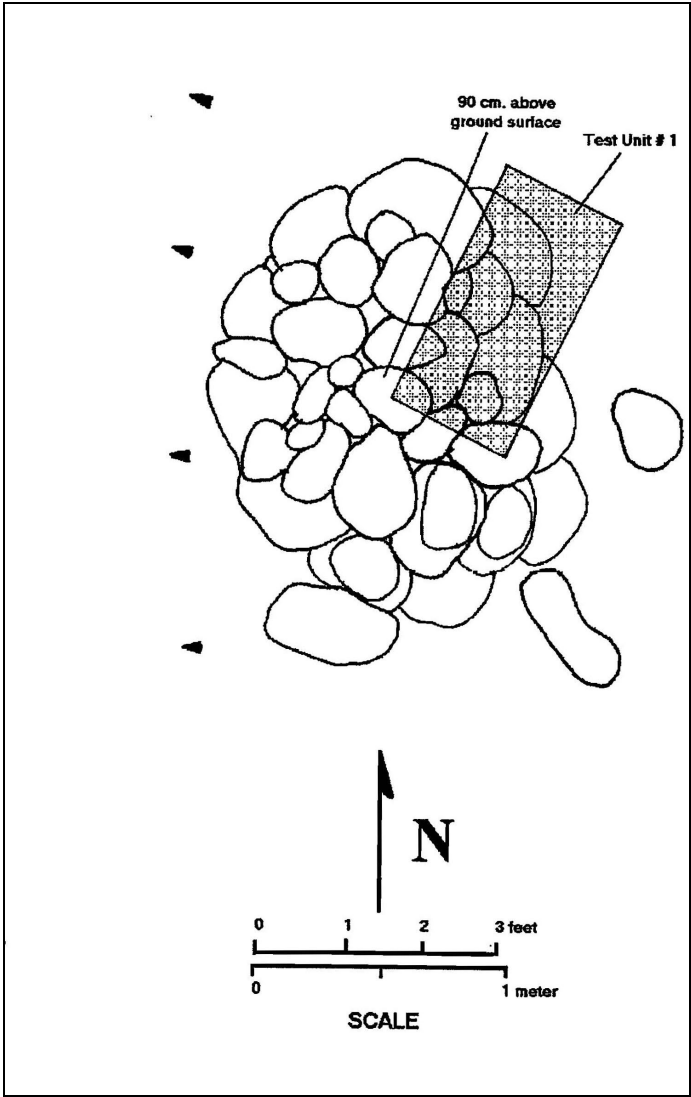


Figure 12: Site 3729 – Plan View.

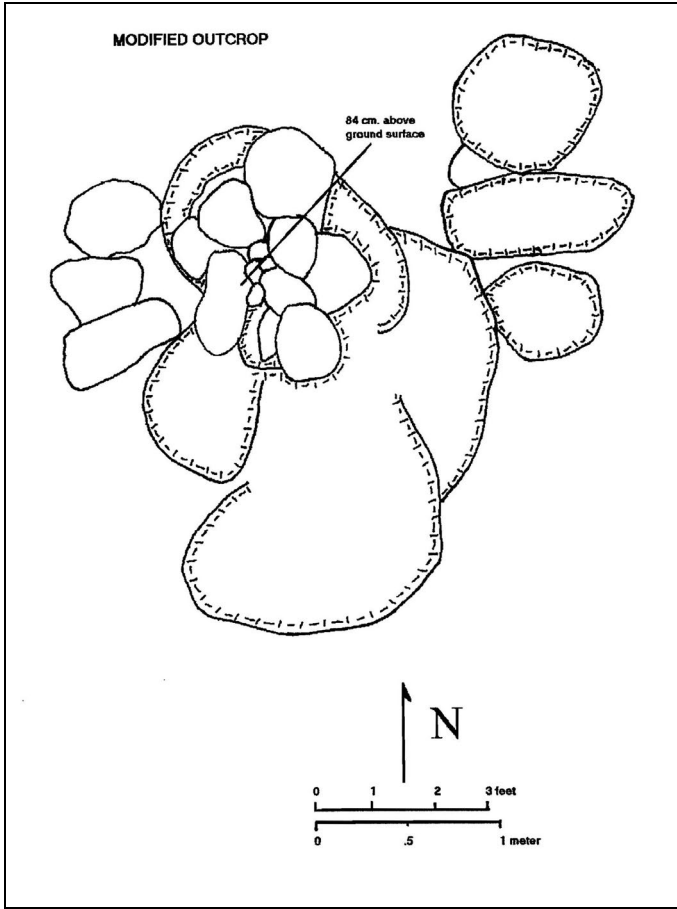


Figure 13: Site 3730 – Plan View.

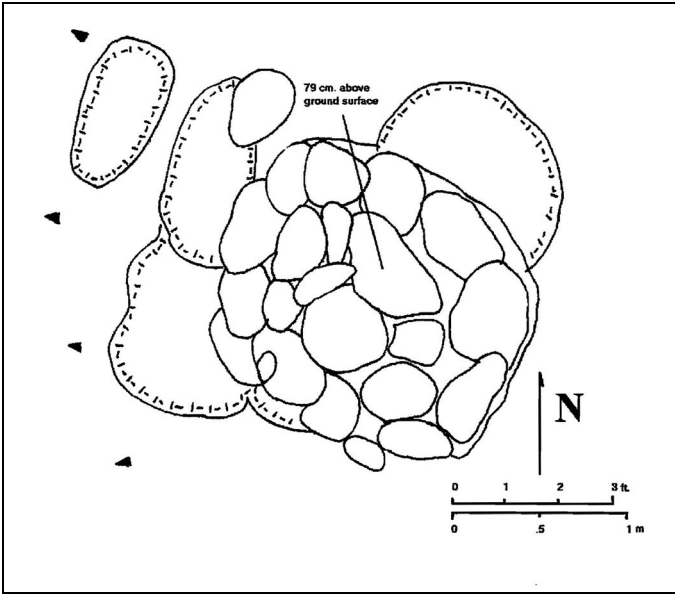


Figure 14: Site 3731 – Plan View.

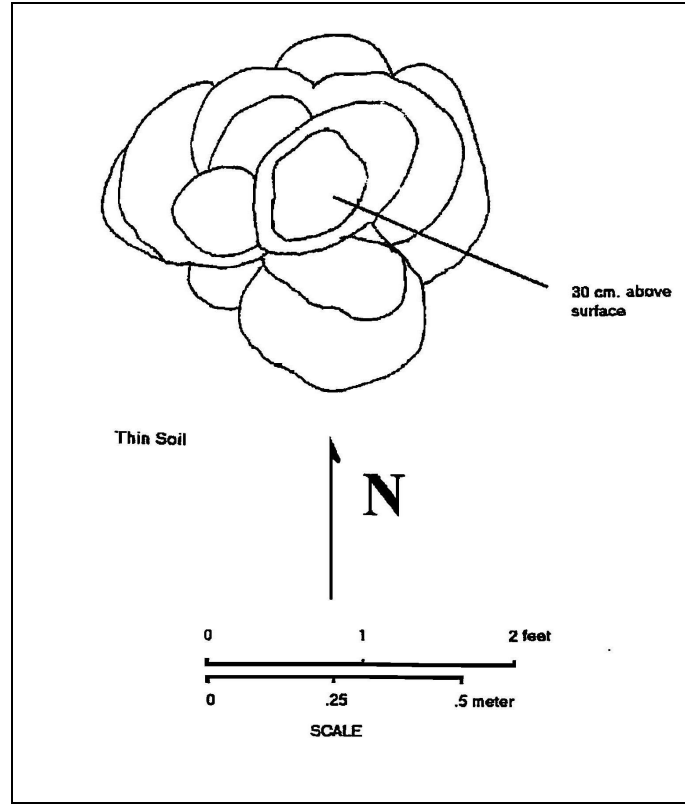


Figure 15: Site 3732 - Plan View.

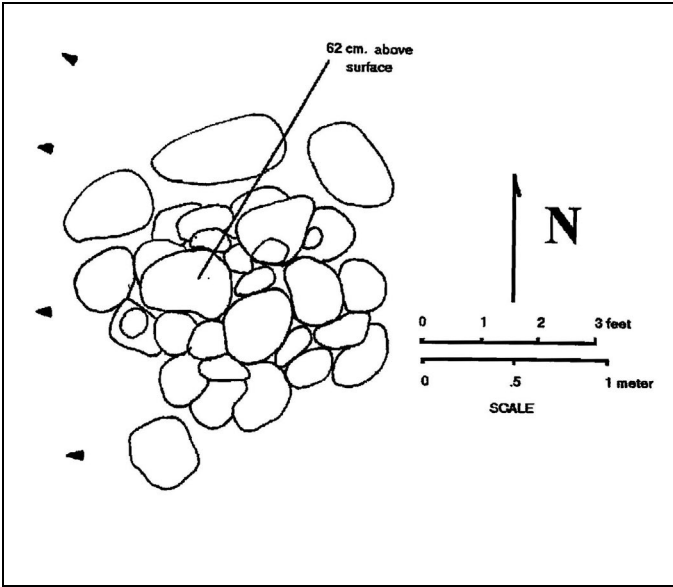


Figure 16: Site 3733 – Plan View.

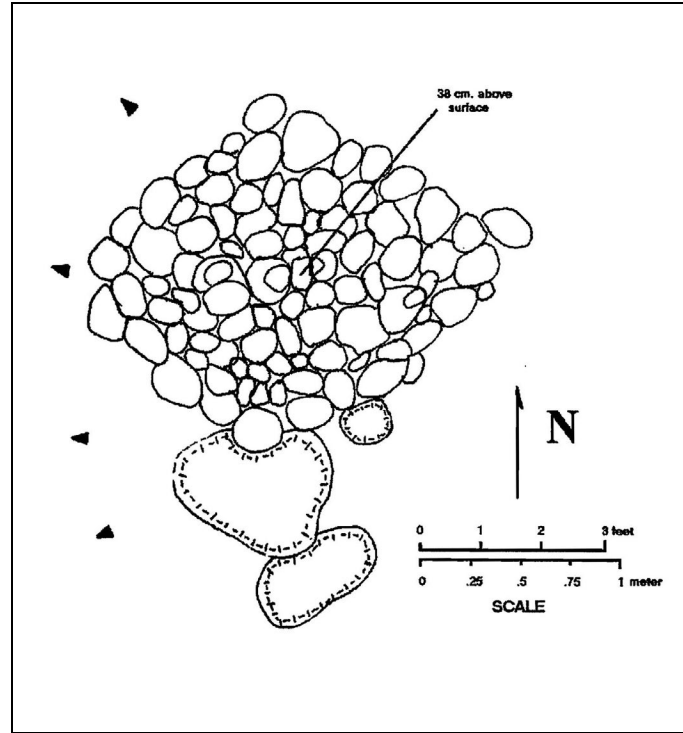


Figure 17: Site 3734 – Plan View.

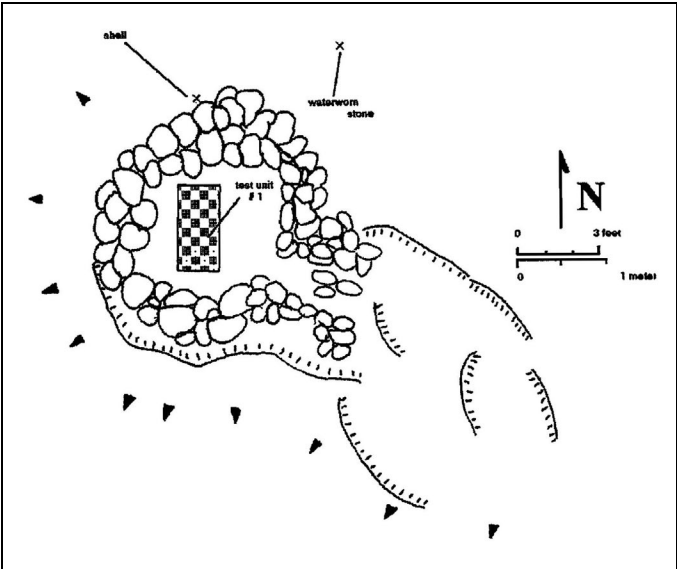


Figure 18: Site 3735 – Plan View.

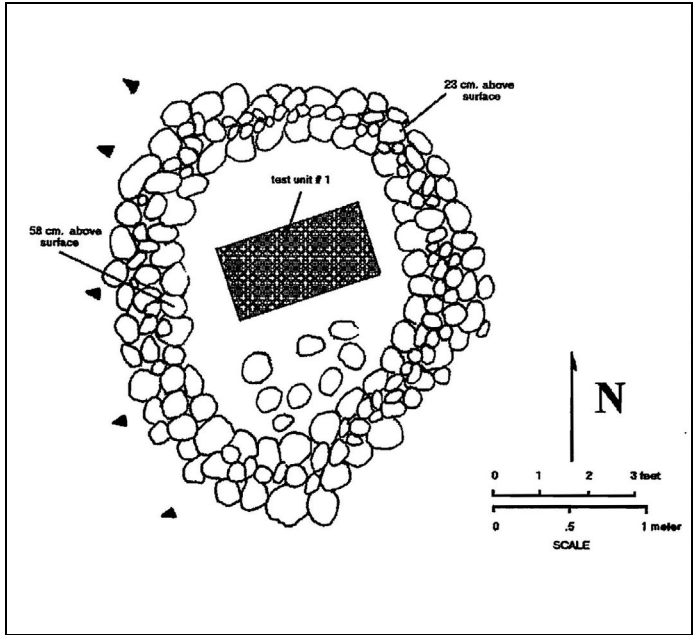


Figure 19: Site 3736 – Plan View.

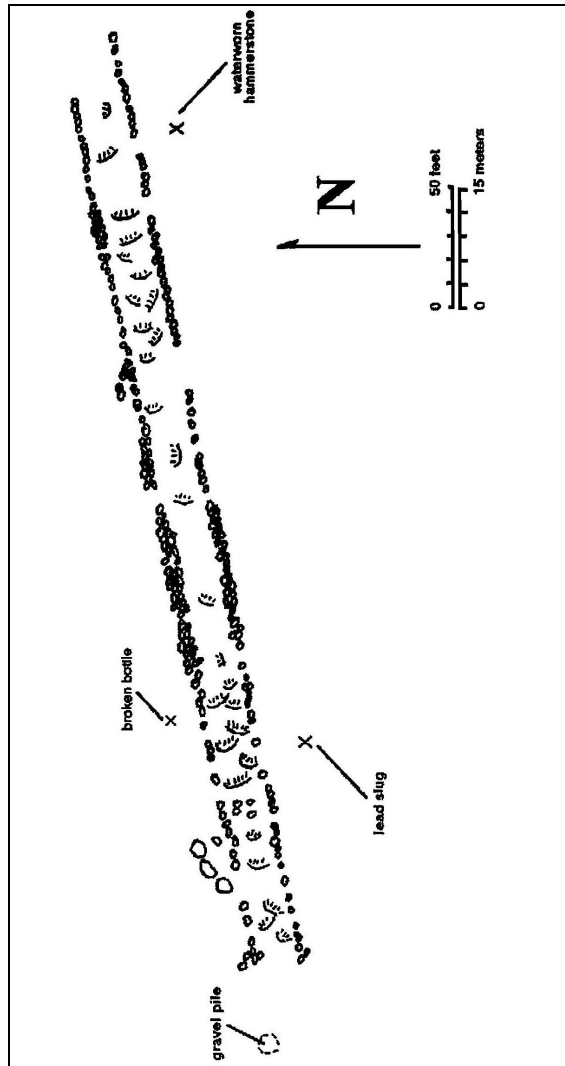


Figure 20: Site 3737 – Plan View.

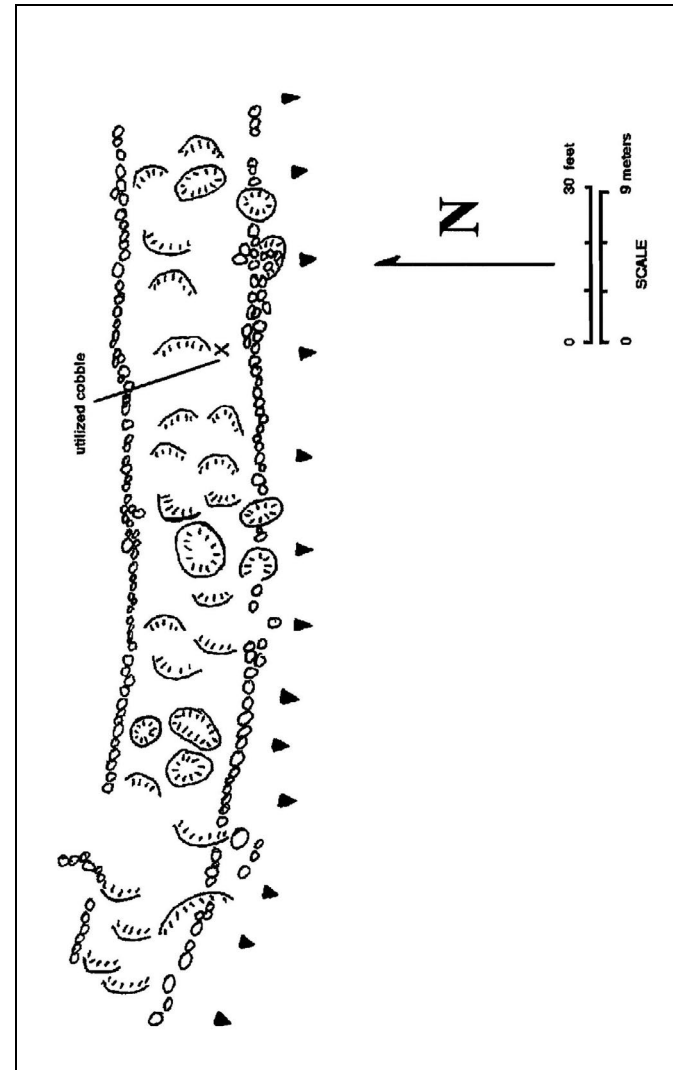


Figure 21: Site 3738 – Plan View.

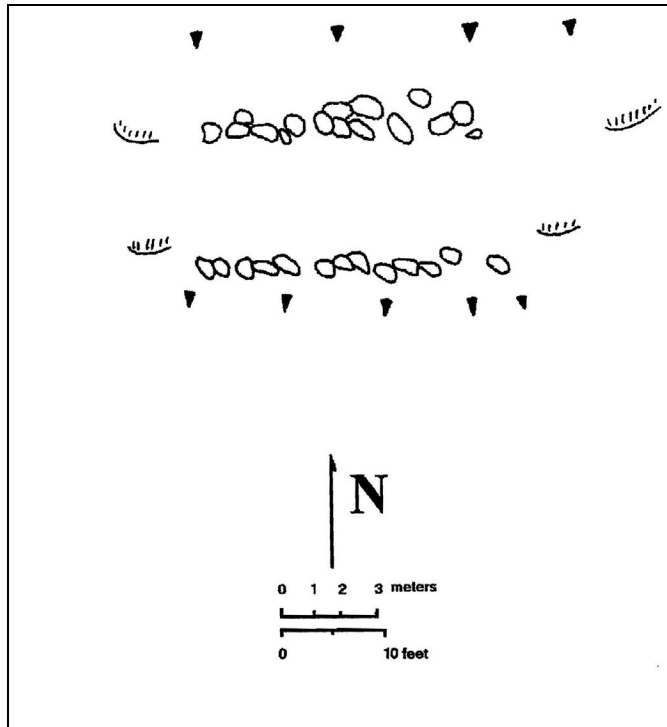


Figure 22: Site 3739 – Plan View.

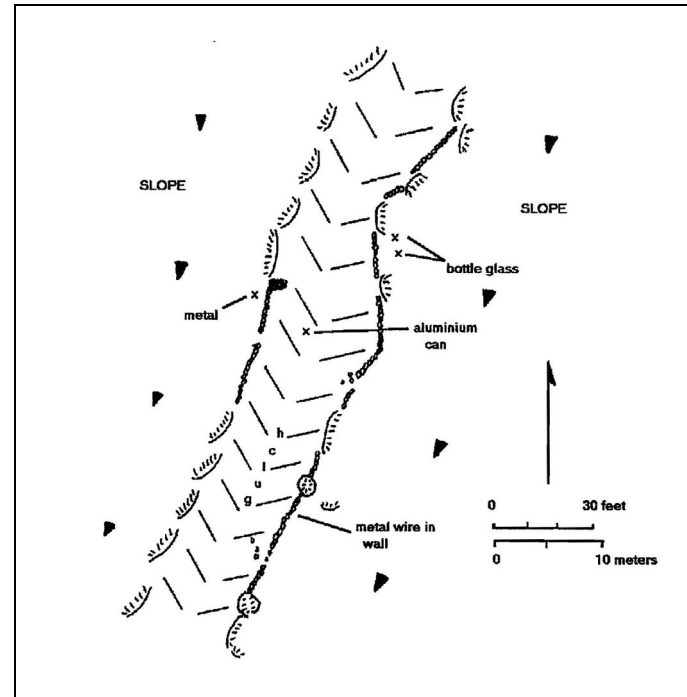


Figure 23: Site 3740 – Plan View.

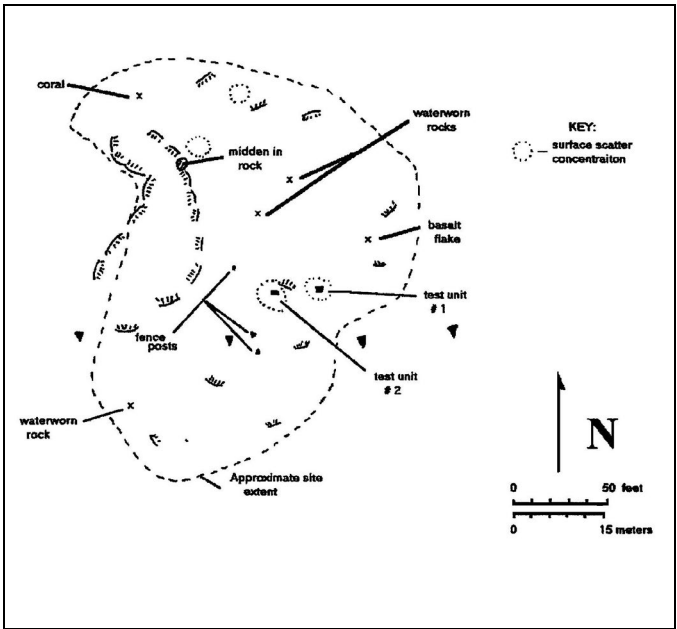


Figure 24: Site 3741 – Plan View.

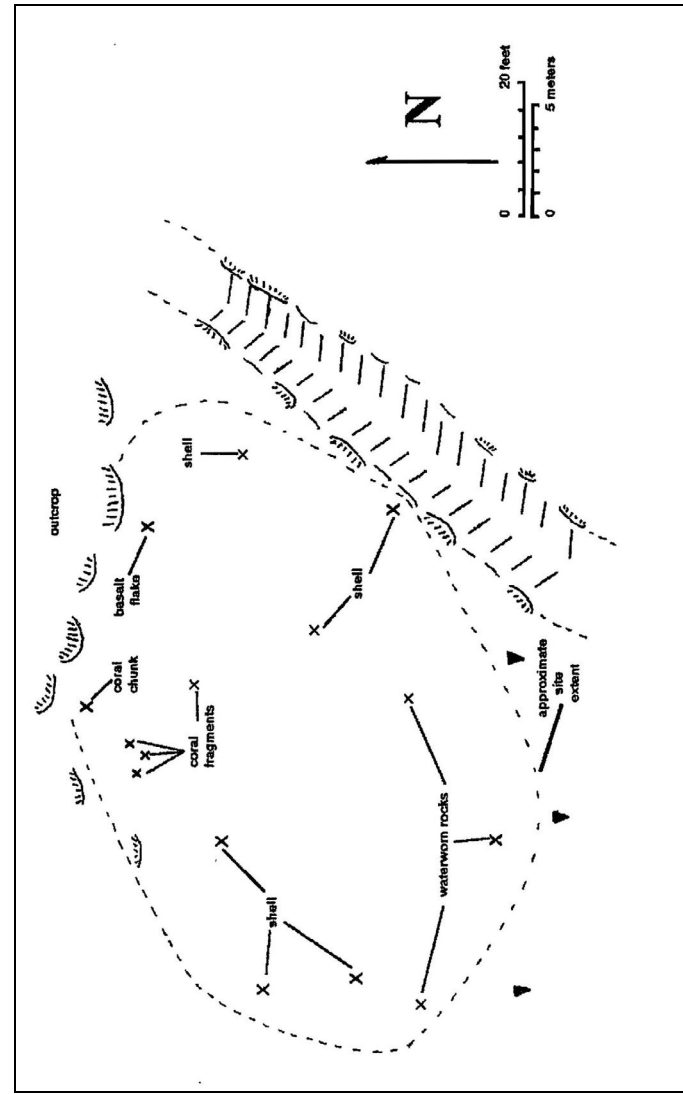


Figure 25: Site 3742 – Plan View.

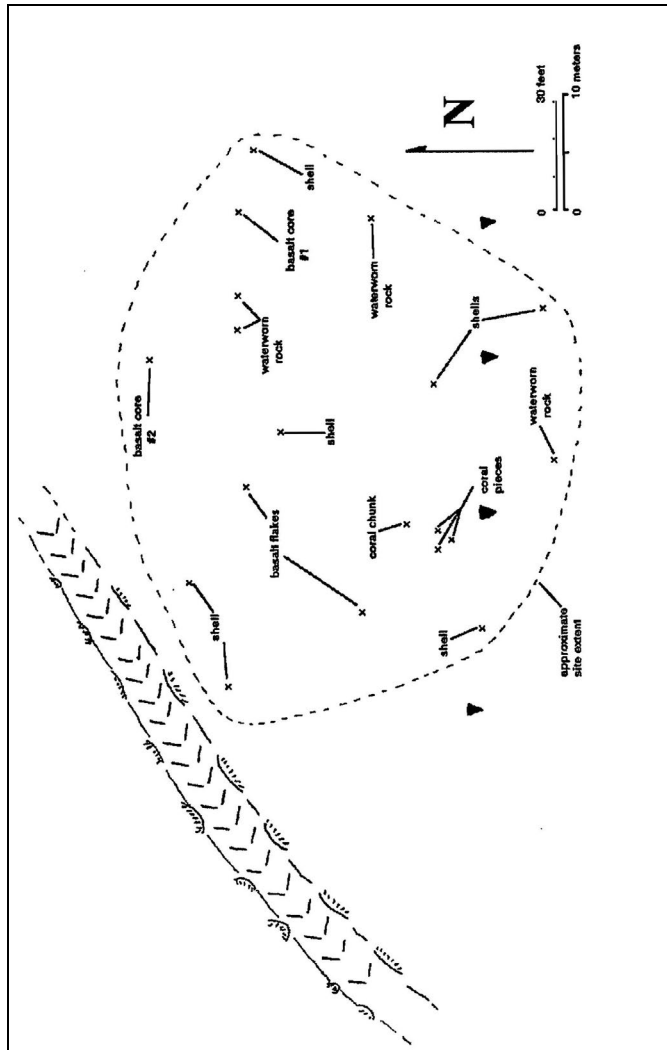


Figure 26: Site 3743 – Plan View.

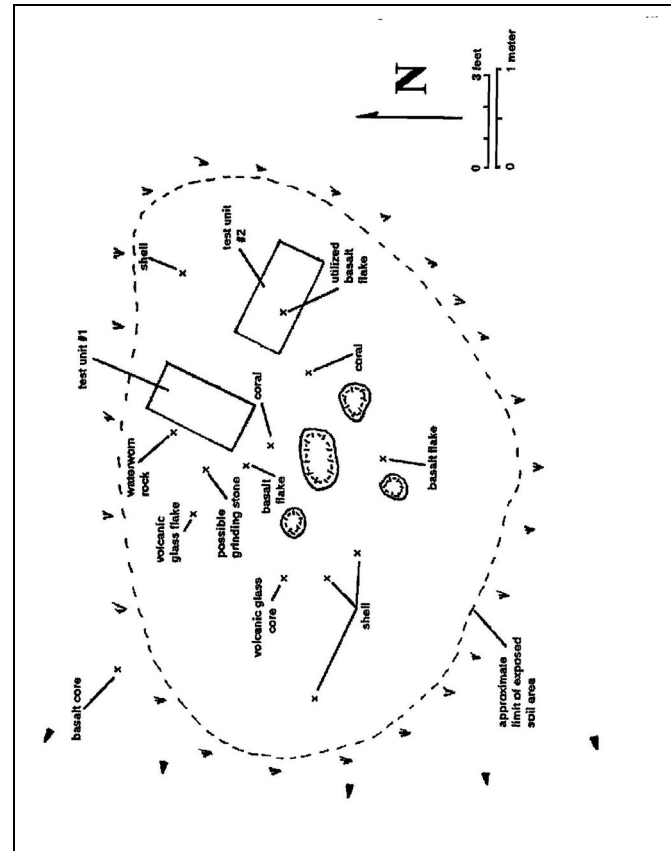


Figure 27: Site 3744 – Plan View.

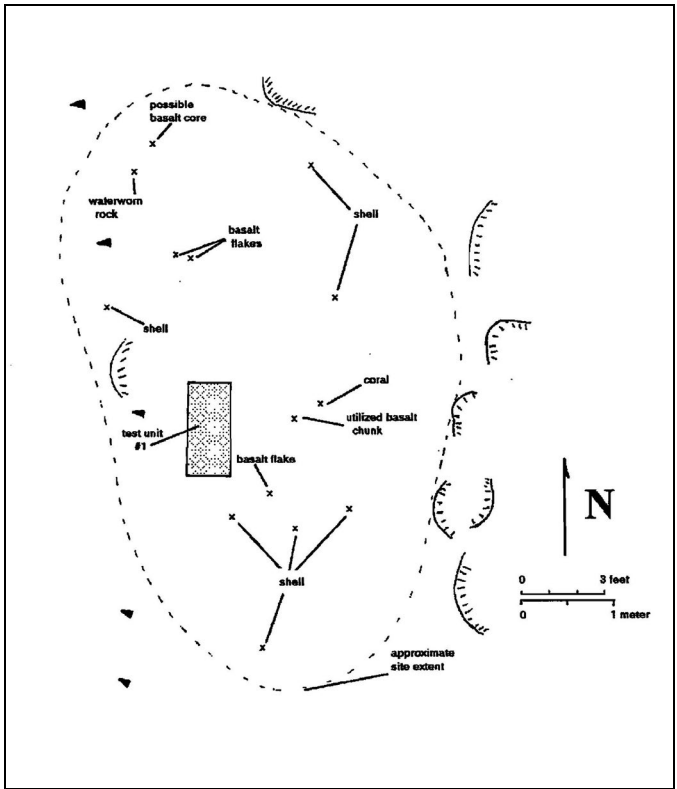


Figure 28: Site 3745 – Plan View.

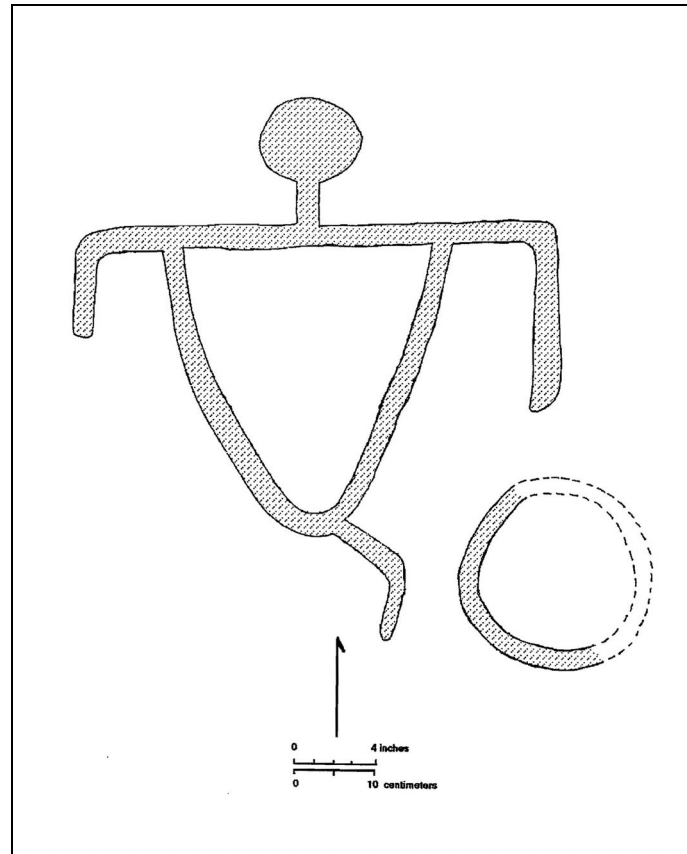


Figure 29: Site 3746 – Plan View.

ARCHAEOLOGICAL SURVEY RESULTS

ARCHAEOLOGICAL FIELD METHODS

Xamanek Researches, LLC conducted an archaeological inventory survey of the proposed Piilani Promenade off-site improvements for the proposed Piilani Promenade project in Kihei during 2014. Part of our work included a reevaluation of archaeological sites that were located during the 1994 Xamanek Researches AIS of what is now referred to as the on-site portion of the Piilani Promenade project. Proposed off-site improvements portions of the project were the focus of the 2014 inventory survey. The off-site fieldwork took place on 13 and 17 January, and 3 February 2014. The project area is located in Ka'ono'ulu *Ahupua`a*, Wailuku and Makawao Districts, Island of Maui (TMK (3-9-001: 169, 170-174 and various off-site TMK's).

Archaeological fieldwork for the off-site improvements project area was carried out on 9 and 13 January, and 3 February 2014. Project archaeologists included Jennifer Frey, B.A., Daniel Vicars, B.A., and Erik Fredericksen (SHPD Permit 14-11). A total of 3 crew days were expended on the fieldwork for the inventory survey of the off-site improvements project area. In addition, Mark Donham, B.A., relocated sites that were originally documented during the 1994 AIS of what is now the on-site portion of the Piilani Promenade project area. This fieldwork was conducted 26-28 February 2014. All of the sites, except the Site 3746 petroglyph, which was removed by a prior landowner, are listed on Table 5. Nine of these sites appeared to have been impacted/destroyed by bulldozing activities prior to the 2014 fieldwork. Erik Fredericksen was the director and principal investigator for the overall project.

The archaeological investigation consisted of a 100% surface inspection of the off-site proposed water storage tank and access road as well as the additional access road and highway improvements. On the water tank storage tank site three manually excavated shovel tests were utilized to assess the very shallow rocky soil deposit in selected locations. Excavated soil was screened through 1/8th inch hardware cloth. Written notes were kept in the field, and photographs were taken in a digital format. Field notes and photographs are stored on site at the Xamanek Researches, LLC Pukalani facility.

2014 AIS – Xamanek Researches, LLC

The current project consists of our survey of the three off-site project areas, as well as a reevaluation of the 1994 AIS site evaluation and mitigation recommendations

for the 88-acre project area. The off-site project areas include a proposed water storage tank and associated access road, as well as an access road to the project area from Ohukai Road and road improvements along Piilani Highway. The water storage tank off-site area was surveyed and tested. The two remaining off-site areas were surveyed by pedestrian inspections, but were highly disturbed and not tested. These off-site areas are discussed in the sections.

General Project area

The general project area contains c. 75 acres of previously surveyed property, and c. 14 acres of newly added off-site areas. A total of 20 sites were located during the inventory survey in 1994 of the 88-acre property. Of these sites there were 8 rock piles and cairns, 2 enclosures, 3 parallel alignments, 1 erosion containment wall segment, 5 surface scatters, and a petroglyph on a boulder. These sites were designated 50-50-10-3727 through 3746. Although the majority of the sites were associated with ranching and WWII military activities, the petroglyph and surface scatter remains were interpreted as possible precontact sites. The petroglyph boulder was removed from the project area by a previous landowner after the 1994 AIS fieldwork. An after the fact Preservation Plan (Munekiyo & Arakawa, Inc., 1994) was prepared on behalf of the former landowner, and the State Historic Preservation subsequently approved this document. There is ongoing discussion of whether Site 3746 will be returned to the Piilani Property from where it is currently located in Kula.

A 36-inch diameter water line was completed in c. 1979 and runs along the Makawao and Wailuku boundary, which runs diagonally through the project area. This water line is buried but has, at times, become visible because of soil erosion. At the time of our inspection it was not longer visible. This water line will be abandoned and removed during the course of the Piilani Promenade development. A replacement waterline will be installed along the eastern boundary of the development in an easement, and near the proposed development's southern boundary.

The 2014 Xamanek Researches LLC survey of the proposed off-site improvements project area was conducted in January and February. No new sites were located during this fieldwork. The project archaeologists were Jennifer Frey, B.A., and Daniel Vicars, B.A. Erik Fredericksen (SHPD Permit #14-11) was the project director and principal investigator for this project. Current project conditions reflect heavy recent rainfall, with resultant invasive grass and weed cover. During the survey it was noted that previous sheet erosion has washed away much of the shallow soil deposit and exposed bedrock and boulders.

A portion of the original 1994 AIS 88-acre project area is currently being used for a base yard, a large sand stockpile, and contains a large stockpile of new drainage and waterline pipes. This impacted area is located on much of the 13.129 acre lot identified as Lot 2B, which is owned by Honua`ula Partners, LLC. As previously noted, this portion of land is owned by a different entity and is not part of the proposed Piilani Promenade development, which is on the remaining c. 75-acre portion of the property. However, Lot

2B will be included in the forthcoming project specific monitoring plan for the Piilani Promenade development (refer to Figure 8).

Included in the 2014 survey are the proposed off-site improvement areas, which are now needed for the Piilani Promenade development. These proposed off-site improvements consist of a water storage tank facility, access roads to the water tank and secondary access to the project area, and finally improvements to Piilani Highway where the main access to the project will be located. These areas are discussed below.

Table 5: Site Relocation - 2014 UTM Data

Site #	Type	Easting	Northing	Condition	Integrity	Cause
3727*	Stone piles	765525	2298536	Good	Unaltered	
3728*	Stone piles	765492	2298510	Good	Unaltered	
3729	Stone cairn	765669	2298615	Not found	Absent	Dozer
3730	Stone cairn	765689	2298554	Not found	Absent	Dozer
3731	Stone cairn	765773	2298572	Not found	Absent	Dozer
3732	Stone cairn	765843	2298560	Not found	Absent	Dozer
3733	Stone cairn	765840	2298587	Not found	Absent	Dozer
3734	Stone Piles	765594	2298303	Not Found	Absent	Dozer
3735*	Enclosure	765633	2298285	Good	Unaltered	
3736*	Enclosure	765596	2298352	Good	Unaltered	
3737	Parallel alignment	765702	2298309	Disturbed	Absent	Dozer
3738	Parallel alignment	765665	2298277	Disturbed	Absent	Dozer
3739	Parallel alignment	765610	2298271	Disturbed	Absent	Dozer
3740	Erosion walls	765583	2298775	Good	Unaltered	
3741*	Surface scatter	765422	2298635	Good	Unaltered	
3742*	Surface scatter	765432	2298566	Good	Unaltered	
3743*	Surface scatter	765453	2298491	Good	Unaltered	
3744*	Surface scatter	765617	2298361	Good	Unaltered	
3745*	Surface scatter	765790	2298667	Good	Unaltered	
3746	Petroglyph			Removed		Removed

* - Denotes sites recommended for Data Recovery

Table 5 reflects the current (2014 UTM data) location and interpreted function of the sites identified during the 1994 Xamanek Researches AIS of the 88-acre property. Our 2014 inspection of the on-site project area indicates that relatively recent bulldozer activities likely associated with the installation of the dust fence and land clearing for the storage of equipment and supplies to be used during planned construction have impacted portions of the property. In addition much of the project area elsewhere also appears to have been impacted by relatively recent (i.e. less than 5 years) bulldozing activity. Nine sites appear to have been impacted/destroyed by this prior land clearing activity. Sites that were not relocated in relatively recently disturbed areas include Sites 3729-3734, 3737, 3738, and 3739.

While the Site 3746 petroglyph was removed nearly a decade prior to the 2014 AIS, it is still considered important for its cultural value under Criterion “e”. Of the remaining sites, nine are recommended for Data Recovery. These sites include Sites 3727, 3728, 3735, 3736, and 3741-3745. A forthcoming DR Plan for the above sites will be developed in consultation with the SHPD.

Table 6: Off-Site TMK's for the Proposed Piilani Promenade Project

TMK: (2)	Description	Area
2-2-002: 077*	Water storage tank plot	c. 1 acre
2-2-022: 016 and 082	Access easement - Ohukai Street, waterline easement	c. 10 acres total
3-9-001: 148 and 3-9-048: 122	Small roadside parcels <i>makai</i> side of Piilani Highway	c. 1 acre each

* tested area



Photo 2: General view of the project area showing current vegetated conditions. View towards the northwest along Piilani Highway.



Photo 3: Photo of the sand storage pile, c. 2 meters tall, is stored on northern portion of proposed Piilani Promenade development, near Lot 2B.



Photo 4: View to the east of the proposed off-site waterline easement project area. The cultivated Monsanto fields are in view in background.



Photo 5: Photo showing the existing waterline manhole near the northeast of the base yard. This water line will be abandoned and a new waterline will be installed along the east and south border of the Piilani Promenade project area.



Photo 6: Small drainage gully that crosses Lot 2B near the base yard.



Photo 7: Base yard near Lot 2B. View to the west. Note the chain link fence is within the Lot 2B section owned by Honua`ula Partners, LLC. View to the west.



Photo 8: Base yard on portion of Piilani Promenade. Note the fenced area is owned by Honua`ula Partners, LLC. View to the northeast.



Photo 9: Base yard on Lot 2B - owned by Honua`ula Partners, LLC. View to the north.

Off-Site Improvements

Off-Site Water Storage Tank and access road:

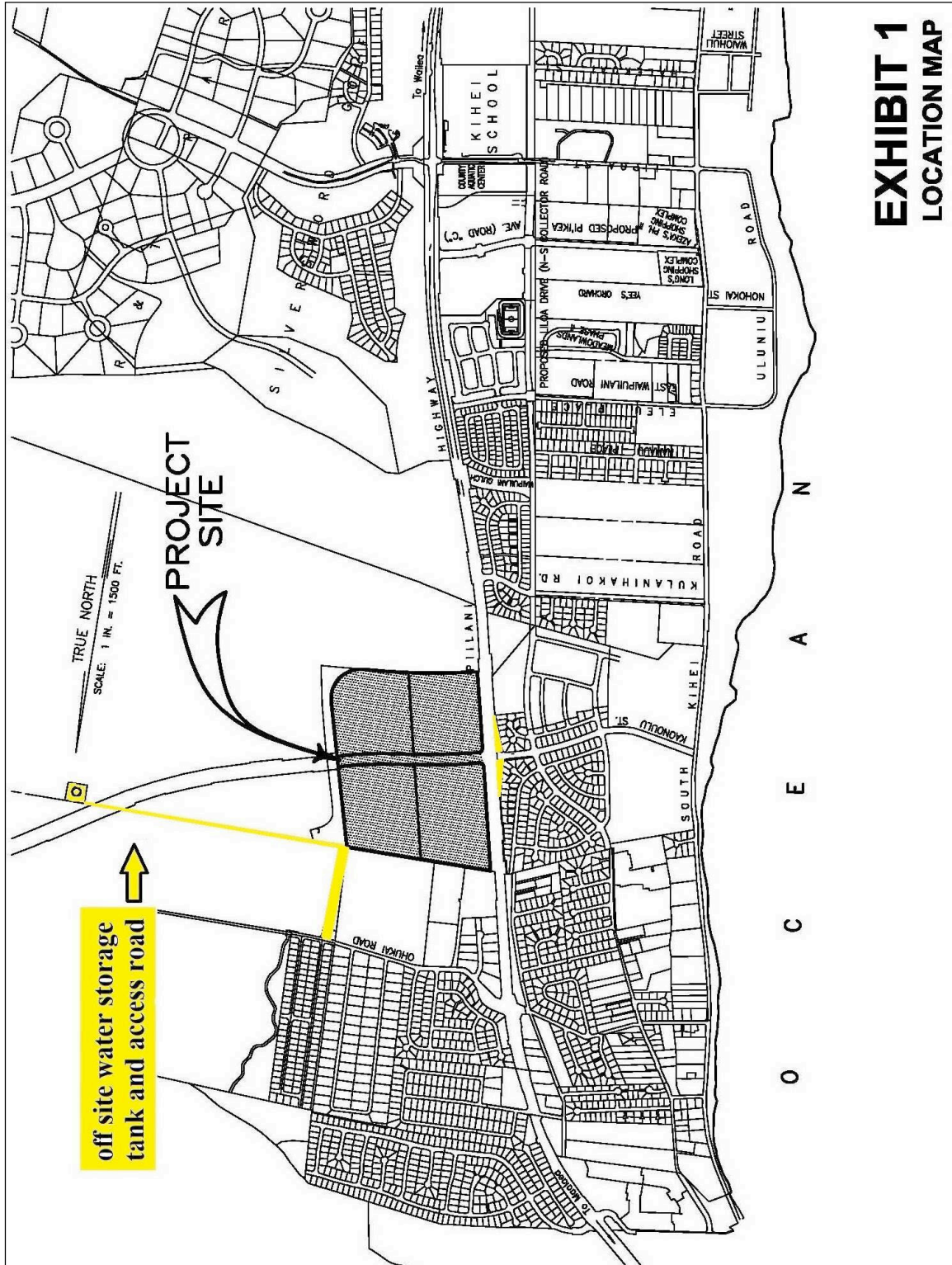
Survey of the 1-acre off-site water storage tank area (TMK: 2-2-002: 077 and 082) took place on 13 January and 3 February 2014. The project archaeologists included Jennifer J. Frey B.A. and Daniel Vicars, B.A. Three manually excavated shovel tests were utilized to assess the very shallow soil deposit in selected locations. Excavated soil was screened through 1/8th inch hardware cloth. Shovel test results are discussed in the Archaeological Findings section.



Photo 10: Overview of the off-site water storage tank facility.



Photo 11: Overview of off-site water storage facility and access area, view towards the ocean(west). Note Monsanto cultivated fields in background. TMK: 2-2-002: 077 and 082.



**EXHIBIT 1
LOCATION MAP**

Figure 30: Off-Site water storage facility tank and access road, TMK: 2-2-002: 077 and 082. Off-site access road to Ohukai Road, TMK: 2-2-022: 016. Off-site road improvements along Pili Lane Highway, TMK: 3-9-001: 148 and 3-9-048: 122.

Off Site access road to Ohukai Road

The proposed off-site access road to Ohukai Road was covered by a 100% pedestrian survey. Given that the current dirt access road is regularly utilized by farm-related traffic, no subsurface testing was carried out. The off-site access road is contained on a portion of TMK: 2-2-002: 016. The current access road is highly disturbed and modified. Monsanto Farms uses much of this parcel for storage of discarded farm equipment and “trash”. Invasive non-native vegetation springs up along the roadway. There is no evidence of significant material cultural remains in this area. Photos and map follow:



Photo 12: Overview of the Ohukai Access Road – TMK: 2-2-002: 016.



Photo 13: Overview of the Ohukai Access Road – TMK: 2-2-002: 016.



Photo 14: Overview of the Ohukai Access Road – TMK: 2-2-002: 016.

Off-Site Piilani Highway Improvements

The final off-site project area is located along the *makai* side of the Piilani Highway at the entrance to the Ka Ono Ulu Estates housing neighborhood. This small 2-acre portion of the project will include improvements to the existing intersection. These roadside parcels are contained on TMK's 3-9-001: 148 and 3-9-048: 122.



Photo 15: Photo of the off-site improvement area, view towards the North. Piilani Promenade Project in view on the right of the highway.



Photo 16: Off-site project improvements area, view towards Wailea (South), Piilani Promenade Project in view just to the left of the highway.

Waterline Improvement easement

This portion of the off-site improvements project area was formerly proposed for an overflow diversion to the nearby Kulanihakoi Gulch. However, project plans now call for overflow diversion to be carried in a proposed drain line that will cross the on-site portion of the development within the roadway right-of-way in an east-west manner. The off-site easement is now only being used for the to be rerouted Central Maui waterline. Jennifer Frey and Erik Fredericksen surveyed the proposed waterline easement on 11 February 2014. This waterline easement is located along the eastern edge of the Piilani Promenade project area (Figure 31). The southern portion of the waterline corridor runs within the on-site portion of the Piilani Promenade Project area, parallel to and above a section of Kulanihakoi Gulch.

At the time of the survey, the impact of sheet erosion was noticeable in much of the corridor. Signs of prior erosion were noted and the majority of the visible surface consisted of weathered subsoil and exposed bedrock. Invasive grasses and weeds covered the ground wherever remnant soil was present. No cultural remains were located during this portion of the survey. No shovel tests were attempted due to the rocky conditions and limited soil cover. A location map and photos of the survey area follow:

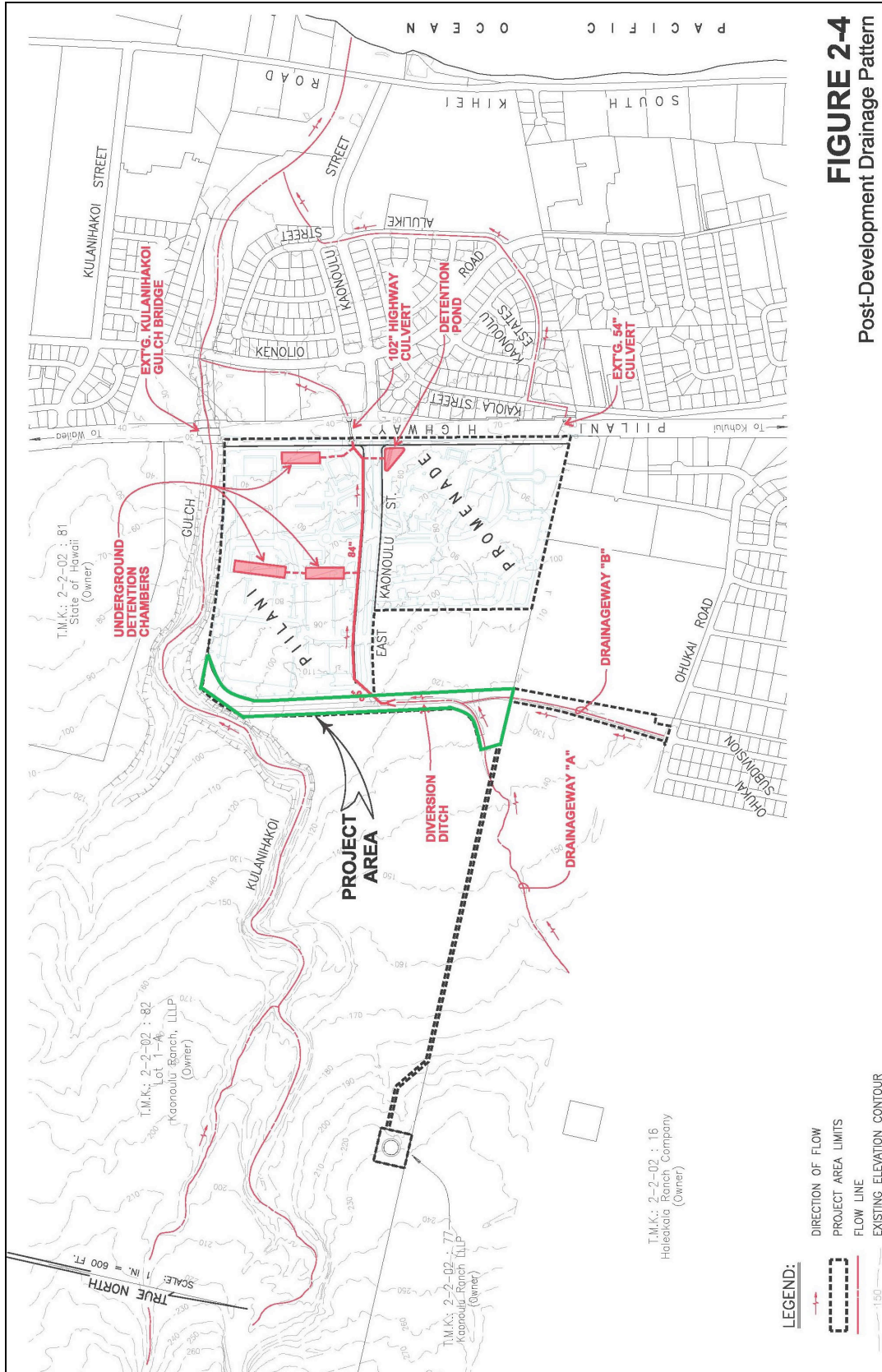


FIGURE 2-4
Post-Development Drainage Pattern



Photo 17: Bulldozer scarring on the rocks.



Photo 18: General condition of the waterline easement area.



Photo 19: View of the proposed waterline easement area near the south end, above Kulanihakoi Gulch.



Photo 20: Kulanihakoi Gulch showing the flood washed bottom after the heavy recent rains. This gulch will not be impacted during the construction project.



Photo 21: View to the southeast of Kulanihakoi Gulch after the recent rains. This gulch is off of the project area and will not be impacted.

Community Consultation

A community consultation meeting was held on Tuesday, 25 February 2014 for interested parties. A total of 12 community members attended this meeting. The content of the meeting was recorded and the transcripts are available in Appendix C of this report for further reference. The primary focus of this meeting was to present the results of our 2014 archaeological survey of the off-site improvements project area, and provide an overview of the previous 1994 inventory survey results. Updated mitigation recommendations for the sites located during this earlier survey were presented as well. It was noted that data recovery is now the recommended mitigation for several of the sites identified in the 1994 AIS. Participants provided input and comments regarding the proposed development. Several attendees at this meeting expressed the desire that the Site 3746 petroglyph be returned to the project area and be incorporated in the proposed development. The landowner's representative, Charles Jencks, noted that a dialog has been opened with the former landowner regarding this matter. Some participants were interested in having some of the previously identified sites preserved and incorporated within the project landscaping. Several participants expressed interest in the nearby Kulanihakoi Gulch, and concern that potential project-related negative impacts be avoided. A secondary purpose of this meeting was to provide an overview of the proposed Piilani Promenade development, and provide clarification that proposed off-site improvements are now much reduced and that no off-site drainage improvements are proposed to empty into the nearby gulch.

ARCHAEOLOGICAL FINDINGS
Off-Site Water Storage Tank Facility
TMK: 2-2-022: 077 and 082

As noted previously, the archaeological survey of the off-site water storage tank area was carried out in January 2014. The archaeologists systematically surveyed the proposed c. 13-acres of the off-site water storage tank and access road areas. There were no significant material culture remains located during the course of this survey. In addition three 50X50cm shovel tests were excavated in area of the proposed water storage tank off-site facility. There were no sites located within the proposed site and access road. However a remnant of a bulldozed roadway and a linear rock alignment were noted c. 50 m upslope (*mauka*) of the water tank site. Neither of these features will be affected by construction of the water tank and associated roadway, and are outside of the proposed easement project area.

There was one layer type encountered during the shovel testing. Each shovel test is discussed below:

Shovel Test 1: Located on the proposed water tank site.

Layer I: 0-6cmbs, brown silt, topsoil covering the rocky terrain, this layer is sterile

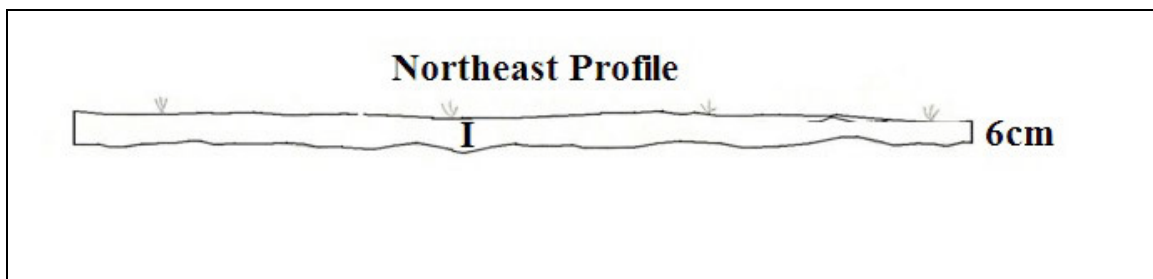


Figure 32: Representative Profile 1, Northeast Profile.



Photo 22: Northeast profile of Shovel Test 1.

Shovel Test 2: Located on the proposed water tank site.

Layer I: 0-9cmbs, brown silt, topsoil covering the rocky terrain, this layer is sterile

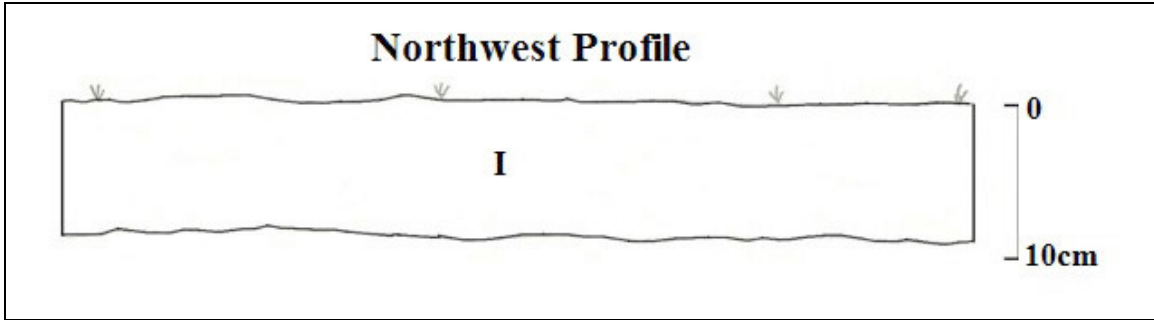


Figure 33: Representative Profile 2, northwest profile.



Photo 23: Northwest profile of Shovel Test 2.

Shovel Test 3: Located on the linear rock feature.

Layer I: 0-30cmbs, brown silt, slightly rocky, this layer is sterile.

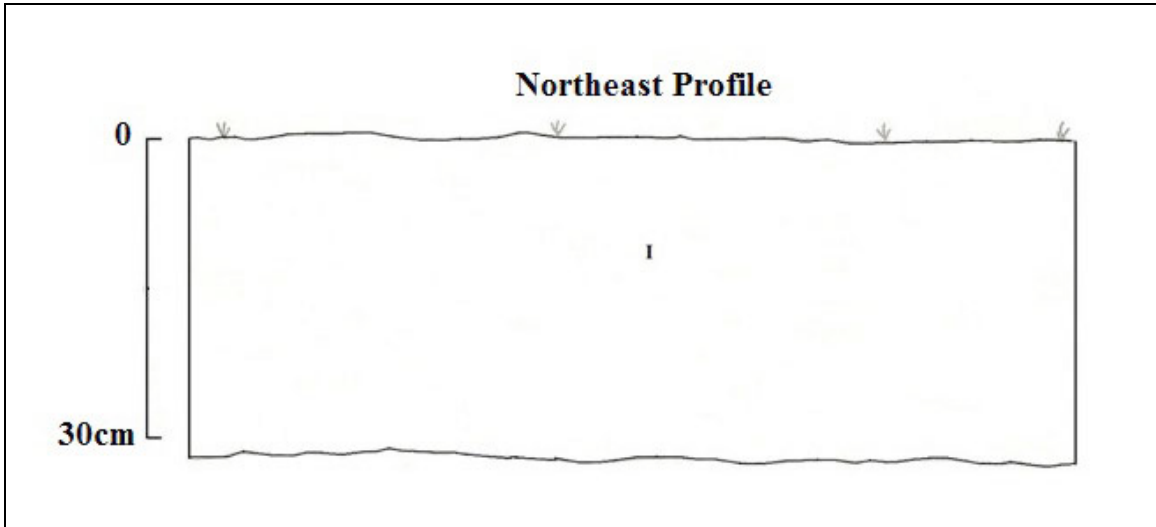


Figure 34: Representative Profile 3, northeast profile.



Photo 24: Northeast Profile of Shovel Test 3.

SUMMARY AND CONCLUSIONS

The c. 88-acre parcel (TMK: 3-9-001: 16, 170- 174) was examined during a 1994 AIS carried out by Xamanek Researches. A total of 20 sites were located by this survey. The 1994 AIS identified Sites 50-50-10-3727 through 3746. These sites included stone piles and cairns (8), enclosures (2), parallel alignments (3), erosion containment wall segments (1), surface scatters (5), and a petroglyph on a boulder. Some of the stone piles, the alignments and one of the enclosures appeared to be associated with previous military activities in the area. The surface scatters and the petroglyph were interpreted as possible precontact features. The erosion containment wall segments were interpreted as ranch era features. Portions of the project area had been previously impacted by bulldozing activities, likely associated with previous military and ranching activities. The previous installation of a large (36-inch diameter) waterline was found to have impacted a portion of the proposed development area along the Makawao and Wailuku District boundary.

The off-site improvements portion of the current project includes TMK's 2-2-002: 077, 2-2-002: 016 and 082, 3-9-001: 148 and 3-9-048: 122. These off-site areas include the newly proposed waterline installation corridor and three off-site access areas. These newly added areas were surveyed and tested where safety concerns permitted.

Given the level of previous disturbance and generally shallow soil deposits within the off-site improvements study area, a total of 3 shovel tests were used to sample subsurface conditions. The off-site water storage tank study area was tested, because this portion of the project area appeared to have some soil deposit and was not traversed by farm equipment and vehicles (TMK: 2-2-002: 077 and 082). Test results indicate that the off-site project area contains very little surface soil before reaching natural bedrock and rocky parent material. As previously noted, there were no significant material culture remains located during this portion of the survey for proposed off-site improvements.

The remaining off-site access areas and the proposed waterline corridor were covered by surface inspections. However, these areas had been previously disturbed, served as regular access for farm vehicles, and/or were heavily eroded. Consequently, testing was not carried out. No surface or subsurface cultural remains were located during our 2014 archaeological survey of the c. 14-acre off-site improvements project area for the proposed Piilani Promenade development.

Given the length of time that has elapsed since the original AIS of the 88-acre property, a re-evaluation of the previously identified sites was carried out in 2014. Of the original 20 sites that were identified during the 1994 AIS work, a total of 9 were found to

have been impacted/destroyed by subsequent bulldozing activities on the project area. Impacted/destroyed sites included Sites 3729-34 (rock piles and cairns), and Sites 3737-3739 (parallel rock alignments). The Site 3746 petroglyph was removed from the property by a prior landowner in 1994. Data recovery is the recommended mitigation for Sites 3727, 3728, 3735, 3736, and 3741-3745, all of which are contained within the on-site portion of the proposed Piilani Promenade development.

Site Significance Evaluations

The following significance evaluations are based on the Rules Governing Procedures for Historic Preservation Review (DLNR 1996; Chapter 275). According to these rules, a site must possess integrity of location, design, setting, materials, workmanship, feeling and association and shall meet one or more of the following criteria:

Criterion “a”—Be associated with events that have made an important contribution to the broad patterns of our history;

Criterion “b”—Be associated with the lives of persons important in our past;

Criterion “c”—Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

Criterion “d”—Have yielded, or is likely to yield, important information for research on prehistory or history;

Criterion “e”—Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts.

As mentioned earlier in this report, we did not locate any new above surface remains or a subsurface cultural deposit during testing on the off-site improvements study area. The sites located in the 1994 AIS qualify under Criterion “d” for their information content. The Site 3746 petroglyph also qualifies for significance under Criterion “e”, because of its traditional cultural importance. As previously noted, a former landowner removed this petroglyph from the 88-acre property in 1994, following the 1994 archaeological inventory survey.

Mitigation Recommendations

No new sites were located during the 2014 survey of the proposed off-site Improvements for the Piilani Promenade development. A total of 20 sites were located during the 1994 AIS that included the on-site portion of the proposed Piilani Promenade development. These sites were designated SIHP No: 50-50-10-3727 through 3746. The SHPD concurred at the time of the original survey that no further work was needed for Sites 3727 through 3745. However, given that 20 years has elapsed since the original AIS, a reevaluation of the sites located during the 1994 Xamanek Researches AIS was undertaken in 2014. A total of 9 sites appear to have been impacted/destroyed by subsequent bulldozing activities on the property. Data recovery is now the recommended mitigation for Sites 3727, 3728, 3735 and 3736, and Sites 3741 through 3745. The Site 3746 petroglyph, although removed from the Piilani Promenade development project area by a former landowner, continues to qualify for cultural significance under Criterion “e”. An after the fact Preservation Plan for the treatment of the petroglyph was submitted in October 1994 (Munekiyo & Arakawa, Inc.). In 2011 a monitoring plan was completed and accepted for a large parcel within Ka’ono’ulu *ahupua`a* (SHPD DOC #1108MD012). While the proposed Piilani Promenade development is located within this *ahupua`a*, a project specific monitoring plan will be prepared for on- and off-site project improvements per input from the SHPD Maui office. Also included in the forthcoming monitoring plan will be Lot 2B, which is owned by a separate entity, but which will be affected by actions of the proposed development.

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**APPENDIX A:
1994 AIS REPORT**

**ARCHAEOLOGICAL INVENTORY SURVEY
AND BOTANICAL SURVEY REPORT
KAONOULU LIGHT INDUSTRIAL PROJECT
KAONOULU *AHUPUA`A*, WAILUKU AND
MAKAWAO DISTRICTS, MAUI ISLAND
(TMK: 3-9-01: 16 AND 2-2-02: por. 15)**

Prepared for:

**Michael T. Munekiyo Consulting, Inc.
Wailuku, Maui, Hawaii**

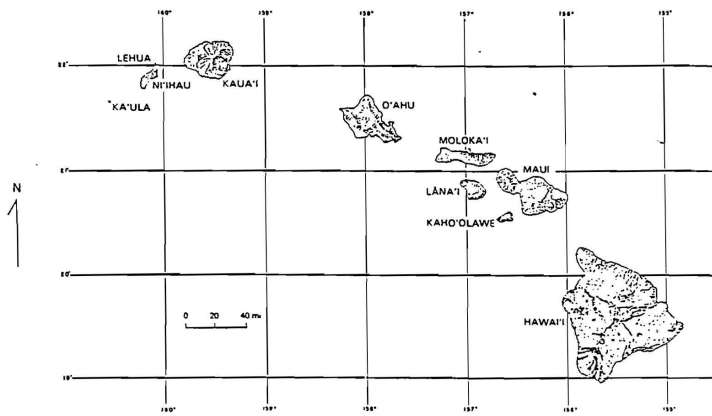
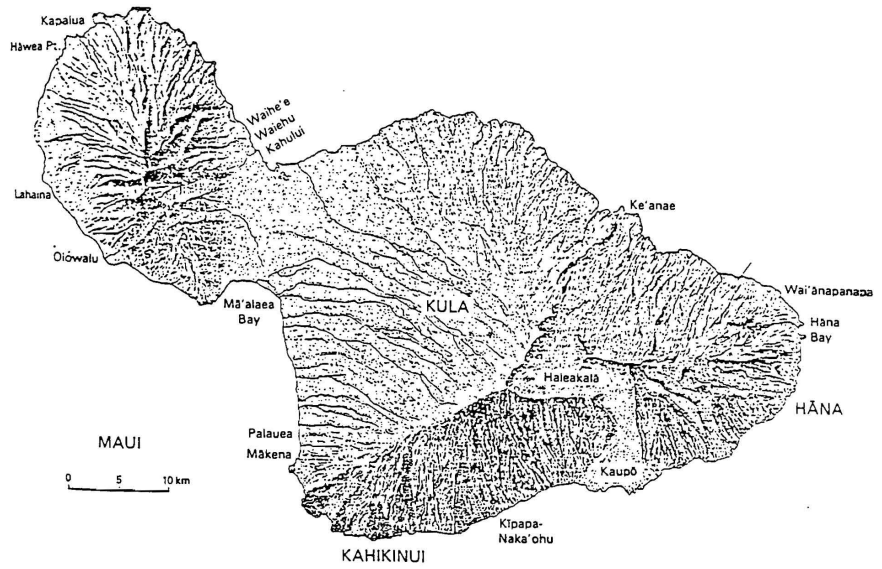
Prepared by:

**Xamanek Researches
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Walter M. Fredericksen**

**BOTANICAL SURVEY
David Paul**

***Revised*
July 1994**



ABSTRACT

An archaeological inventory survey and data recovery were performed on an 88 acre parcel of Kaonoulu Ranch land in Kihei, Maui, Hawaii (TMK 3-9-01: 16 and 2-2-02: por. 15), slated for development as the Ka Ono Ulu Light Industrial Project. The necessary fieldwork work was accomplished between late October, 1993 and January, 1994.

During the survey 21 sites were discovered, tested and described. Of the 21 sites, 20 of them received State Inventory of Historic Places (SIHP) numbers, from 50-10-3727 to 50-10-3746. All of these sites were evaluated and Site 3746, a petroglyph, was recommended for removal and preservation. No further archaeological work is recommended for the Ka Ono Ulu Light Industrial Project.

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INTRODUCTION

In early August 1993, we were contacted by Michael T. Munekiyo, of Michael T. Munekiyo Consulting, Inc., Wailuku, Maui, Hawaii, regarding the undertaking of a botanical survey and an archaeological inventory survey for an 88 acre parcel of Kaonoulu Ranch land in Kihei, Maui, Hawaii. Both studies are required for the State Land Use Commission boundary amendment for the subject parcel, with the archaeological inventory survey also being required by the State Historical Preservation Division for permit purposes.

We received maps and other relevant data on August 16, 1993, and submitted our proposal for the work on August 17, 1993. That proposal was accepted and an initial strategy survey was performed in late October. Fieldwork for the botanical survey began November 6, with archaeological fieldwork being initiated shortly thereafter. Fieldwork for the inventory survey and data recovery continued into mid-January, 1994.

The parcel has been used for cattle grazing since the late 19th century, leaving the land relatively open to visual observation of any existing surface cultural features. Our survey included a pedestrian surface survey, noting potential sites and other interesting features. Subsurface testing was performed at features where enough accumulated soil remained for testing. Eroded lava bedrock is visible over much of the project surface area. Thin, eroded soils predominate.

Features were mapped and described in field notes. Photo-documentation of features and artifacts was undertaken where appropriate. Artifacts were collected for analysis and description in the report.

THE SURVEY AREA AND NATURAL HISTORY

The survey parcel is located in the *ahupua'a* of Kaonoulu, with the boundary between Makawao and Wailuku Districts dividing the parcel into two triangular portions (Map 1). It is further identified on TMK 3-9-01: 16 and TMK 2-2-02: por. 15 (Map 2). It is c. 88 acres in land area. The parcel is part of the c. 5966 acre Kaonoulu Ranch, owned by the Rice family.

The parcel is bounded on the north by a cattle fence, an existing light-industrial development, and the Waiakoa Homesteads. The western border is formed by an

additional cattle fence and Pi'ilani Highway. Kulanihakoi Gulch borders Ranch land to the south, while undeveloped land borders the eastern boundary of the study area.

Geologically, most of the Kihei region of Maui is located on eroded, *late stage lavas*, and a narrow beach, coastal strip, which is composed of alluvium, dune sand and lagoonal deposits (University of Hawaii, 1983, pp. 38-42). Major former volcanic activity in the region largely accounts for the rugged, exposed outcropping of lava rock typical of the landscape.

Elevations on the parcel range from c. 30 feet AMSL along the low, western border to more than 125 feet AMSL upslope toward Haleakala (Map 3). The terrain is fairly rugged, exhibiting bedrock outcroppings, loose eroded bedrock boulders and thin soil overlaying bedrock. Some of the eroded bedrock boulders are quite large, a meter or more in diameter, and weigh hundreds of pounds. Soils tend to be thin and eroded. Observed soils represent two main series: *Alae sandy loam* and *Waiakoa stony silty clay loam* (Foote et al. 1972, pp. 26, 108 and 125-27).

Although the Kaonoulu Ranch lands extend into at least two physiographic zones, the study parcel portion falls within the *kiawe, lowland-shrubs zone*, an area of low annual rainfall, usually less than 20 inches (University of Hawaii, 1983, pp. 55-58). It lies between the coastal beach zone and the inland zone. The *kiawe, lowland-shrubs zone* is notably dry and somewhat inhospitable (Photo #1).

The study area is primarily vegetated by drought resistant alien grass and tree species. According to Henry Rice, current manager of Kaonoulu Ranch, the predominant alien grass is identified as "Buffel T44". The property exhibits signs of erosion where the vegetation cover is sparse. A small gulch (c. 3-6 m. deep) traverses the northern half of the Ranch land, trending toward the southwest. A rough gravel road runs along the western boundary of the study area. A modern corral associated with ranching operations is located in the southwestern part of the study area. A wire fence crosses the study area near the eastern boundary. This fence follows a bearing of 164 degrees. The Central Maui Transmission Waterline Easement #1, placed during the late 1960's, cuts across the subject property from the northeast to the southwest (personal communication, Henry Rice, 1994).

The exposed and dry nature of the parcel is reflected in the relative paucity of floral species present. David Paul's "Botanical Survey" of this parcel, (see Appendix B), categorizes it as "*lowland dry grassland*", with the dominant understory species being buffelgrass (*Cenchrus ciliaris*). The overstory is varied, but strongly exhibits *kiawe* (*Prosopis pallida*) and *klu* (*Acacia farnesiana*). In accounting for the simple floral composition on the parcel, Paul says (Appendix B, p. 2):

"The simple composition of the vegetation on the site is presently due to the lack of moisture, grazing by cattle and feral animals, and an occasional fire. The

greatest concentration of species is located along the road on the makai side of the land where there has been recent disturbance."

The relatively sparse ground cover on parts of the study area and extensive areas of exposed bedrock allowed easier access for the pedestrian survey.

BACKGROUND HISTORICAL RESEARCH

Historic land use and settlement patterns

The subject parcel is located near the western border of the 5966.72 acre Kaonoulu Ranch (TMK 3-9-01: 16 and TMK 2-2-02: 15). The Ranch is made up of portions of three *ahupua'a*: Kaonoulu, Alea, and Koheo. According to Henry Rice (personal communication, 1994) the Kaonoulu Ranch is nearly 9000 acres in its entirety.

Nearly the entire *ahupua'a* of Kaonoulu was included in Land Commission Award 3237, to H. Hewahewa, and consisted of 5715 acres. Land Commission Award 8452: 20 consisted of a portion of the *ahupua'a* of Alae to A. Keohokaole, identified as Alae 3 of an unknown size. Land Commission Award 8452: 19 gave title to a portion of the *ahupua'a* of Koheo, again to A. Keohokaole (Granted June 8, 1858, from Kamehameha IV). The acreage was not specified in the Land Commission Award listings. However, the three awards make up 5966.72 acres of the Ranch shown on TMK 2-2-02: 15. In the period between 1860 and 1870, the Ranch lands were obtained from A. Keohokaole, by a Chinese immigrant, Young Hee. In the 1890's Young Hee had to return to China because of personal family problems, and decided to sell his Maui land interests. The Ranch lands were then acquired by William H. Cornwall.

Harold W. Rice purchased the property from the Cornwall family in 1916. An article in **THE MAUI NEWS**, dated August 25, 1916, states that Mr. Rice became the largest individual landowner on Maui with the purchase of the Hee property. It also goes on to say that Mr. Rice resigned as the assistant manager of Maui Agricultural Company, where he had worked for five years, to devote himself full-time to his ranching activities. In 1918 he was elected senator from Maui to the territorial legislature, and served in that capacity for many terms.

Another **THE MAUI NEWS** article, December 4, 1926, mentions the success of Kaonoulu Ranch:

"Kaonoulu Ranch, the property of Senator Harold Rice, is a combination of five different ranch properties which were known as the Robinson Ranch, the Enos Ranch, the Frank Correa Ranch, part of the Freitas Ranch and the old Cornwall Ranch. It is one of the largest properties of its kind in the whole territory and from the outset has

met with the greatest success. Cattle from its pastures, horses from its breed farm and hogs from its fattening lot are eagerly sought on the markets of the territory..

Kaonoulu Ranch is a business concern pure and simple and Senator Rice gives it his personal supervision throughout the entire year. The ranch property extends over a wide area and there is not a month in the year in which the genial owner does not visit every portion of the property to keep in touch with the various phases of the industry of cattle raising."

The article continues with a discussion of the Senator's love for polo, and for selecting and training colts for playing the game. It says:

"Senator Rice is of the firm belief that this will result in Maui having a string of ponies in the not distant future that will equal anything anywhere in the world and go a long way towards perpetuating the name of the Valley Isle in polo circles the world over."

Always on the lookout for ways to improve the products of the Ranch, Senator Rice began shipping beef, which had been fattened on pigeon peas, to market in Honolulu. **THE MAUI NEWS** reports (August 3, 1927):

"A unique feature of Senator Rice's new enterprise is the fact that he will do all his slaughtering at his Maui plant, shipping the dressed beef to Honolulu in cold storage.

'It has been my experience that livestock is frequently badly bruised when shipped from the other islands', said Rice, 'and this results in an inferior grade of beef.

'I believe we will obtain much better results by slaughtering on Maui and shipping the dressed beef.'

Senator Rice's cattle ranch on Maui is one of the showplaces of that island. All his stock is finished off on pigeon peas before being sent to market."

Kaonoulu Ranch was purchased from Senator Rice by the Kaonoulu Ranch Co., Ltd. in 1956. In 1982, this company entered into a Limited Partnership.

In her discussion of land use in the upper and lower Kula areas, Wong-Smith (in, Donham, April, 1990, Appendix B, p. B-6) points out that by the 1880's, lower Kula sections had largely become pasture land for the booming cattle industry. Large sections of Crown land were leased for grazing acreage. By 1918, Harold Rice was purchasing large tracts of land from Kula farmers for the purpose of establishing a ranch (See above).

During the latter half of the 19th century, cattle ranching became well-established in the Kihei region. During World War II, Kihei was utilized in various military training programs. Many of the military activities imposed physical changes on the land. Firing ranges for small and large-bore weapons were developed; areas for "mock" combat training exercises were constructed; and mechanized combat equipment was used to practice beach assault landings (Oral history from Jack Crouse, 1993).

The present study parcel was used by the military during World War II. The Army, Navy and Marines engaged in practice maneuvers on the property and military machinery was used in modifying the property. Dummy pill-boxes also were built on the study parcel, as well as in the Wailea area, which was a practice location for the Iwo Jima landing.

Since World War II, the general Kihei region has undergone rapid commercial and residential development. The Maui Lu Resort had been part of the Ranch and was purchased by a Canadian named Gibson. Prior to its development, the property on which it is located, had been the base for a large piggery which extended *mauka* to what is now Pi'ilani Highway.

ARCHAEOLOGICAL BACKGROUND RESEARCH

Precontact Settlement Patterns

Previous researchers have categorized this region of Maui as the "*intermediate, or barren zone*" (Cox, 1976, Cordy 1977). It is the area which stretches from the *coastal zone*, where the exploitation of marine resources was the prime economic activity, to the *inland zone*, where habitation and agricultural activity dominated. For this reason it seems probable that the region was used intermittently by humans for subsistence and perhaps some agricultural activities. Even this intermittent usage does not appear to have taken place until late-prehistoric times. Donham suggests reexamining this model, in light of her findings of a dry land agricultural terrace in Phase I of the Pi'ilani Residential Subdivision survey, and adding a *coastal perimeter zone* in some areas (July 1989, p. 10). Other research tends to support this idea (Corey and Athens, 1988; Dobyns, 1988), and implies even greater usage inland of the *coastal zone* than initially suspected. However, it is still likely that the *intermediate or barren zone* was an area to be transited between the *coastal zone*, with its marine resources, and the inhabited *inland zone*, and was only used in late precontact times when population pressures demanded.

No specific archaeological work has been conducted on the *ahupua'a* of Kaonoulu, but the neighboring Waiohuli and Keokea *ahupua'a* have undergone some research (Donham July 1989, April 1990). However, the gulch to the south of the subject parcel (Kulanihako'i Gulch) is a significant geological feature which could well have served as a corridor leading inland in precontact times. Mr. Rice indicated that there were petroglyphs in the gulch at higher elevations which would tend to corroborate this notion. We did not confirm this information however, as our activities were confined to the 88 acre study parcel.

Consultation with the State Historic Preservation Division and archaeological literature indicated the probability of historic and prehistoric sites for this parcel. Historic sites would likely include ranching activity and World War II military use. As postulated by earlier researchers, prehistoric sites indicating transient and intermittent use are found in this region of Kihei and usually reflect subsistence activities involved with exploitation of coastal marine resources (Kirch, 1971; Cordy, 1977, 1988).

Summary of previous archaeological research

Early work in Kihei was done by Winslow Walker, in his 1931 archaeological survey of Maui. In recent years, numbers of archaeological surveys have been conducted in the same general area of Kihei, where the present study parcel is located. Examples (with no effort at a complete listing of such works) include: Cox (1976), Cordy (1977, 1988), Cordy and Athens (1988), Dobyms (1988), Donham (July 1989, April 1990), Fredericksen et al. (1990, 1992, 1993), Kennedy (1986), Kirch (1971) and Walton (1972). All of these works are in general agreement regarding land use and settlement patterns in the Kihei region.

Kennedy's reconnaissance survey for the Silversword Golf Course concluded in a brief letter report that no archaeological features were found (1986). This property is located about 1.5 kilometers south of the present study parcel.

Donham (July 1989, April 1990) incrementally completed two surveys on a 188 acre parcel nearby the subject parcel at TMK 2-2-02: por. 42. Phase I (114 acres) extends northward from Lipoa Street to the southern border of the subject parcel, on the *makai* side of Pi'ilani Highway. Phase II (74 acres) extends southward from Lipoa Street. During the surveys, 21 archaeological sites were discovered, relocated from earlier surveys and verified as to type of site, e.g., alignment, temporary shelter, assemblage, enclosure, etc. (Ibid., July 1989, ii; April 1990, p. 11).

A rock shelter on the *makai* side of Pi'ilani Highway, directly across from the Silversword Golf Course, located on the grounds of Lokelani Intermediate School, was excavated by Xamanek Researches in July, 1993. A considerable amount of shell midden and over 100 pieces of volcanic glass were recovered during the archaeological inventory survey and data recovery project. A wood-charcoal sample from one of three hearths yielded a date of 279+/- 120 RCYBP--AD 1560-1800 (Fredericksen et. al., 1993, p. 9).

Radiometric dates obtained by Schilt and Dobyms (1980, p. 46) from the Wailea area to the south of the study parcel also fall within relatively late prehistoric times, between AD 1550 and 1750. These dates are consistent with the hypothesis that there was limited land usage in Kihei until overall population density in the late-prehistoric, early-contact period prompted intermittent utilization of the scarce resources present there.

ARCHAEOLOGICAL FIELD METHODS

Field work for the archaeological inventory survey was conducted by four to five research personnel on various days between November 5 and December 12, 1993. Archaeological data recovery was carried out by two to four crew members between January 2 and January 10, 1994. The project directors were Walter M. Fredericksen (Ph.D.abd) and Demaris L. Fredericksen (Ph.D.abd), and the Field Director was Erik M. Fredericksen (M.A.).

The archaeological inventory survey consisted of two parts. A pedestrian survey covering 100 percent of the property was first conducted, beginning at the northern portion of the eighty-eight acre study area. Field members were spaced at 5.0 meter intervals and pedestrian sweeps were oriented in a north-south direction. The southernmost point of each sweep was marked with flagging tape in order to maintain uniform spacing. As archaeological features were encountered, they were flagged by crew members. These features were then given temporary site numbers and plotted on a topographic map.

Field inspection of located sites formed the second portion of the archaeological inventory survey. When feasible, sites were cleared of vegetation. All sites were visually inspected, measured, mapped, and photographed. Written, descriptive notes were recorded for each of the 21 sites found in the project area. All sites were mapped with a hand-held digital compass and either metric tape or hand-held metric distance meters. Evaluations of located archaeological sites were conducted during the field inspection phase of the inventory survey. Of the 21 sites identified, 20 were given permanent State Inventory of Historic Places site numbers (Map 3).

Subsurface testing was undertaken on eight of the 20 numbered sites. Selection of sites for data recovery work was based on three criteria: 1) size and appearance; 2) presence or absence of soil; 3) presence or absence of surface cultural remains. A total of ten test units were manually excavated. Of these test units, eight were 0.5 x 1.0 meter and two were 1.0 x 1.0 meter square. In all cases, test units were excavated to bedrock or decayed bedrock. One hundred percent of the excavated soil was screened through 1/8" mesh hardware cloth. All material culture remains found in the screening process were recovered for laboratory analysis.

FIELD RESULTS

During the course of the archaeological inventory survey, twenty-one sites were located. Of these, twenty were assigned permanent State Inventory of Historic Places (SIHP) numbers--50-10-3727 to 50-10-3746. A recent bulldozed rock terrace associated

with construction activity for Central Maui Transmission Waterline Easement #1 was not given a SIHP number.

In general, most archaeological sites on this property are located on the southern half of the project. Portions of the northern Ranch property appear to have been bulldozed many years ago. Blasting has also taken place on various portions of the project area (Photo #2). Other surface disturbance occurred when the Central Maui Transmission Waterline #1 was placed across the property in the late 1960's (Henry Rice, personal communication 1994). However, despite a fair amount of surface disturbance, it is apparent that the subject property has been utilized by humans in both pre-contact and historic times.

The twenty numbered sites consisted of one multiple stone feature complex, two individual stone piles, and five individual cairns, two enclosures, three separate, parallel alignments, an erosion containment wall system, five midden and lithic surface scatters, and a petroglyph. A brief discussion of the twenty numbered sites follows. Portable remains (except shell) were collected on the surface around sites where present. Table 1 summarizes these surface collections made in the project area. See Appendix A for detailed site descriptions.

SURFACE FINDINGS

Sites 3727 to 3734 (Figures 1-10; Photos 3-6)

A total of eight stone pile and cairn sites were found. They are located between 51 to 113 feet AMSL to the south of the gulch that traverses the study area (Map 3). Only Site 3727 contains multiple components. This site consists of a low, elongated stone pile resting on soil and two smaller, low stone piles resting partially on bedrock. Sites 3728 to 3734 consist of single components.

Of the above mentioned sites, only Sites 3727 (Feature A), 3728, and 3729 rested on soil. These sites consist of larger (i.e. over 80 cm. thickness) stone piles. The remaining components of Sites 3730 to 3734 are smaller and/or placed directly on bedrock, or very thin soil overlying bedrock.

No portable cultural remains were found directly associated with any of the components of these sites. However, portable remains were located on the surface in the vicinity (c. 20 m.) of Sites 3727, 3728, 3729, and 3732 (see Table 1). Sites 3727 (Feature A), 3728, and 3729 were initially thought to be possible burials. They were chosen for data recovery work due to their components' size, location on soil, and the presence of material culture remains in the general vicinity.

Stone Enclosure Sites 3735 and 3736 (Figures 12, 13; Photos 7, 8)

The two stone enclosures are situated in the southern portion of the study area (Map 3). Both sites are located on promontories at approximately 60 feet AMSL, c. 100 meters apart. Site 3735 is a roughly constructed mushroom-shaped feature c. 35-51 cm. in height, with an inside diameter of c. 1.5 meters. Site 3736 is less well preserved than 3735. It is an oval-shaped enclosure c. 20 to 45 cm. in height, with an inside diameter of 1.5 to 1.9 meters. Both structures are built with angular basalt cobbles which exhibit only minor weathering. Site 3735 contains a few cobbles that appear to have been broken and scarred in the past by heavy equipment.

No portable remains were found directly associated with these structures. However, two waterworn stones and a can opener key were found in the vicinity of site 3735 (Table 1). Both sites were selected for subsurface testing.

Stone Alignment Sites 3737, 3738, and 3739 (Figures 14-16; Photo 1)

Three separate sets of parallel alignments were located near the southern boundary of the study area (Map 3). Each of the sites is roughly oriented in an east-west direction. These sites rest primarily on bedrock. Both Sites 3737 and 3738 are constructed with large basalt stones c. 40-90 cm. in diameter and placed in two parallel alignments c. 6 meters apart. Site 3738 is on the edge of Kulanihakoi Gulch and Site 3737 is some 45 meters to the north. Site 3739 is on a gently sloping bank of the gulch, 75 meters west of site 3738. Site 3739 is much smaller than the other two sites.

These three sets of parallel alignments appear to be associated with military maneuvers that were conducted in the Kihei area. Several large boulders in these parallel alignments exhibit weathered heavy equipment scars.

Erosion Containment Wall System Site 3740 (Figure 17; Photo 9)

This site is located along the edges of the central portion of the small gulch that crosses the project area (Map 3). Site 3740 consists of two comparatively short wall segments (c. 11 m. long) on the west bank of the gulch, and a longer series of wall segments (total c. 44 m.) on the east bank. Some sections of the eastern walls have collapsed. Site 3740 walls are constructed from the dense "blue rock" which is found nearby on the property. Some machinery generated scars are visible on a few of the stones used in the construction of these walls. In addition, some metal wire was found in a wall segment on the eastern side of the gulch. These walls are situated in areas that have been impacted by erosion in the past.

Midden and Lithic Surface Scatter Sites 3741 to 3745 (Figures 18-24; Photo 10)

As noted earlier in this report, much of the study area has experienced significant amounts of erosion. The five midden and lithic surface scatter sites are all in areas that

have been impacted by both water and to a lesser extent, wind erosion. In general, the soil is quite thin and bedrock is exposed in many areas. These sites are more common on the lower western portion of the project area (Map 3). One site, Site 3745 lies on the *mauka*, or eastern portion of the study area at c. 105 feet AMSL. With the exception of Site 3742, all of the surface scatter sites contained both shell midden and worked and/or utilized lithic materials. Site 3742 contained a low concentration of shell midden and three waterworn stones.

Of the five sites, Sites 3741, 3744 and 3745 were chosen for data recovery work. These three sites are in areas that possess soil deposits sufficient for subsurface testing. In addition, these sites contained surface concentrations of midden and lithic materials. The surface of Site 3744 also contained a waste flake of volcanic glass, and a volcanic glass core.

Petroglyph Site 3746 (Figure 25; Photo 11)

Site 3746 is located at c. 99 feet AMSL, c. 36 meters west of the fence line that is placed near the eastern border of the study area (Map 3). The petroglyph is a figure of a man, and is pecked into a large, weathered basalt boulder, c. 1.10 m. in height by 91 cm. in width, by 85 cm. in thickness.

This site is located in an area of shallow soil and weathered bedrock. It is near a promontory. Inspection of the general vicinity revealed no other material culture remains. This petroglyph does not appear to be associated with any other site in the study area. The boulder on which it is carved does not appear to have been moved in historic times by heavy machinery, as there are no machinery scars on it. While it could be a trail marker, there do not appear to be any intact remnants of trails in the area of the petroglyph.

SUBSURFACE FINDINGS

In all, ten test unit excavations were placed in eight sites. Eight of the test units were 0.5 x 1.0 meter and two were 1.0 x 1.0 meter square. One meter square units were placed in Sites 3728 and 3741. All units were excavated using 10 cm. levels. One hundred percent of excavated soil was sifted through 1/8" screen. Subsurface investigation was utilized in order to try to assess the age and function of the tested sites.

These sites include two stone piles and a cairn (Sites 3727 - Feature A, 3728, and 3729), both enclosures (Sites 3735 and 3736), and three of the midden and lithic surface scatters (Sites 3741, 3744, and 3745). All test units were excavated to bedrock or decayed bedrock. Subsurface test results are summarized in Table 2.

In general, soil deposits excavated in the test units were thin, with bedrock or decayed bedrock encountered at c. 14 to 32 cm. below surface. Stratigraphy consisted of two main soil layers.

Layer I was typically the thickest stratum, ranging from 12 to 21 cm. This soil is reddish brown in color (5 YR 4-5/4), with a compact, fine-grained texture and a high clay content. When present, cultural material was located in the top 10 cm. of Layer I.

Layer II consists of a course-grained yellowish-red soil (5 YR 4/6), with small pieces of weathered bedrock. In all cases, this stratum yielded no cultural material remains.

Sites 3727 (Feature A), 3728, and 3729 yielded no cultural material remains. Portions of the stone piles and cairns were dismantled and test units were placed into the soil under cleared sections of these components. Sites 3727 (Feature A), 3728, and 3729 contained both Layers I and II. Soil under the stone components was compact and undisturbed at these sites.

Test units placed in both enclosures (Sites 3735 and 3736) were shallow and yielded no cultural material. The soil layers appeared undisturbed and intact. Layer I was present in both excavations and c. 6 to 9 cm. thick. Layer II was c. 3 to 5 cm. thick. No profiles were drawn.

A total of five test units were placed in the surface scatters. Layer I in both Sites 3741 and 3744 contained portable remains. In Test Unit #1 at Site 3745, Layer I was sterile.

At Site 3741, eight species of marine shellfish were recovered from Test Unit #1 (1.0 x 1.0 meter) and two species from Test Unit #2 (0.5 x 1.0 meter). Test Unit #1 also contained a utilized basalt flake, while Test Unit #2 contained a waterworn stone and a piece of coral. No materials suitable for radiocarbon analysis were discovered. In both test units, portable remains were not present below the upper 10 cm. of Layer I. It is important to note that the upper 10 cm. of Layer I was less compact and appears to have been churned by cattle activity. While cattle had not been on the property for about a month prior to our survey, abundant hoof prints and dried scat were visible at these sites.

Layer II was encountered at about 13 to 15 cm. below surface in both test units. This stratum was sterile.

At Site 3744, stratigraphy was similar to that of 3741. However, soil deposits were deeper. Two test units, each 0.5 x 1.0 meter, were excavated. Portable remains were recovered from both subsurface tests. Layer I was 14 to 22 cm. thick. Only two species of marine shellfish were recovered from Test Unit #1, while Test Unit #2 yielded none. However, Test Unit #1 yielded an unworked basalt flake, a broken waterworn stone, and two pieces of coral. Test Unit #2 contained three unworked basalt flakes, a

waterworn stone, and five pieces of coral. No materials suitable for radiocarbon dating were located. Only the upper 10 cm. of Layer I contained material cultural remains. Once again, this portion of Layer I appears to have been churned by cattle activity.

Both Sites 3741 and 3744 have subsurface deposits containing portable remains. However, at both sites, only the upper 10 cm. of Layer I contains any cultural material. It appears likely that this portion of Layer I has been churned by cattle crossing both site areas repeatedly over the years.

DISCUSSION

Archaeological investigation indicates that portions of the study area have been utilized and/or modified by humans in the past. Former human activities seem to fall into three general categories including indigenous use, military use, and ranching use. Table 3 summarizes site function and probable age assessment.

Indigenous land use appears to have been of an intermittent nature. As noted earlier, the study area is in a marginal environmental location in Kihei. While no suitable samples for radiocarbon analysis were discovered at any of the archaeological sites, it is quite probable that indigenous land use occurred during the late precontact to early post-contact period. This was most likely temporary use, stimulated by overall increases in population density during this time period.

While no direct evidence of past indigenous agricultural activity was encountered on this dry parcel of Ranch land, it is possible that some of the stone features at Sites 3727, 3728, and 3734 are remnants of dry land agriculture. However, as noted earlier, portions of the project area have been disturbed and modified in historic times by military, and ranch activities. In addition, construction work in modern times associated with the Central Maui Transmission Waterline Easement #1 may have impacted archaeological features from the study area. As noted earlier, this water transmission line crosses the property from northeast to southwest. This construction corridor may have effected portions of the project area near Sites 3727, 3728, 3734, 3735 and 3736.

Although the project area has been disturbed by bulldozing, grubbing, and blasting activities, it is apparent that Hawaiians utilized portions of the property in the past. This land use was most likely temporary, based upon the exploitation of coastal marine resources. Two surface scatters, Sites 3741 and 3744, provide the strongest evidence for this land use. The three other midden and lithic surface scatters also indicate marine resource exploitation. In addition, the lack of any clearly defined cultural layer in tested areas also suggests intermittent, rather than permanent use for the project area.

While the five surface scatter sites (3741 to 3745) indicate temporary indigenous use, only one possible habitation shelter (Site 3736) was located. The enclosure at Site

3736 seems to be somewhat small for habitation (c. 1.5 by 1.9 m. inside diameter). In addition, this feature contains some rock that may have been broken by force--possibly blasting. It is of interest to note that remnant populations of *pili* grass (*Heteropogon contortus*) were observed in portions of the project area during the botanical survey (see Appendix B). It is quite probable that this native grass species was much more abundant prior to the Western introduction of cattle and buffelgrass (*Cenchrus ciliaris*), and would have been available for use in thatching temporary dwellings.

While it is tempting to identify Site 3735 as a shelter enclosure or agricultural feature, three factors indicate a likely military association. First, this stone enclosure has a relatively small inside diameter of c. 1.5 m. Second, basalt cobbles and rock used in construction do not exhibit signs of weathering. Rather, many of the rocks are quite angular and appear to have been broken by force (i.e. bulldozer or blasting). Lastly, soil inside this feature is relatively shallow (c. 10-15 cm.), stratigraphically similar to other areas of the project, and not indicative of past agricultural activities (i.e. low organic content and rocky). Consequently, this feature seems most likely to be associated with past military maneuvers on the project area.

The three sets of parallel alignments are most suggestive of past military activities on the study area. Sites 3737 and 3738 appear to be roads for overland equipment such as tanks and other all-terrain vehicles. While Site 3738 is less clearly defined smaller and narrower, it appears to be some sort of road, as well. All three sites have some rock in them that exhibit heavy equipment scars.

Like the above mentioned apparent military sites, site 3740 on the northeastern portion of the study is likely historic. Wall segments of this site are in areas of high erosion potential. Indicators of historic construction include steel wire and some rock with heavy equipment scars incorporated into the walls.

RECOMMENDATIONS

The archaeological fieldwork conducted during this investigation was at the inventory level with subsurface testing which provided a sufficient amount of information collected to permit determination of likely site age, function and significance. Significance evaluations presented in Table 4 are based upon the five criteria (A-E) used for the National Register of Historic Places (NRHP). These criteria are paraphrased below.

- A. Association with events or broad patterns important in the history of a given area.

- B. Association with the lives of persons important to the history of a given area.
- C. Site embodies distinctive architectural achievements; represents the work of a master; or possesses high artistic value.
- D. Site has or is likely to yield important information about the history or prehistory of an area.
- E. Site is perceived by a given ethnic community as having traditional cultural value.

Based on archaeological inventory survey and subsurface testing results, no further archaeological work is recommended for sites 3727 to 3745. While these sites fall under Criterion "D" of the NRHP, they are no longer considered significant for their information content.

However, the petroglyph (Site 3746), while falling under Criterion "D" still requires additional attention. It can also be classified under Criterion "E", as possessing a traditional art form. As such, it has a cultural value that exceeds the basic information inherent in the form and style of the rendering. It is recommended that the petroglyph, which is on a boulder c. 1 meter in diameter, be moved to a more secure location. It does not appear that the boulder would fracture upon being moved, but caution should be taken not to mar the petroglyph or boulder with machinery. Some initial discussions have been undertaken with the Maui Historical Society about accepting it for display on their grounds. However, it might be more appropriate for Site 3746 to remain on display in a secure location within the *ahupua'a* of Kaonoulu, perhaps within the landscaping of Kaonoulu Light Industrial project. This possibility has not been pursued to date.

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TABLE 1

SUMMARY OF SURFACE COLLECTIONS

Site #3727 (in vicinity)

Portable Remains	Weight (gm.)	L x W x T (mm.)
possible basalt core	575.0	107.6 x 89.2 x 52.5
worked basalt flake	31.1	57.6 x 37.7 x 13.6
waterworn rock	95.3	65.3 x 43.1 x 23.6

Site #3728 (in vicinity)

Portable Remains	Weight (gm.)	L x W x T (mm.)
waterworn rock	275.0	82.3 x 70.0 x 35.0

Site #3729 (in vicinity)

Portable Remains	Weight (gm.)	L x W x T (mm.)
utilized basalt flake	132.6	88.7 x 29.5 x 48.7
possible basalt core	1150.0	131.5 x 93.3 x 95.0
waterworn rock	317.1	83.9 x 42.7 x 66.3

Site #3732 (in vicinity)

Portable Remains	Weight (gm.)	L x W x T (mm.)
coral chunk	235.2	150.2 x 133.4 x 141.7

Site #3735 (in vicinity)

Portable Remains	Weight (gm.)	L x W x T (mm.)
waterworn rock	209.0	63.8 x 58.5 x 44.8
waterworn rock	334.4	86.2 x 52.4 x 50.5
metal key (ie. opening comed beef can)	14.0	75.9 x 30.9 x 6.0

Site #3737

Portable Remains	Weight (gm.)	L x W x T (mm.)
basalt core	1160.8	120.6 x 101.3 x 68.0
waterworn hammerstone	1837.1	143.0 x 112.8 x 76.5
waterworn rock	195.2	70.5 x 48.7 x 45.8
coral chunk	93.6	77.5 x 41.6 x 50.7
lead slug	11.6	21.5 x 11.3 x 11.0

Site #3738

Portable Remains	Weight (gm.)	L x W x T (mm.)
utilized cobble	415.1	152.0 x 121.4 x 63.2

Site #3741

Portable Remains	Weight (gm.)	L x W x T (mm.)
unworked basalt flake	59.6	65.7 x 61.5 x 18.2
unworked basalt flake	210.2	97.1 x 60.4 x 31.5

Site #3741 (cont.)

unworked basalt flake	17.1	33.4 x 33.0 x 9.8
waterworn rock	225.2	107.0 x 63.3 x 32.7
waterworn rock	260.3	77.5 x 60.0 x 44.5
waterworn rock	130.6	63.0 x 57.5 x 28.5
waterworn rock	325.1	10.9 x 6.5 x 3.7
coral piece	6.2	36.1 x 18.5 x 16.1
coral piece	2.1	32.3 x 23.0 x 15.7

Site #3742

Portable Remains	Weight (gm.)	L x W x T (mm.)
unworked basalt flake	35.1	49.3 x 30.2 x 17.6
waterworn rock	38.9	52.6 x 27.2 x 20.8
waterworn rock	76.4	51.5 x 40.1 x 24.8
waterworn rock	98.1	62.6 x 50.6 x 21.2
coral chunk	300.5	91.2 x 87.2 x 75.2
coral piece	7.9	40.2 x 28.4 x 13.4
coral piece	6.4	35.2 x 21.8 x 16.0
coral piece	8.8	43.0 x 31.5 x 14.2
coral piece	10.1	42.0 x 28.2 x 20.3

Site #3743

Portable Remains	Weight (gm.)	L x W x T (mm.)
basalt core #1	250.0	74.3 x 58.3 x 49.7
basalt core #2	225.2	81.0 x 76.1 x 31.4
unworked basalt flake	700.8	135.3 x 103.1 x 40.9
unworked basalt flake	55.3	35.0 x 16.2 x 6.8
waterworn rock	525.0	102.5 x 64.5 x 57.5
waterworn rock	121.7	68.8 x 46.0 x 26.0
waterworn rock	63.5	39.2 x 17.3 x 14.2
waterworn rock	135.2	70.5 x 42.2 x 30.4
coral chunk	108.8	68.5 x 39.9 x 63.5
coral piece	2.8	23.0 x 16.8 x 12.2
coral piece	3.9	21.0 x 18.5 x 13.4
coral piece	3.8	24.3 x 19.1 x 12.1

Site #3744

Portable Remains	Weight (gm.)	L x W x T (mm.)
utilized basalt flake #1	4.9	27.3 x 22.9 x 5.1
unworked basalt flake	9.2	45.5 x 25.9 x 10.8
unworked basalt flake	12.2	44.2 x 28.1 x 8.4
basalt core	300.9	89.6 x 67.1 x 54.0
possible grinding stone	350.2	96.0 x 47.6 x 55.2
waterworn rock	82.1	61.3 x 40.1 x 28.6
coral chunk	28.8	59.4 x 44.5 x 24.8
coral piece	1.4	22.0 x 16.9 x 9.5
volcanic glass flake	.2	11.9 x 9.6 x 3.2
volcanic glass core	1.4	13.0 x 11.3 x 10.0

Site #3745

Portable Remains	Weight (gm.)	L x W x T (mm.)
unworked basalt flake	24.2	31.2 x 26.0 x 9.6
unworked basalt flake	28.6	35.6 x 23.2 x 13.4
unworked basalt flake	32.1	33.1 x 19.8 x 15.2
possible basalt core	800.9	107.9 x 76.5 x 78.1
waterworn rock	132.6	66.2 x 53.8 x 32.6
utilized basalt chunk	70.7	66.6 x 40.0 x 21.7
coral piece	3.2	18.4 x 13.8 x 10.5

General Surface

Portable Remains	Weight (gm.)	L x W x T (mm.)
waterworn rock	125.6	60.6 x 46.2 x 38.6
possible pecking stone	600.8	110.7 x 67.8 x 53.4
possible hammerstone	2990.6	158.0 x 155.0 x 86.3

TABLE 2

SUMMARY OF SUBSURFACE TESTING

Site #3741 Test Unit #1 (Level 1: 0-10 cm.)

Portable Remains	Weight (gm.)	L x W x T (mm.)
utilized basalt flake	24.4	46.0 x 35.0 x 17.0
Midden: Shell		
Buccinidae (Engina alveolata)	0.3 (1 pc.)	-
Conidae (conus)	1.0 (1 pc.)	-
Cymatidae (Cymatium gemmatum)	2.6 (1 pc.)	-
Cypraeidae (Cypraea)	28.7 (21 pc.)	-
Mytilidae (Brachidontes)	2.7 (32 pc.)	-
Neritidae (Nerita)	1.1 (6 pc.)	-
Patellidae (Cellana)	0.1 (1 pc.)	-
Turbinidae (Turbo sandwicensis)	2.3 (8 pc.)	-

Site #3741 Test Unit #2 (Level 1: 0-10 cm.)

Portable Remains	Weight (gm.)	L x W x T (mm.)
waterworn rock (dense basalt)	28.0	34.3 x 32.0 x 16.0
coral piece	2.5	20.0 x 15.0 x 11.0
Midden: Shell		
Conidae (conus)	5.1 (2 pc.)	-
Cypraeidae (Cypraea)	1.7 (2 pc.)	-

Site #3744 Test Unit #1 (Level 1: 0-10 cm.)

Portable Remains	Weight (gm.)	L x W x T (mm.)
unworked basalt flake	1.3	1.5 x 1.1 x 0.6
waterworn rock (broken)	30.6	40.0 x 27.7 x 21.1
coral piece	7.8	3.9 x 2.6 x 1.8
coral piece	1.4	1.6 x 1.2 x 1.1
Midden: Shell		
Cirripedia (barnacle)	0.1 (1 pc.)	-
Neritidae (Nerita)	0.3 (6 pc.)	-

Site #3744 Test Unit #2 (Level 1: 0-10 cm.)

Portable Remains	Weight (gm.)	L x W x T (mm.)
unworked basalt flake	50.5	67.6 x 49.8 x 15.3
unworked basalt flake	14.8	26.1 x 15.8 x 4.7
unworked basalt flake	16.3	24.6 x 19.3 x 7.2
waterworn rock	113.2	52.6 x 51.2 x 27.5
coral piece	4.4	27.0 x 16.1 x 16.1
coral piece	1.3	17.8 x 16.1 x 6.0
coral piece	1.2	14.1 x 14.1 x 9.9
coral piece	1.1	13.1 x 6.7 x 5.3
coral piece	0.9	16.5 x 6.6 x 3.1

TABLE 3

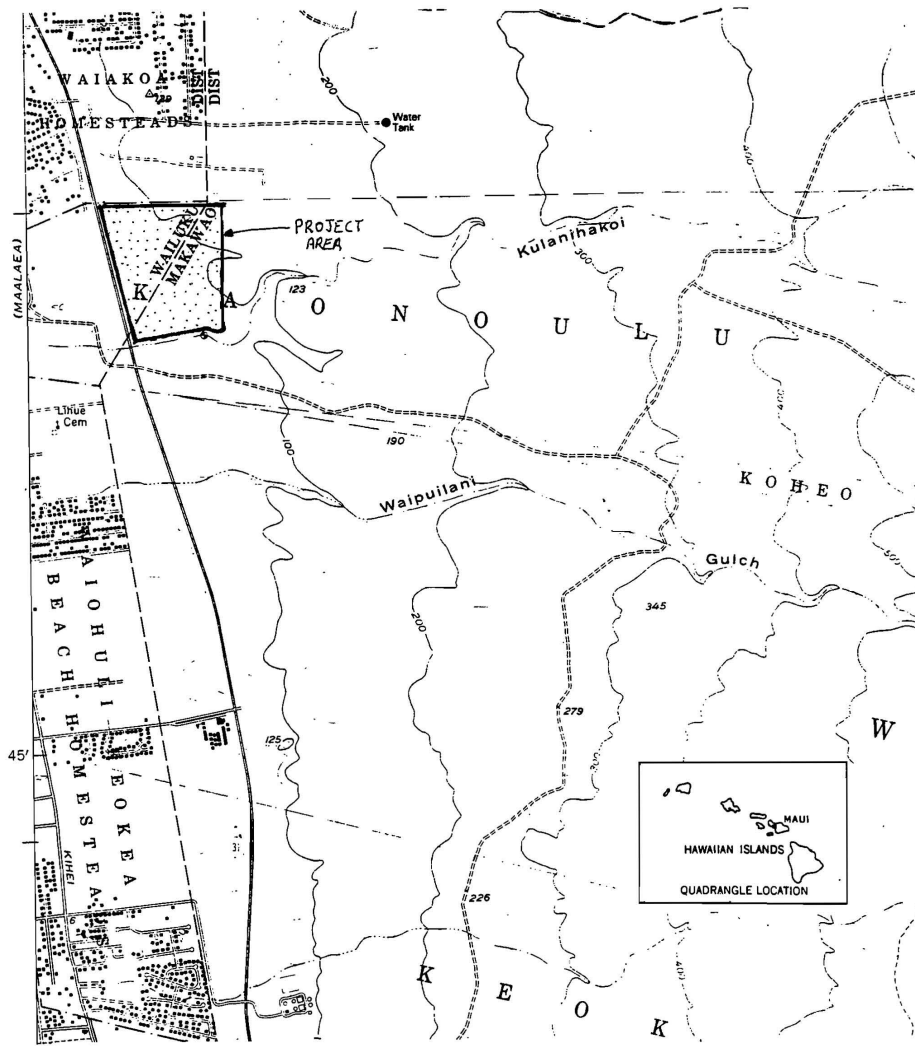
SITE FUNCTION AND AGE ASSESSMENT

STATE SITE #	DESCRIPTION	FUNCTION	AGE
50-10-3727	Stone Piles	Agriculture (?)	Indeterminate
50-10-3728	Stone Pile	Agriculture (?)	Indeterminate
50-10-3729	Stone Cairn	Marker	Indeterminate
50-10-3730	Stone Cairn	Marker	Indeterminate
50-10-3731	Stone Cairn	Marker	Post-contact
50-10-3732	Stone Cairn	Marker	Indeterminate
50-10-3733	Stone Cairn	Marker	Post-contact
50-10-3734	Stone Pile	Agriculture (?)	Indeterminate
50-10-3735	Enclosure	Military	World War II
50-10-3736	Enclosure	Possible Shelter	Precontact (?)
50-10-3737	Parallel Alignment	Military	World War II
50-10-3738	Parallel Alignment	Military	World War II
50-10-3739	Parallel Alignment	Military (?)	World War II (?)
50-10-3740	Erosion Containment Walls	Ranching	Post-contact
50-10-3741	Surface Scatter	Temporary Habitation	Pre-contact
50-10-3742	Surface Scatter	Temporary Habitation (?)	Indeterminate
50-10-3743	Surface Scatter	Temporary Habitation (?)	Precontact
50-10-3744	Surface Scatter	Temporary Habitation	Precontact
50-10-3745	Surface Scatter	Temporary Habitation (?)	Precontact
50-10-3746	Petroglyph	Marker (?)	Precontact (?)

TABLE 4

SITE LIST AND SIGNIFICANCE ASSESSMENT

STATE SITE #	DESCRIPTION	SIGNIFICANCE	ADDITIONAL WORK
50-10-3727	Stone Piles	D	No
50-10-3728	Stone Pile	D	No
50-10-3729	Stone Cairn	D	No
50-10-3730	Stone Cairn	D	No
50-10-3731	Stone Cairn	D	No
50-10-3732	Stone Cairn	D	No
50-10-3733	Stone Cairn	D	No
50-10-3734	Stone Pile	D	No
50-10-3735	Enclosure	D	No
50-10-3736	Enclosure	D	No
50-10-3737	Parallel Alignment	D	No
50-10-3738	Parallel Alignment	D	No
50-10-3739	Parallel Alignment	D	No
50-10-3740	Erosion Containment Walls	D	No
50-10-3741	Surface Scatter	D	No
50-10-3742	Surface Scatter	D	No
50-10-3743	Surface Scatter	D	No
50-10-3744	Surface Scatter	D	No
50-10-3745	Surface Scatter	D	No
50-10-3746	Petroglyph	D, E	Yes, move to a secure location



SCALE 1:24 000

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

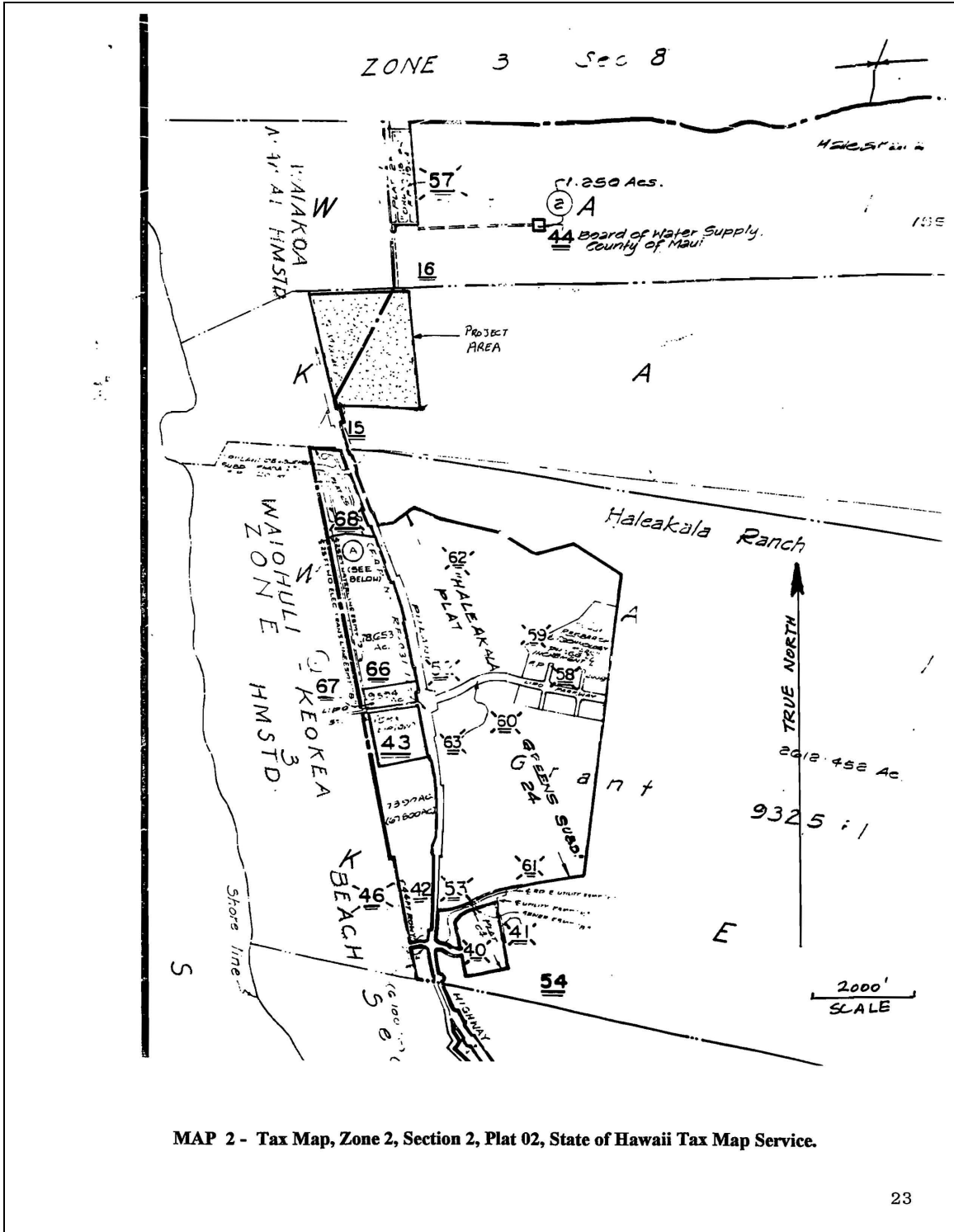
1 5 0 1 KILOMETER

1 MIL

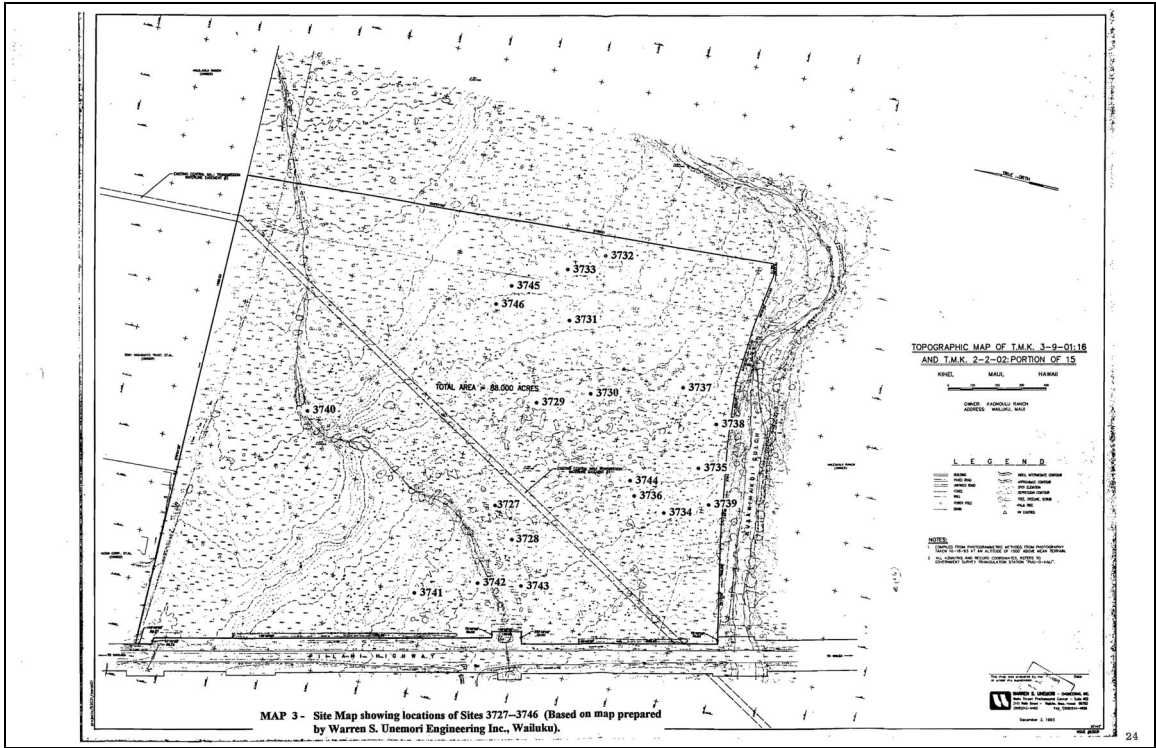
TRUE NORTH
MAGNETIC NORTH
APPROXIMATE MEAN DECLINATION 1983

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL
DEPTH CURVES IN FEET-DATUM IS MEAN LOWER LOW WATER
5' HIRE LINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER
THE RELATIONSHIP BETWEEN THE TWO DATUMS IS VARIABLE
THE AVERAGE RANGE OF TIDE IS APPROXIMATELY 2 FEET

MAP 1 - Topographic Map, U.S.G.S., Puu O Kali Quadrangle, Scale 1:2400, 1983.



MAP 2 - Tax Map, Zone 2, Section 2, Plat 02, State of Hawaii Tax Map Service.



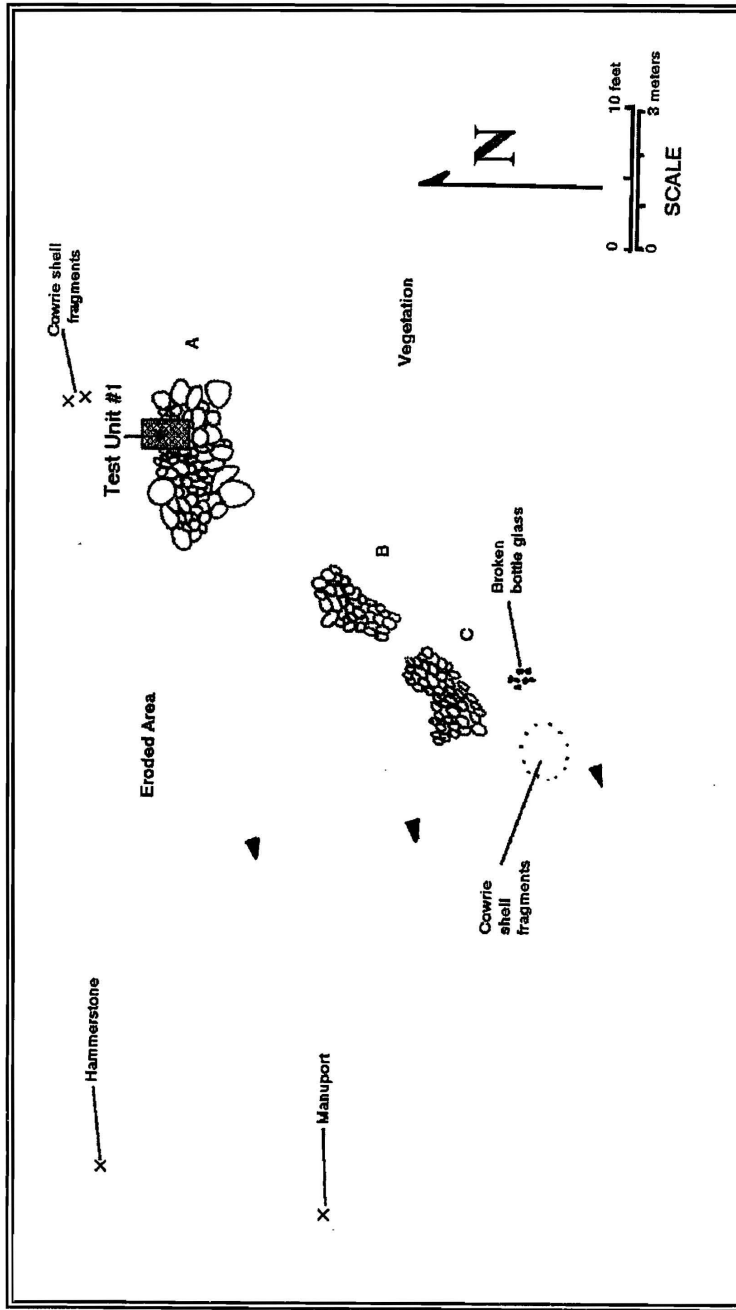


FIGURE 1 - Site 3727 -- Plan view: Stone Features A, B, and C.

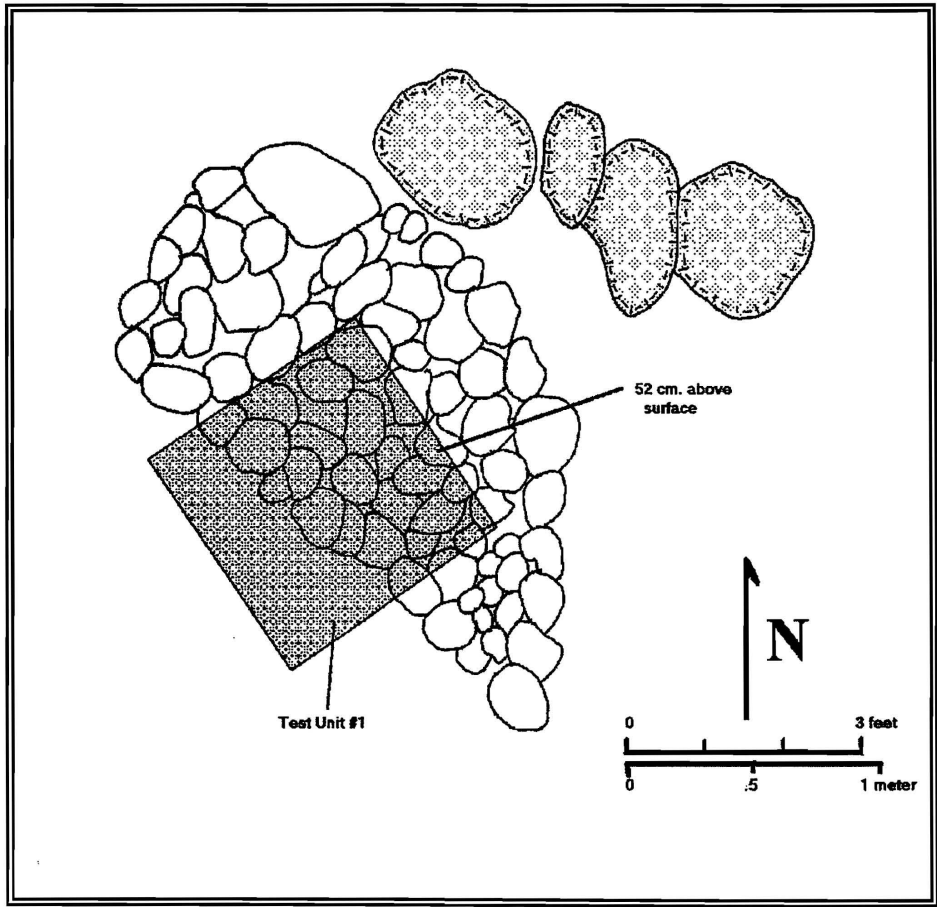


FIGURE 2 - Site 3728 -- Plan view: Stone Pile.

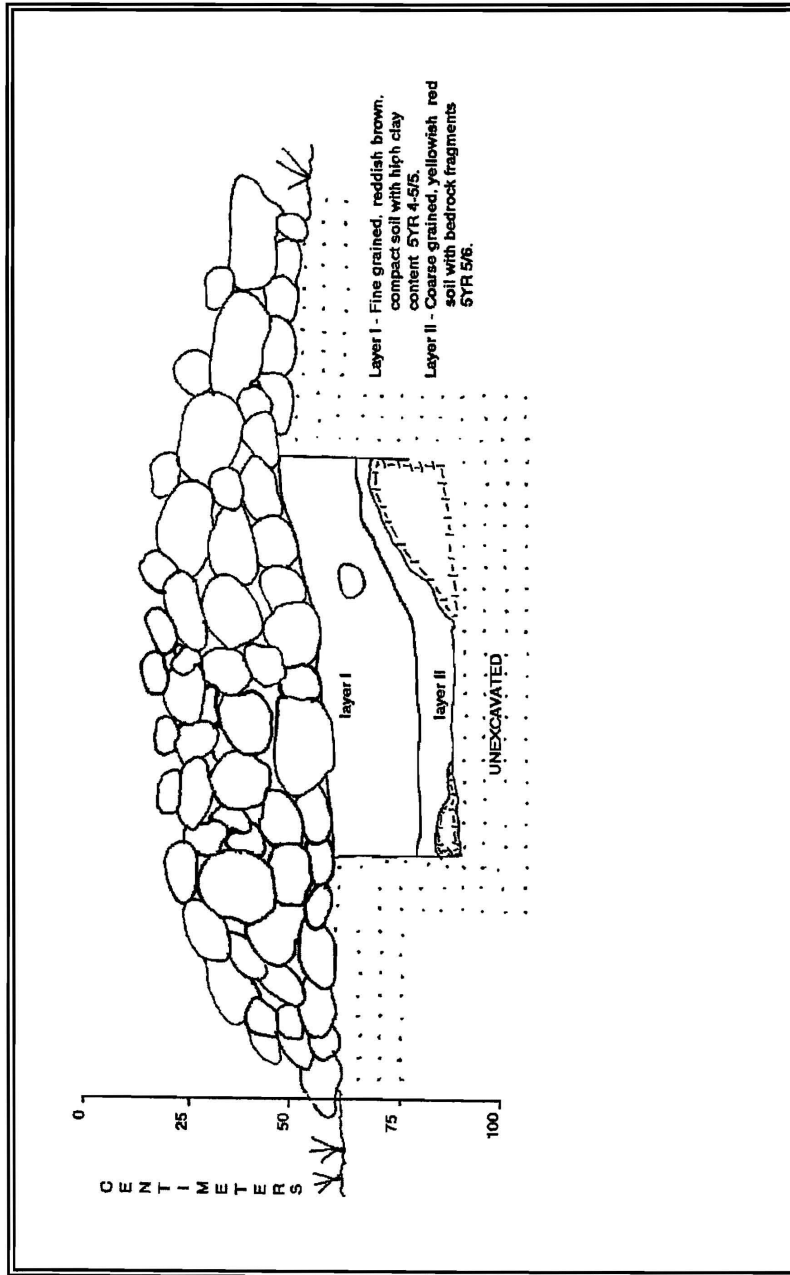


FIGURE 3 - Site 3728 -- Profile: East face of Test Unit #1, including stone feature.

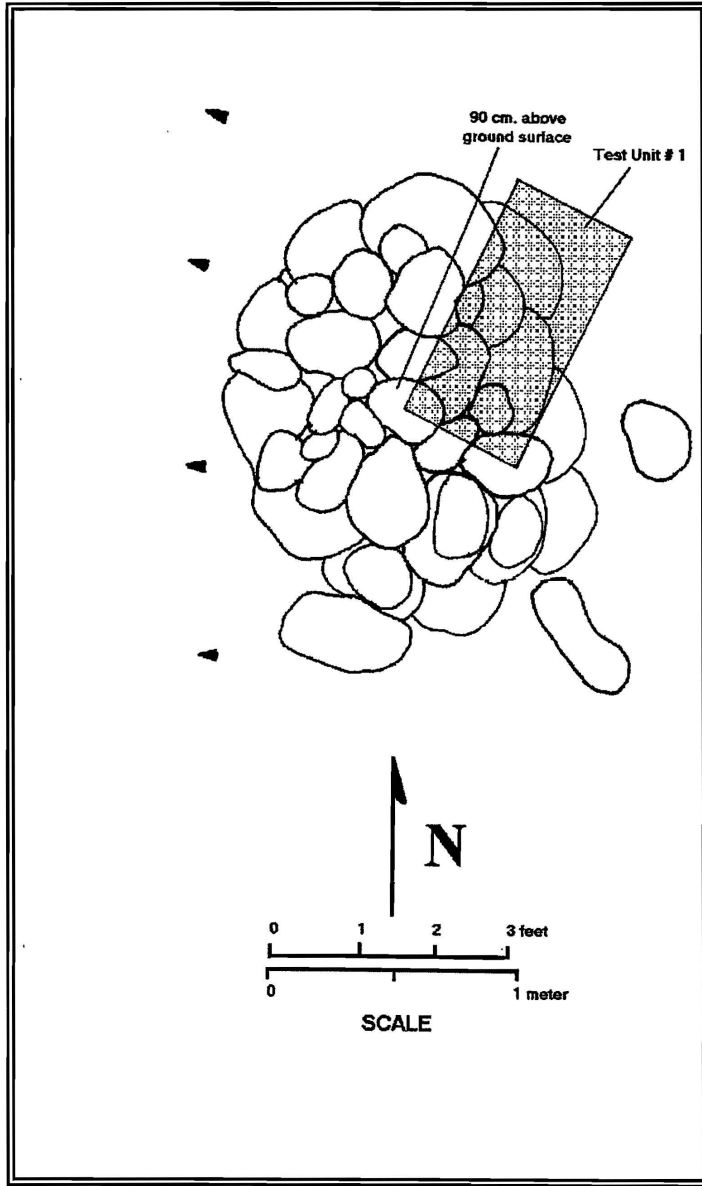


FIGURE 4 - Site 3729 -- Plan view: Stone Cairn.

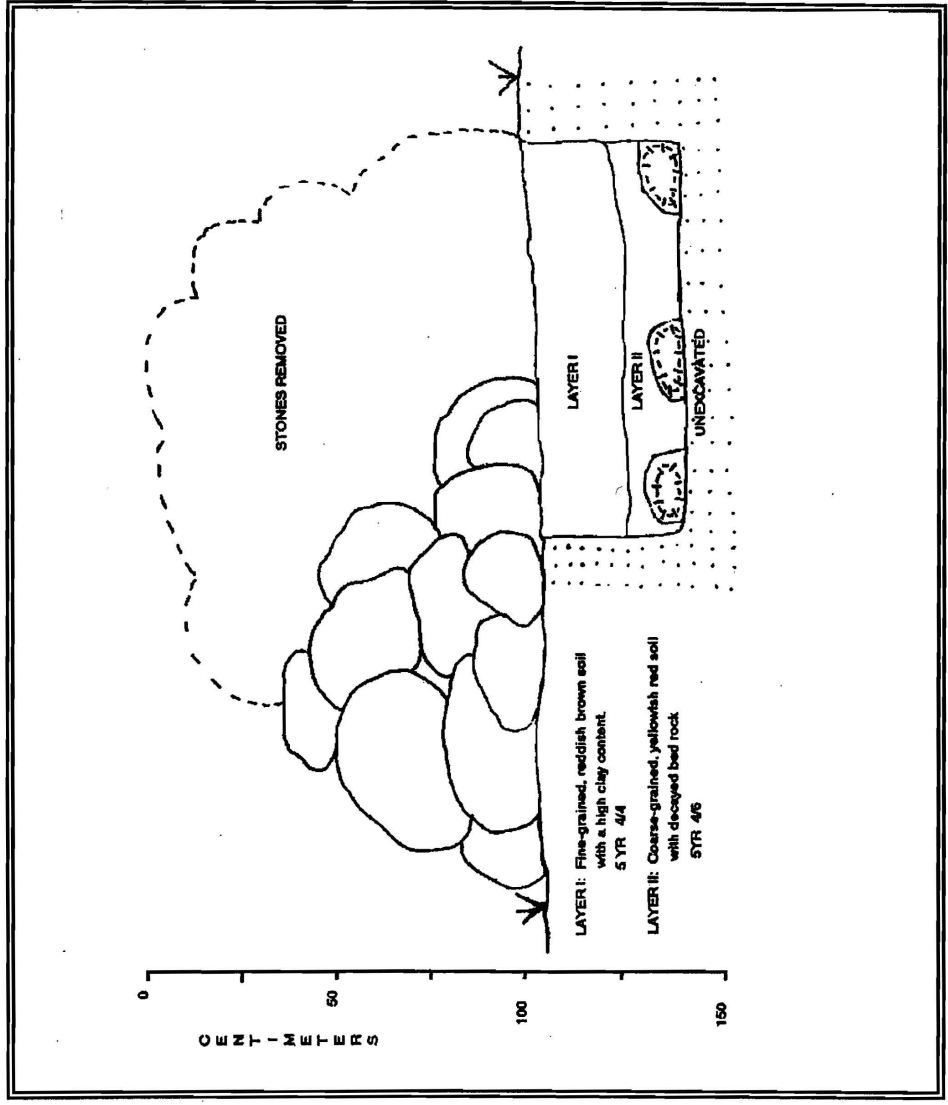
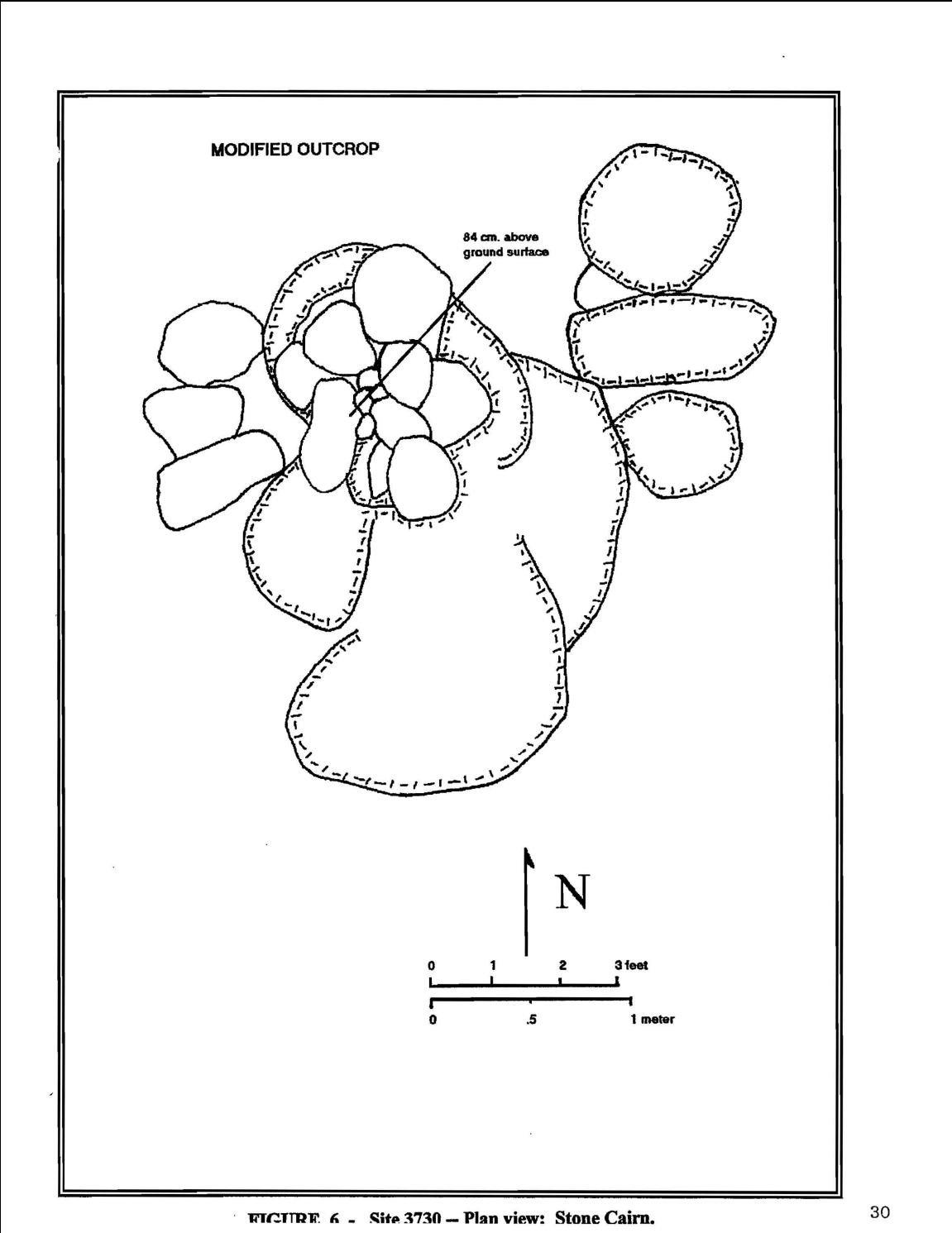


FIGURE 5 - Site 3729 - Profile: West face of Test Unit #1, including a portion of the stone cairn.



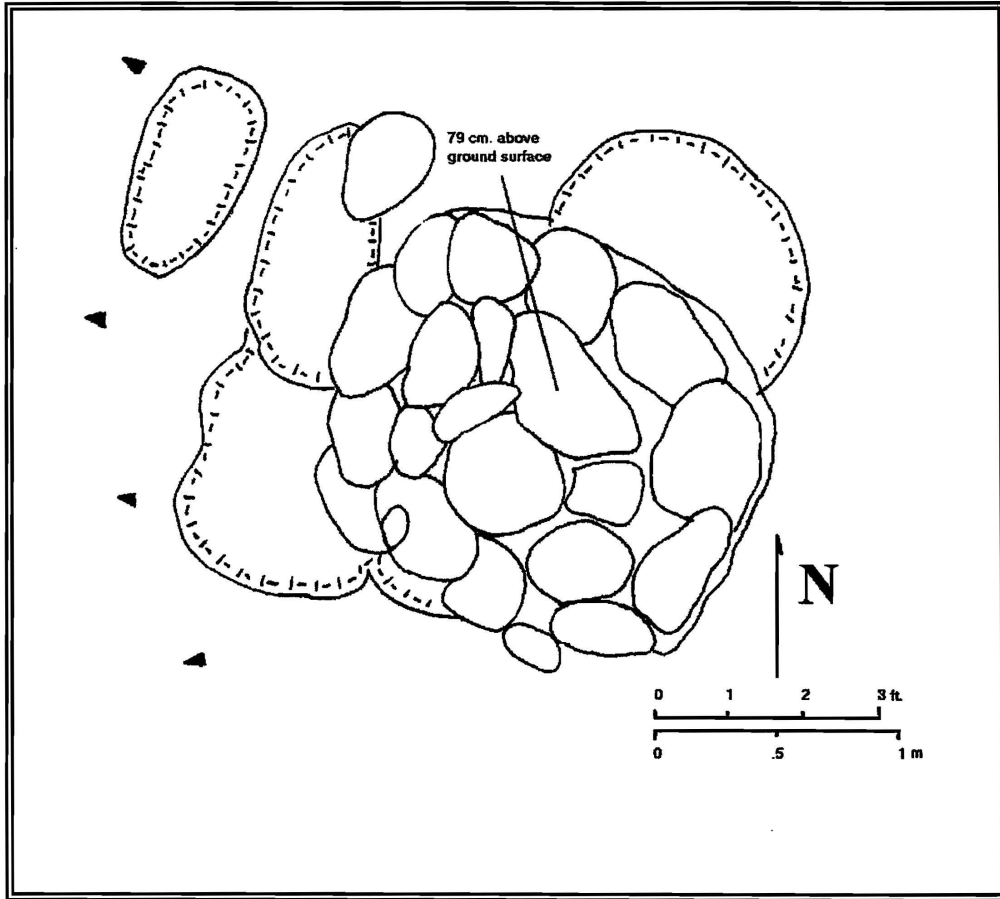


FIGURE 7 - Site 3731 – Plan view: Stone Cairn.

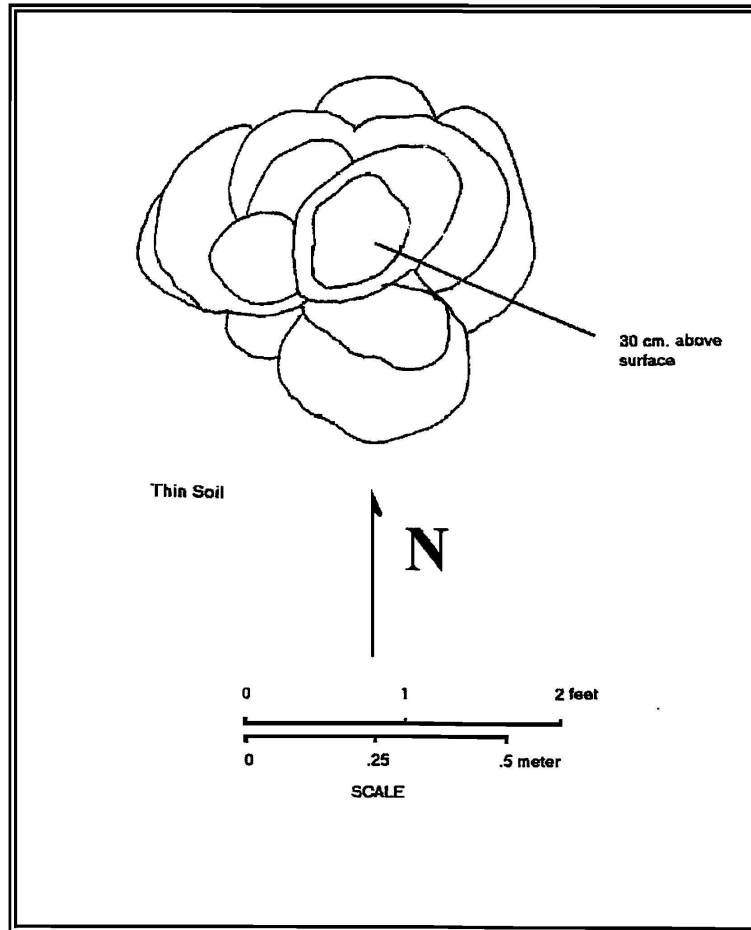


FIGURE 8 - Site 3732 – Plan view: Stone Cairn.

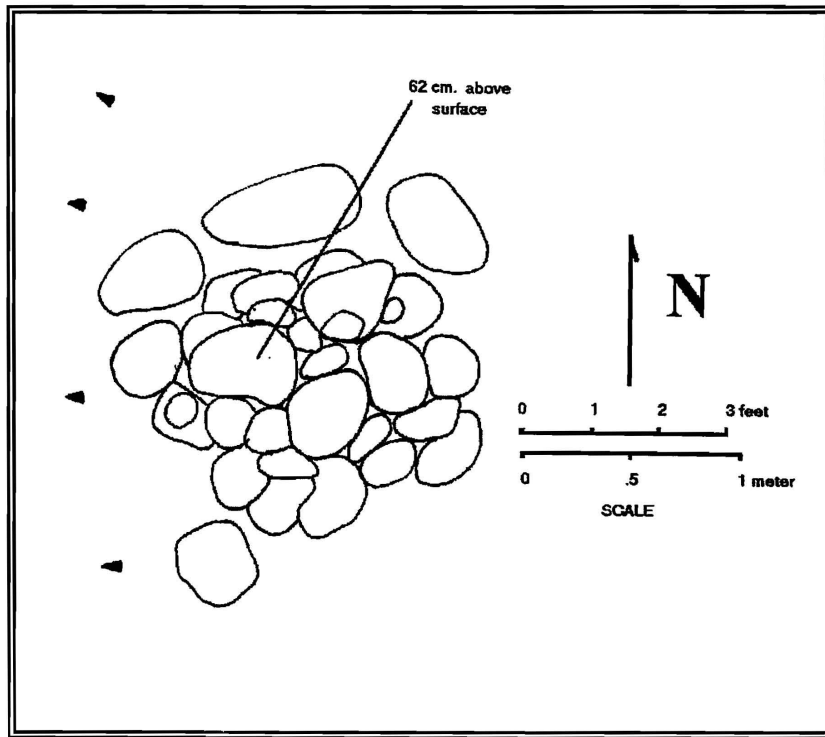


FIGURE 9 - Site 3733 -- Plan view: Stone cairn.

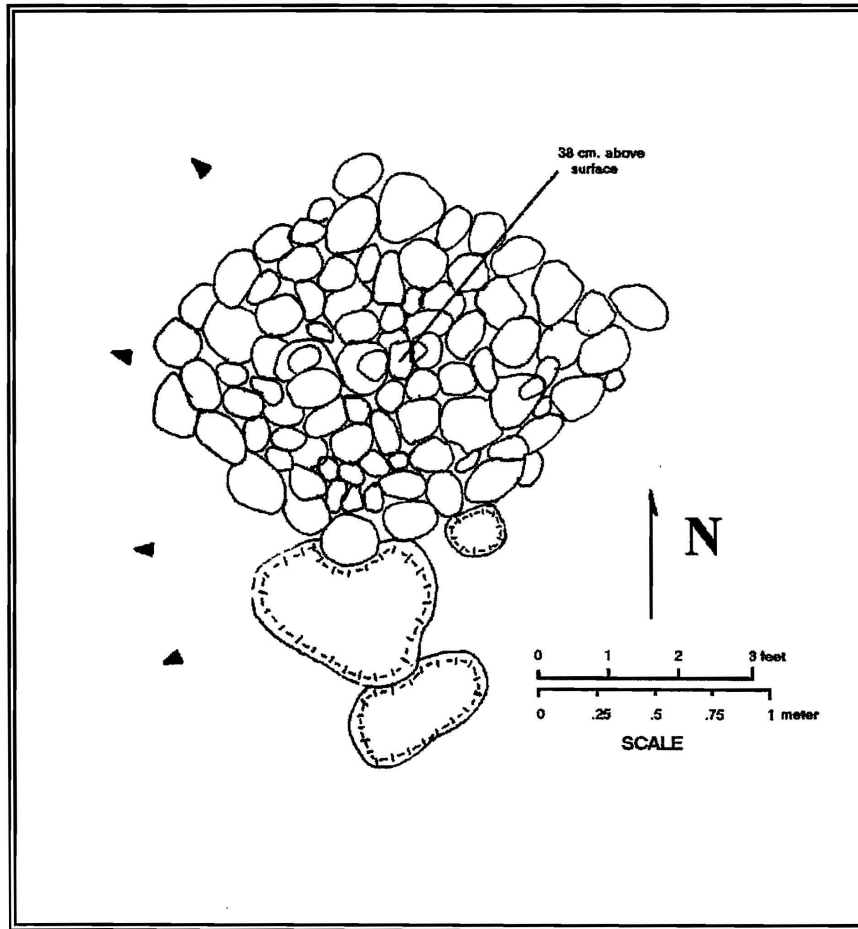


FIGURE 10 - Site 3734 -- Plan view: Stone Pile.

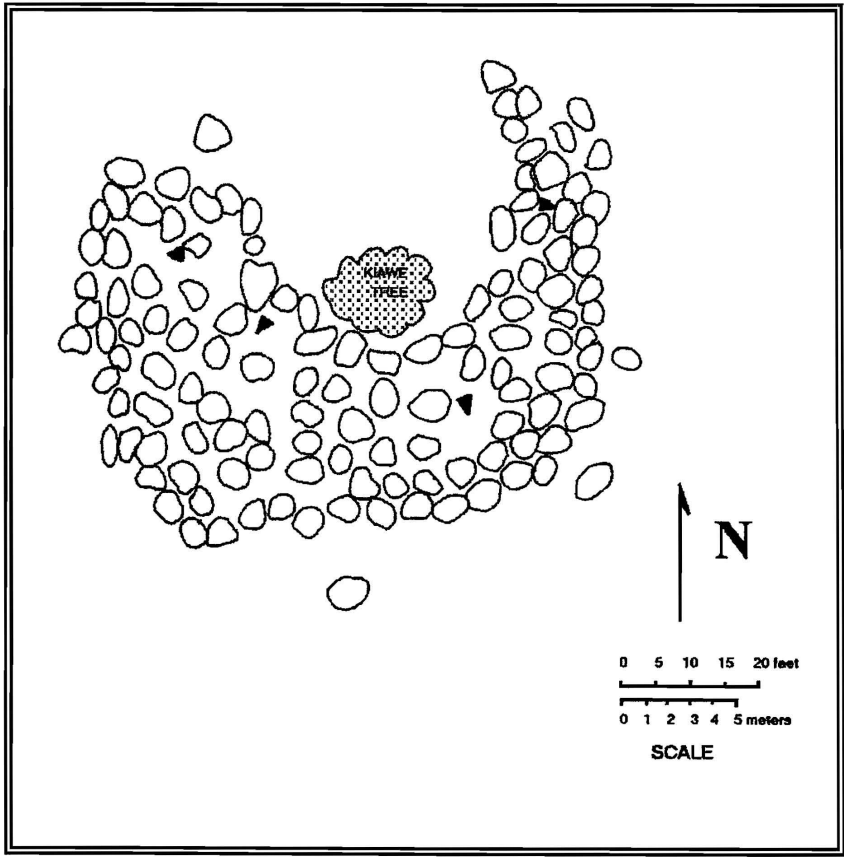


FIGURE 11 - (no assigned number) -- Plan view of bulldozed terrace.

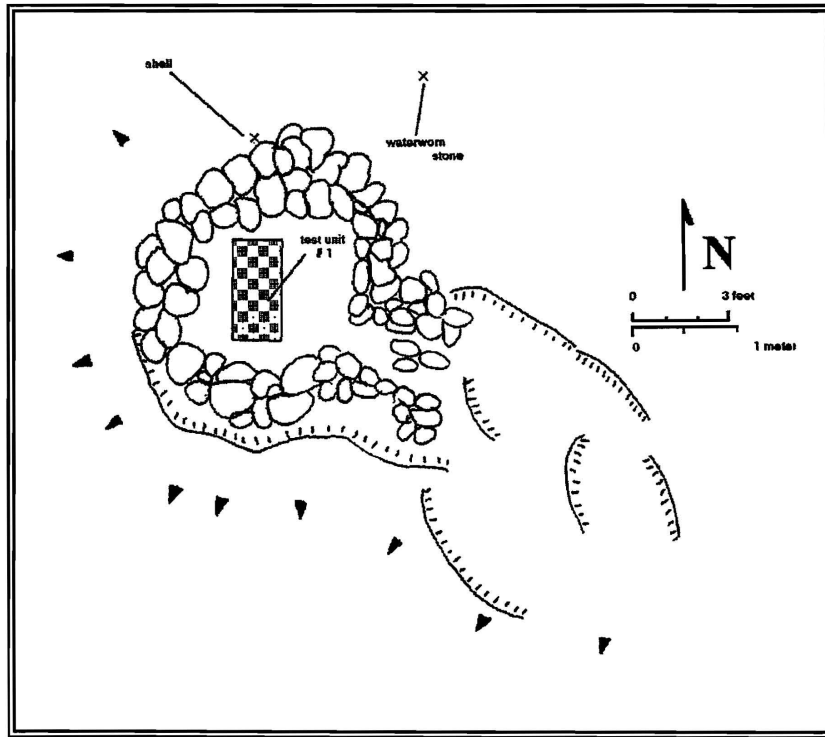


FIGURE 12 - Site 3735 -- Plan view: Stone Enclosure #1.

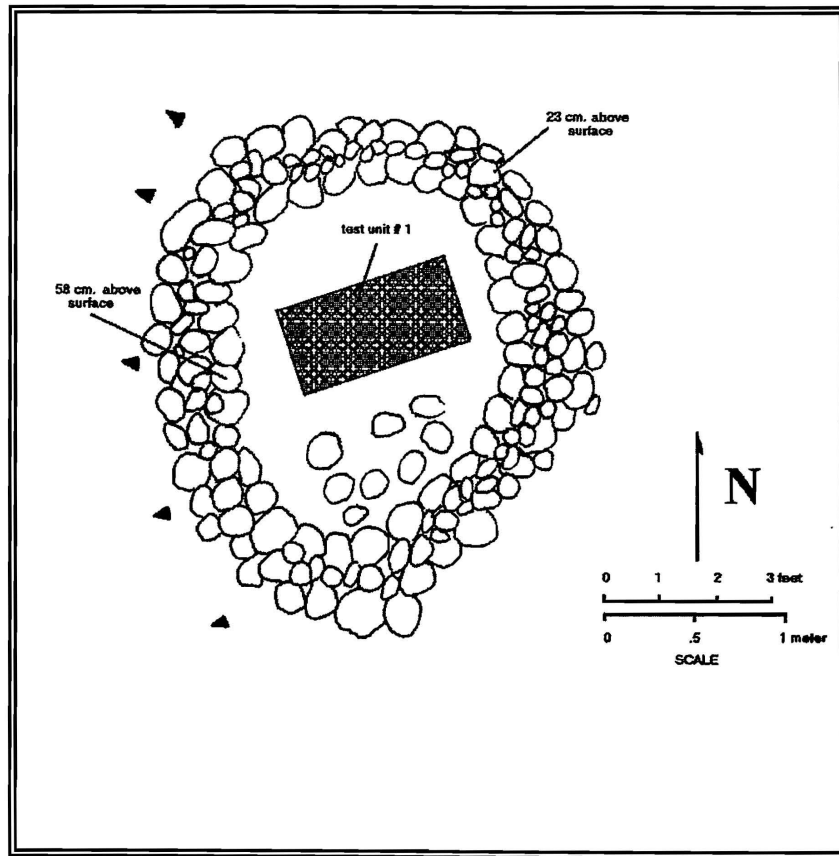


FIGURE 13 - Site 3736 -- Plan view: Stone Enclosure #2.

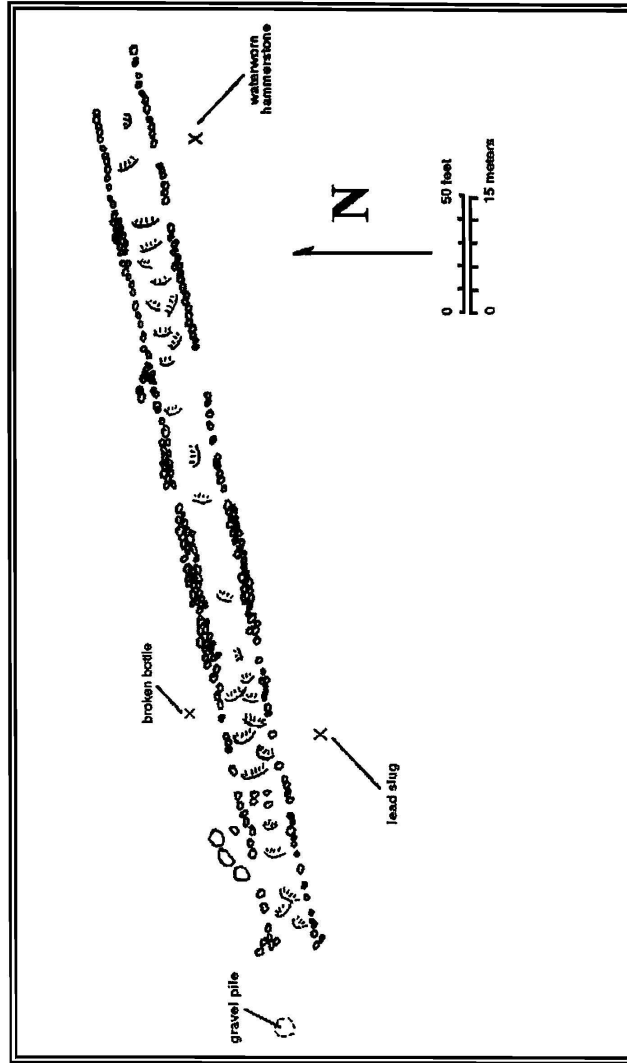


FIGURE 14 - Site 3737 -- Plan view: Stone Alignment #1.

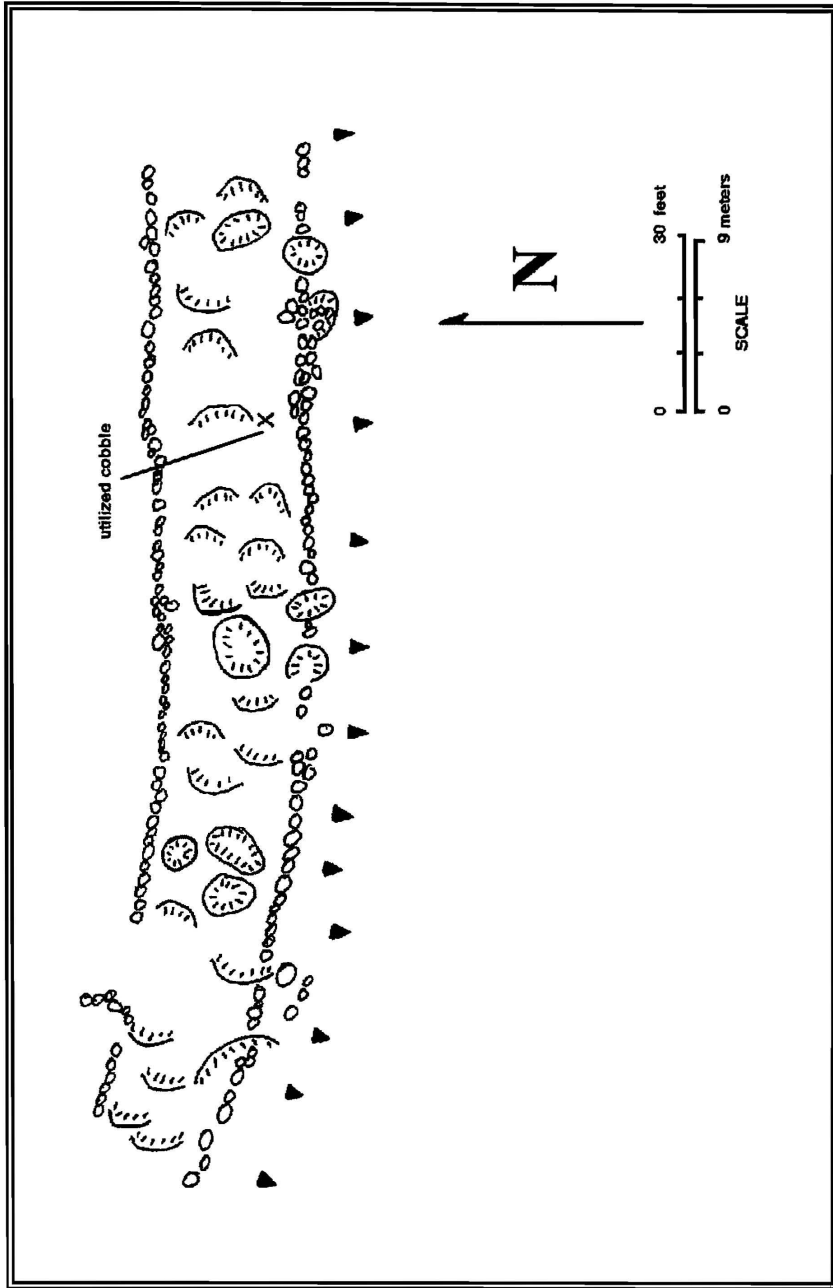


FIGURE 15 - Site 3738 - Plan view: Stone Alignment #2.

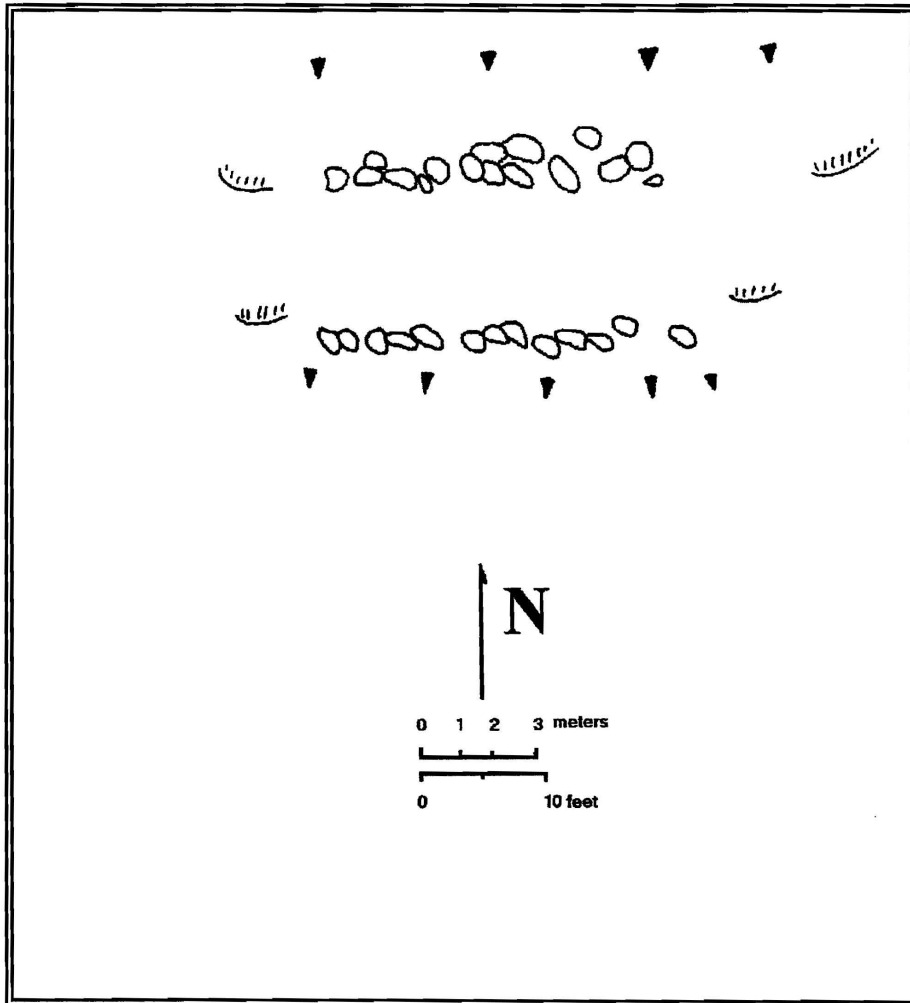


FIGURE 16 - Site 3739 – Plan view: Stone Alignment #3.

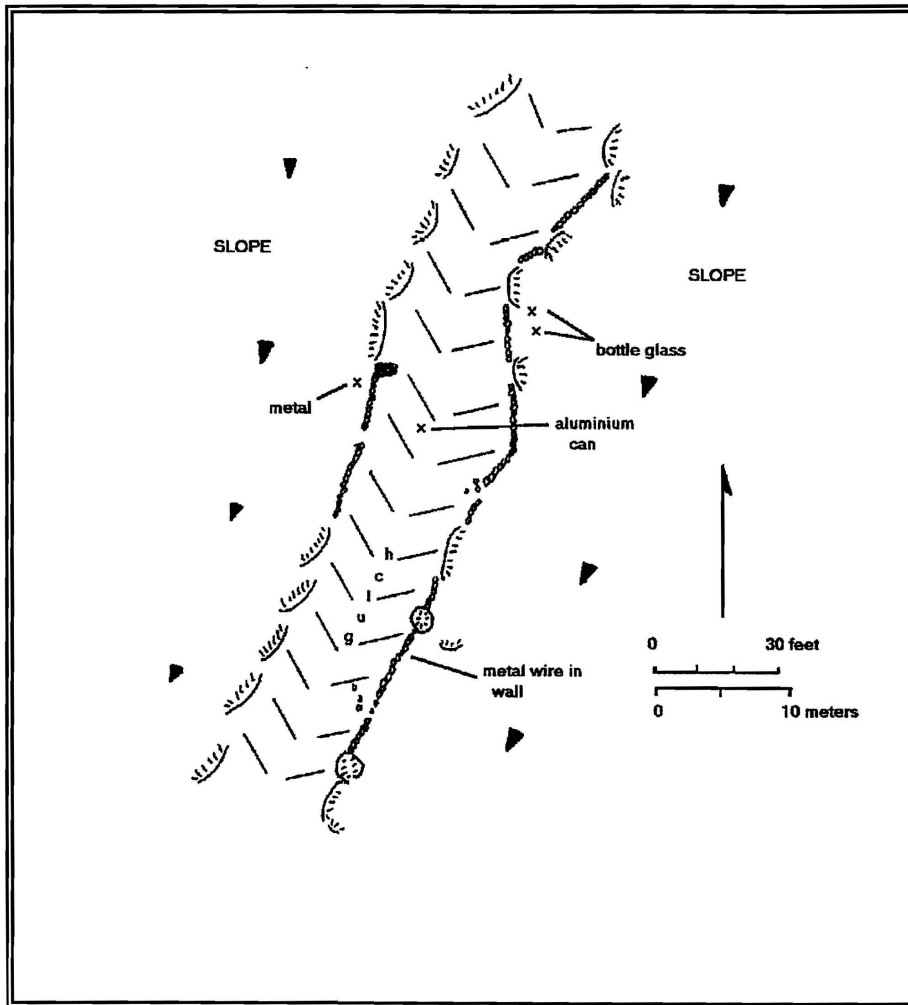


FIGURE 17 - Site 3740 – Plan view: Erosion containment wall system.

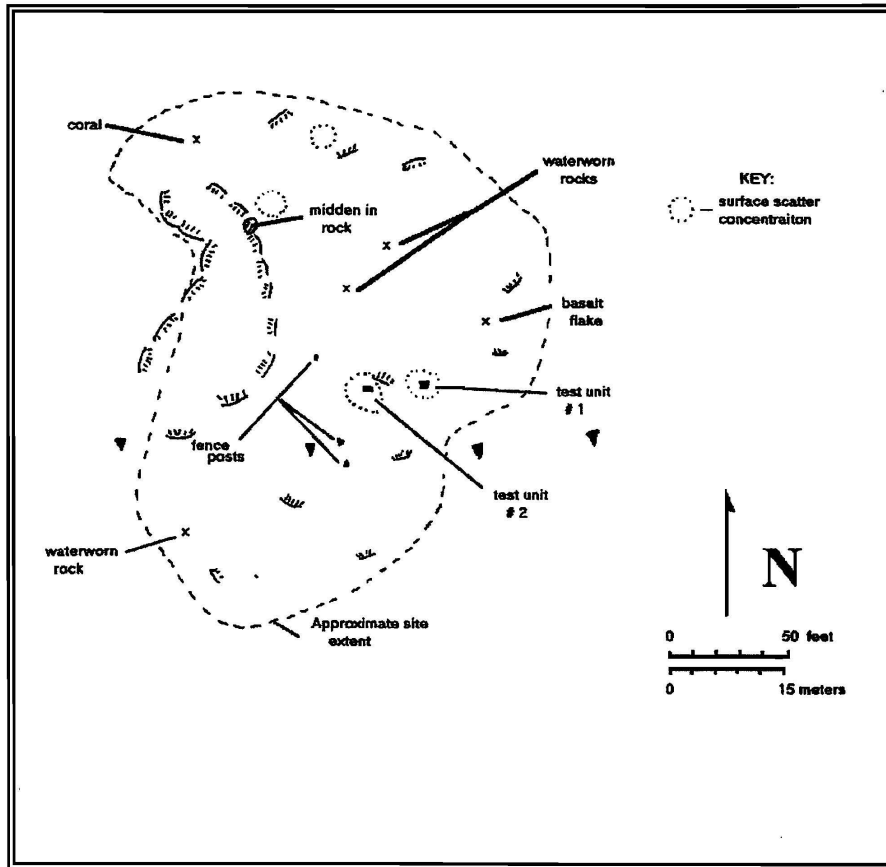


FIGURE 18 - Site 3741 -- Plan view: Surface scatter #1.

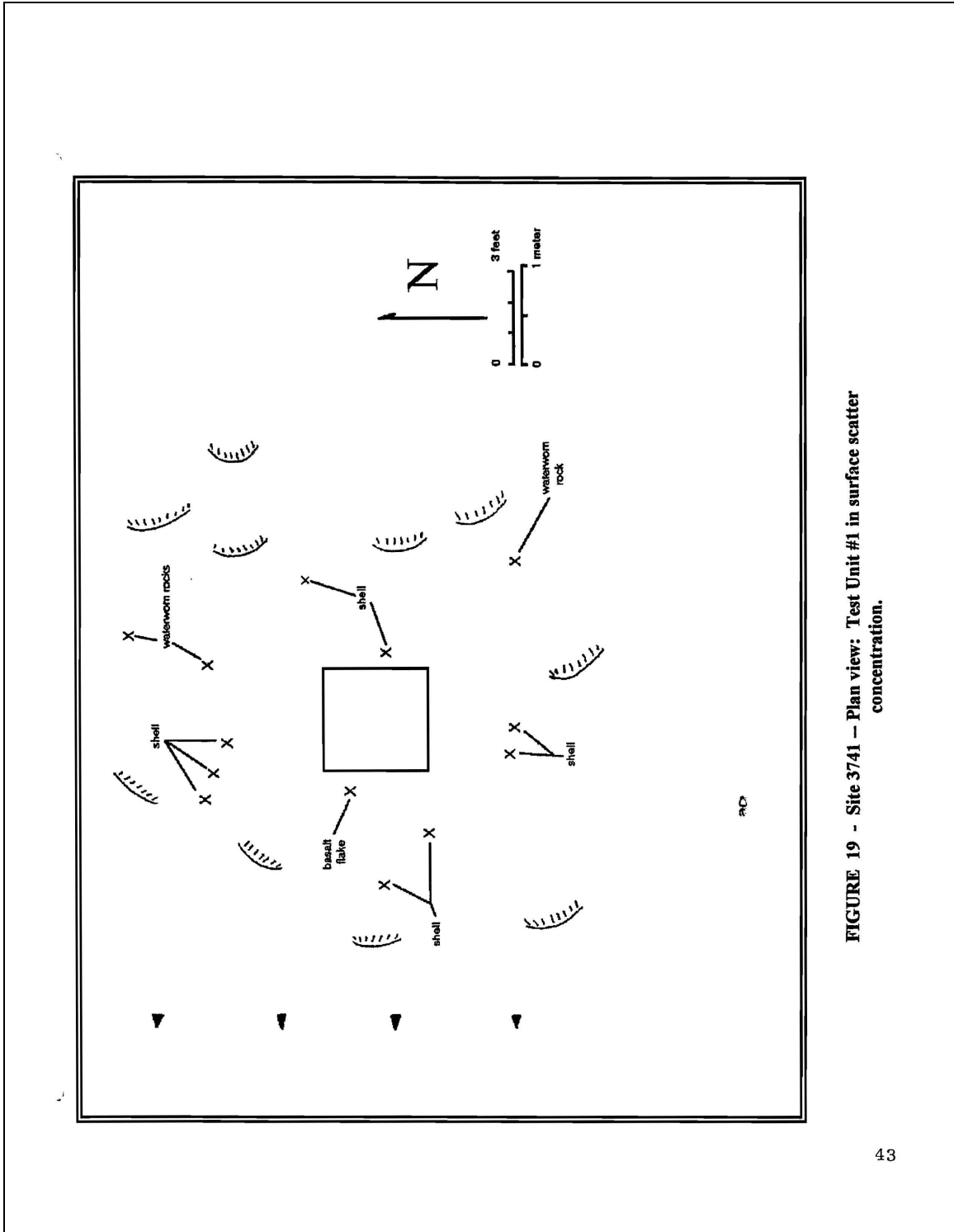


FIGURE 19 - Site 3741 - Plan view: Test Unit #1 in surface scatter concentration.

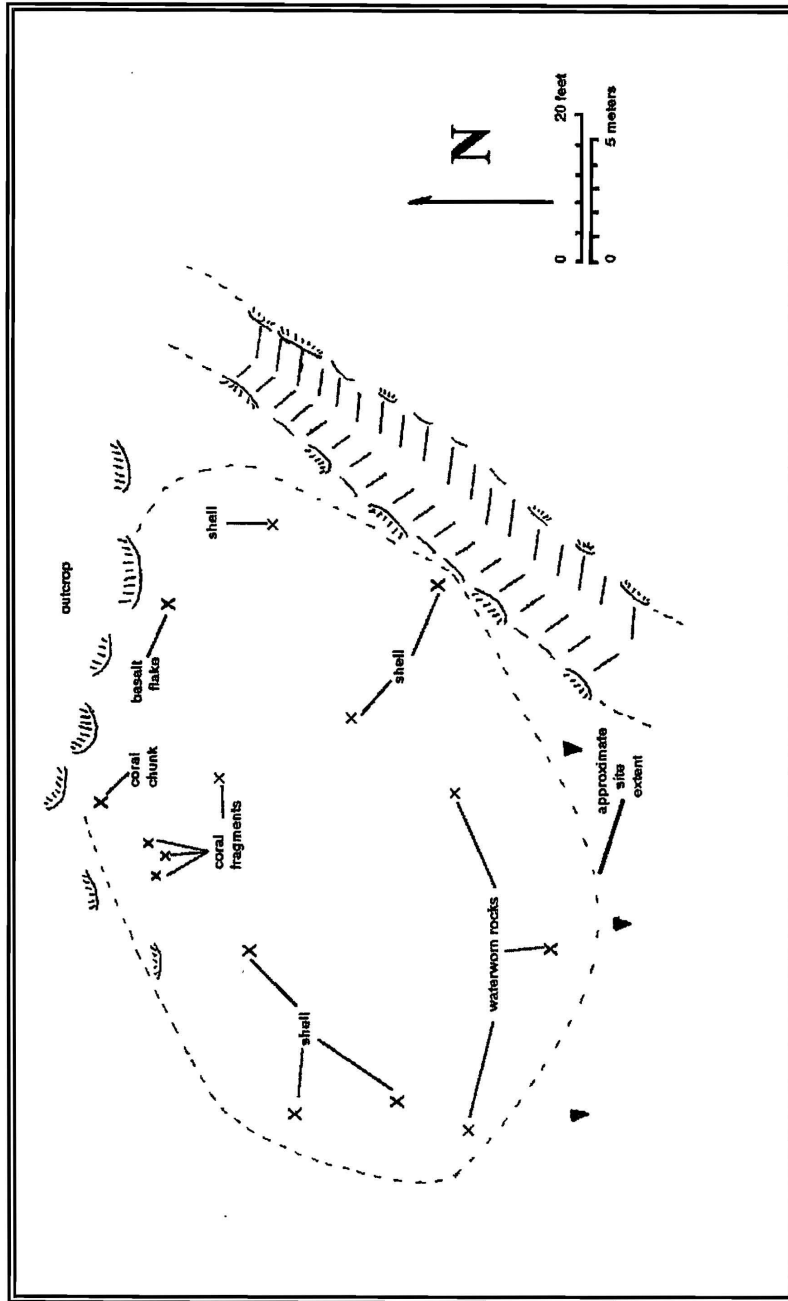


FIGURE 20 - Site 3742 -- Plan view: Surface scatter #2.

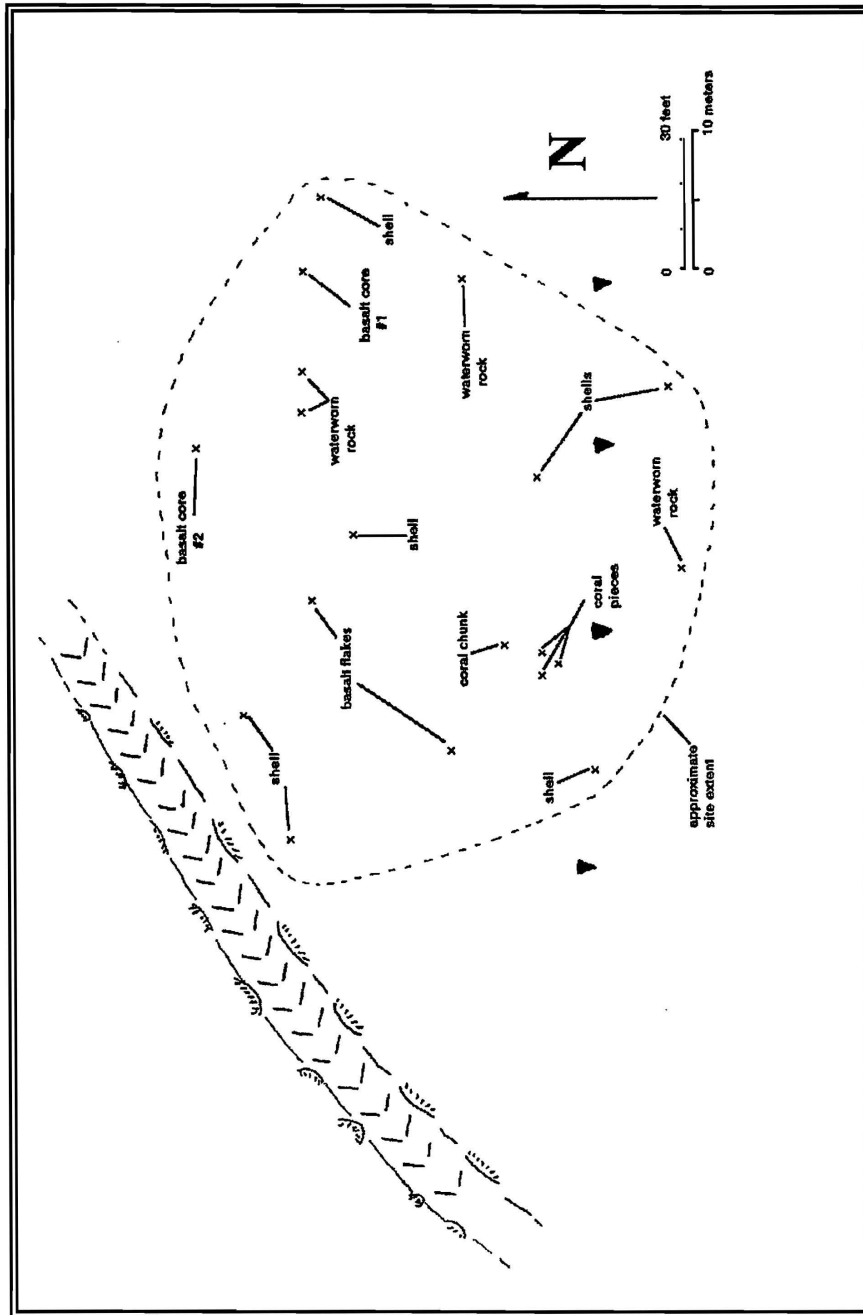


FIGURE 21 - Site 3743 -- Plan view: Surface scatter #3.

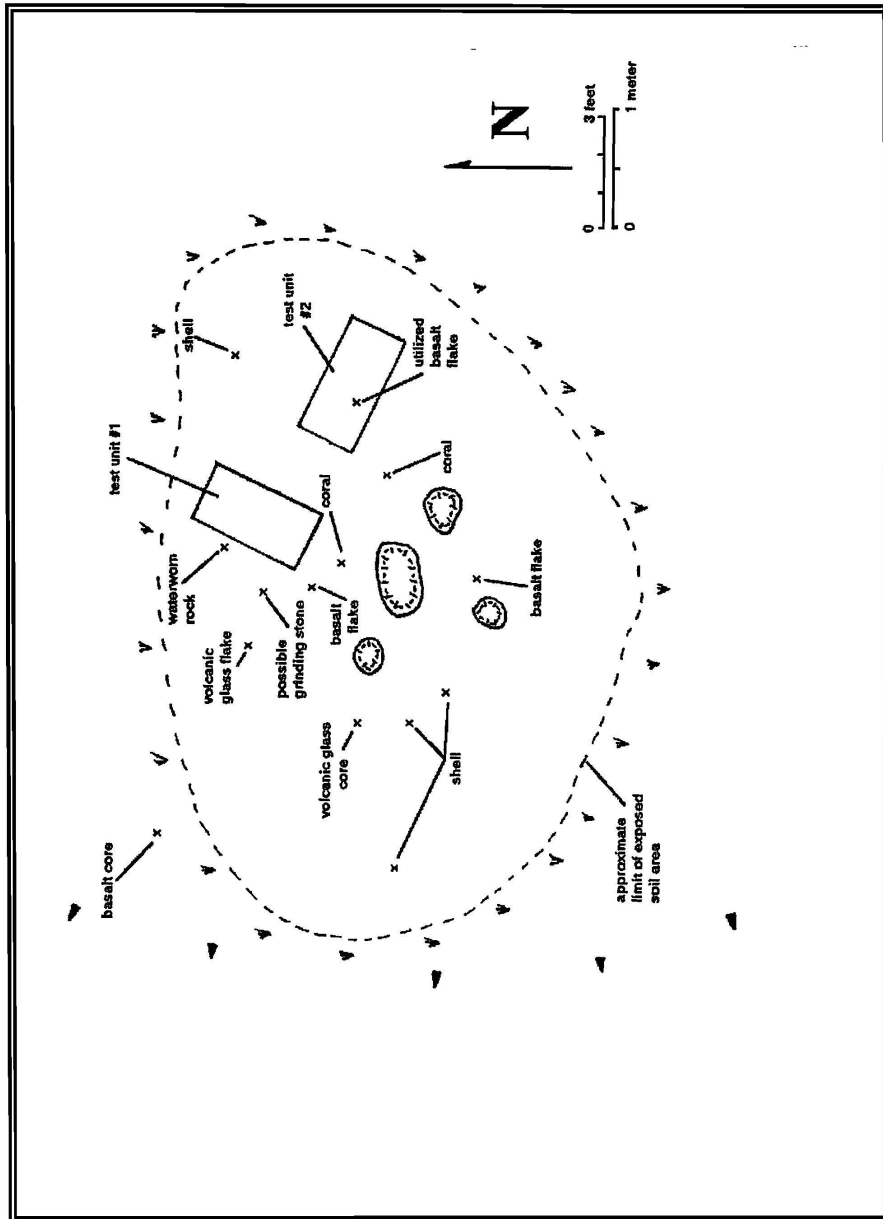


FIGURE 22 - Site 3744 - Plan view: Surface scatter #4.

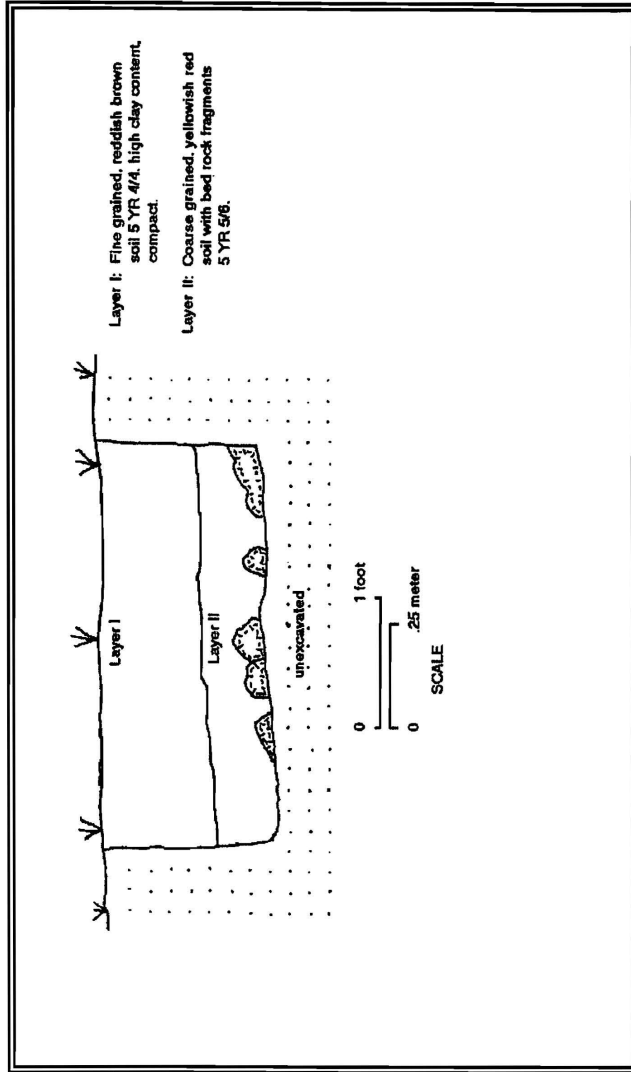


FIGURE 23 - Site 3744 -- Profile: West face of Test Unit #1.

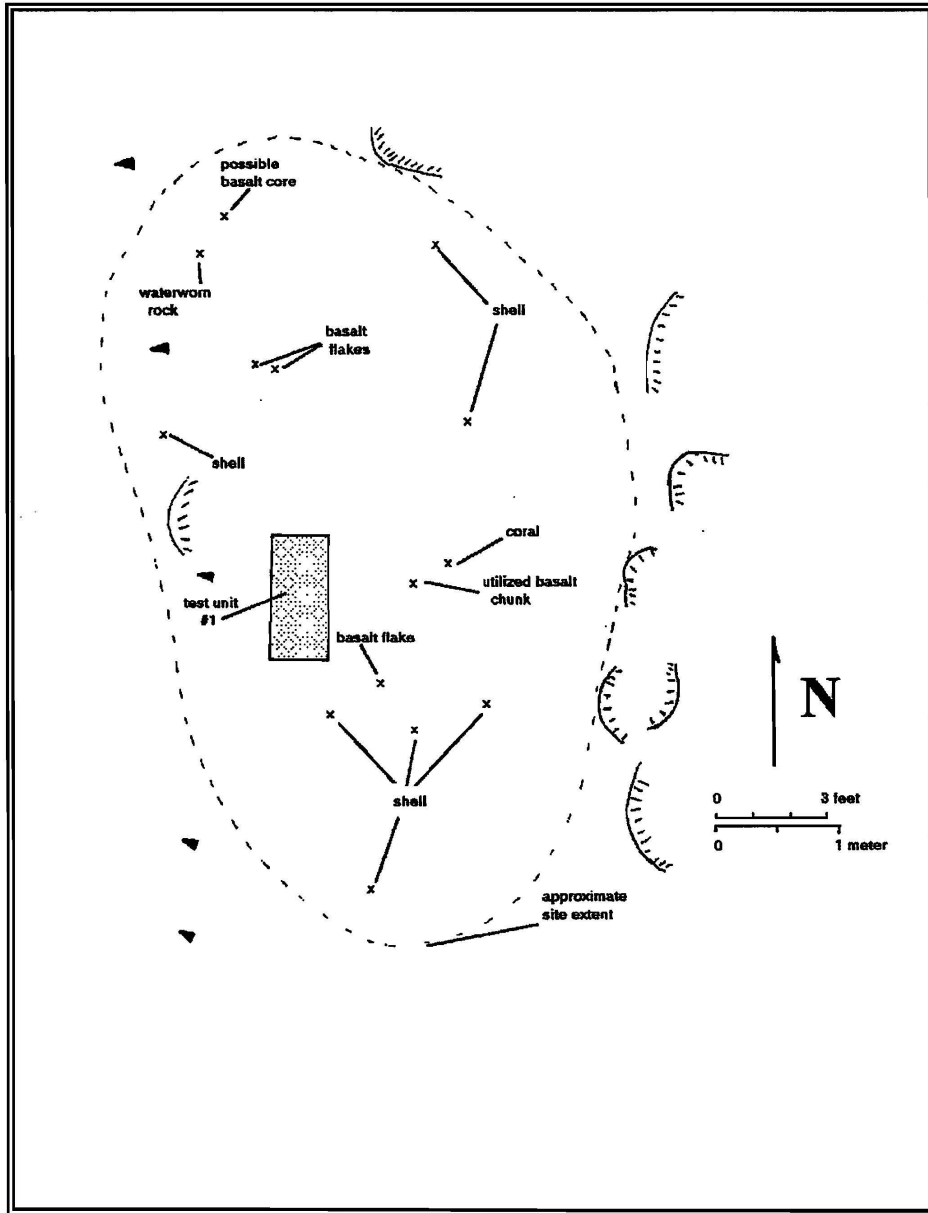


FIGURE 24 - Site 3745 – Plan view: Surface scatter #5.

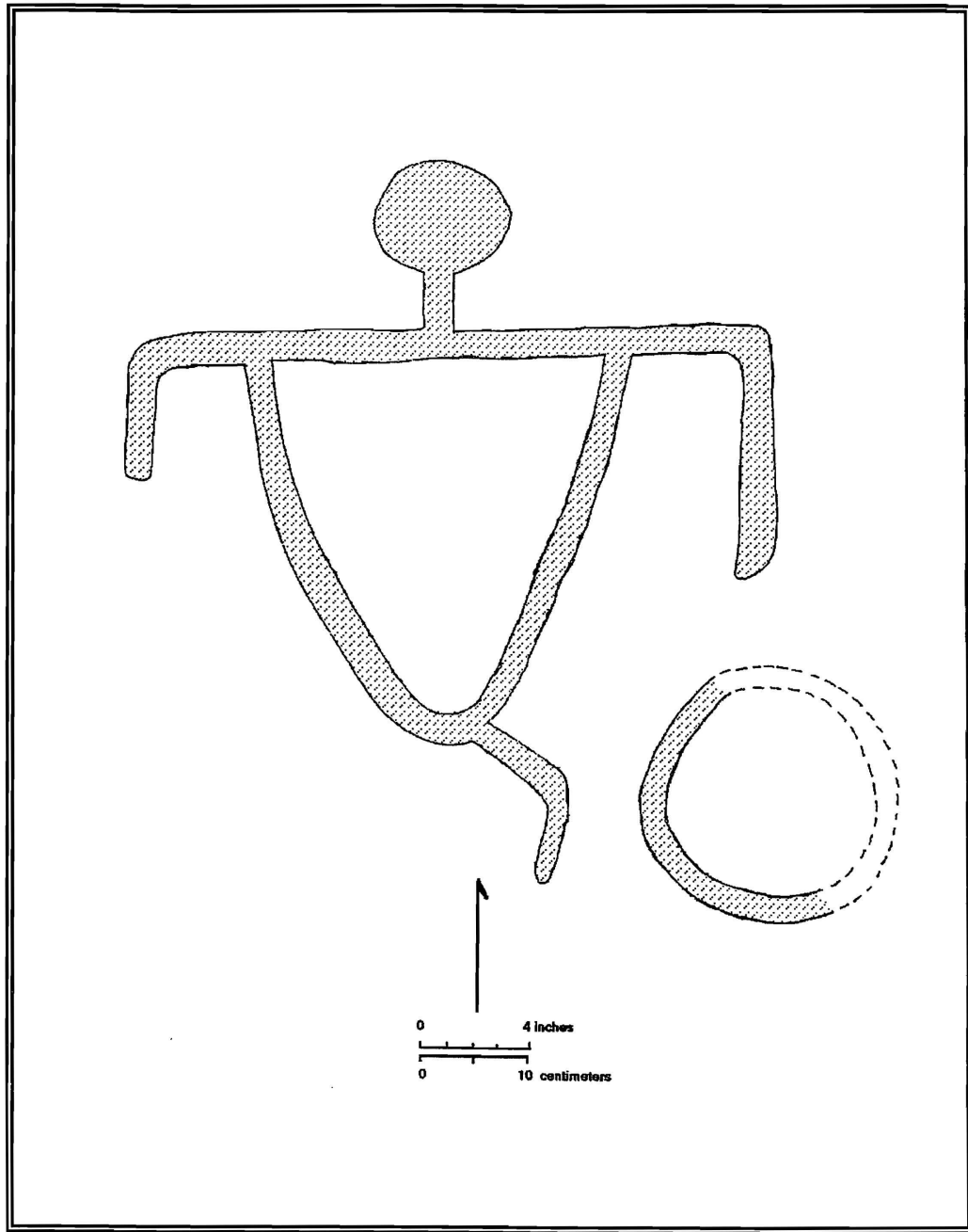


FIGURE 25 - Site 3746 -- Petroglyph pecked into large boulder.



PHOTO 1 - View to the east or *mauka* across the southern boundary of the project area. Portion of site 3738 in foreground.



PHOTO 2 - Large rock with drilled blasting hole to the north of Site 3737.



**PHOTO 3 - Site 3727 (Feature A)--vegetation removed prior to excavation.
View to the northeast.**



PHOTO 4 - Site 3728--vegetation removed, excavation completed.
View to the northeast.



**PHOTO 5 - Site 3729--vegetation removed prior to excavation.
View to the northwest.**



PHOTO 6 - Site 3729--vegetation removed, excavation completed.
View to the east or *manika*.



**PHOTO 7 - Site 3735--vegetation removed, excavation completed.
View to the south. Note cattle trail in foreground.**

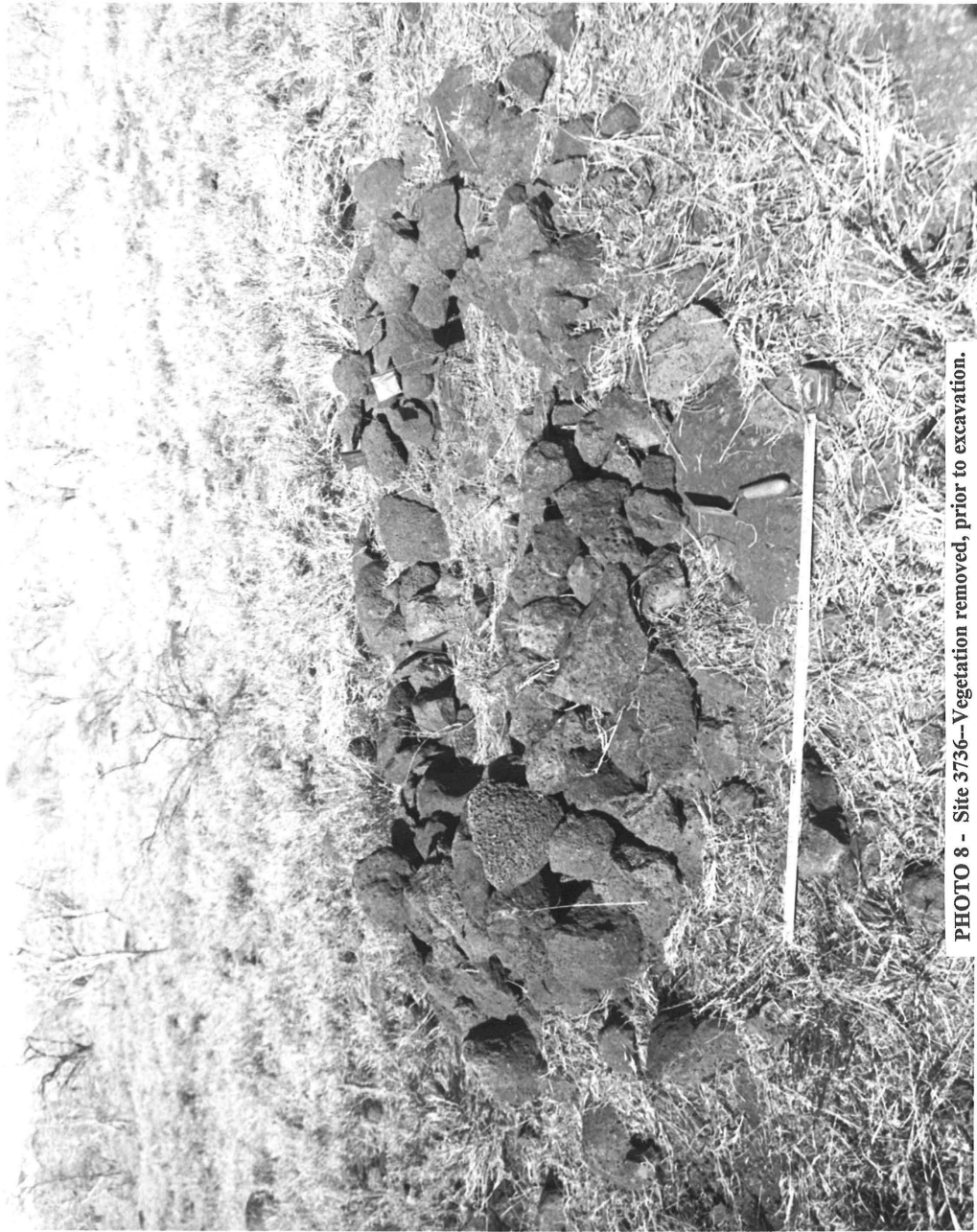


PHOTO 8 - Site 3736--Vegetation removed, prior to excavation.
View to the north.



PHOTO 9 - Site 3740--portion of Feature B. View to the east or *mauka*.



PHOTO 10 - Site 3744--excavation in process. View to the east or *mauka*.



PHOTO 11 - Site 3746--general view of northern face of petroglyph.

APPENDIX A

SITE DESCRIPTIONS

Site 50-10-3727 (Figure 1)

Type: Complex (3 Features)

Environmental Setting: Located on a gently sloping portion of the study area, south of a small gulch. Area of erosion and exposed bedrock. Area dominated by buffelgrass, few *kiawe*. Elevation c. 60 to 62 ft. AMSL.

Condition: Fair

Probable Age: Indeterminate

Function: Possible agriculture

Dimensions: 10.0 m. N-S by 10.0 m. E-W

Description: The site is comprised of three low, stone features (A-C). This site is c. 30 m. north of the Central Maui Transmission Waterline Easement #1. Past bulldozing from construction activity has occurred relatively near the site and may have destroyed possible associated features.

Feature A: Stone pile

Function: Possible clear pile

Dimensions: 2.23 m. N-S by 3.58 m. E-W by 0.42 m. height

Description: Feature A is elongated and rests on soil. Exposed bedrock is to the east of the site. Generally, rounded basalt cobbles comprising Feature A range from c. 20 to 50 cm. in diameter.

A 0.5 x 1.0 m. test excavation (Test Unit #1) was placed into Feature A. Soil deposits under the feature were thin (c. 8 to 11 cm.). Layer I (5 YR 4-5/4) soil was relatively fine textured, reddish red in color, and had a high clay content. It was c. 3 to 8 cm. thick. Layer II (5 YR 5/6) was more yellowish brown in color, with a grainy texture and included pieces of decayed bedrock. Both soil layers in Test Unit #1 were sterile. Soil appeared to be undisturbed.

Feature B: Stone pile

Function: Possible clear pile

Dimensions: 2.20 m. long by 1.22 m. wide by 0.38 m. height

Description: Feature B is elongated, and partially rests on bedrock. It is c. 2.25 m. southwest of Feature A. Basalt cobbles used in its construction are c. 20 to 45 cm. in diameter, and generally rounded.

Feature C: Stone pile

Function: Possible clear pile

Dimensions: 2.34 m. long by 1.33 m. wide by 0.41 m. height

Description: Feature B is elongated, and rests on partly exposed bedrock. It is c. 0.67 m. southwest of Feature B. Basalt cobbles used in its construction are c. 20 to 45 cm. in diameter.

Site 50-10-3728 (Figures 2 and 3)

Type: Stone pile

Environmental Setting: Located c. 36 m. southwest of Site 3727 and c. 30 m. south of small gulch. The land slopes gently to the west. Area of erosion and exposed bedrock. Vegetation consists of moderate buffelgrass and sparse *kiawe* trees. Elevation c. 56 ft. AMSL.

Condition: Good

Probable Age: Indeterminate

Function: Possible clear pile

Dimensions: 2.54 m. length by 1.32 m. width by 0.52 m. height

Description: The site consists of one isolated feature. This component is a low tear-shaped rock pile resting on soil. Angular basalt cobble stones used in construction range from 15 to 35 cm. in diameter. It is c. 42 m. northwest of the Central Maui Transmission Waterline Easement #1. Past bulldozing from construction activity associated with the waterline may have destroyed possible associated features.

One test unit (1.0 x 1.0 m.) was placed into this stone pile. Stratigraphy similar to Site 3727 was encountered. However, soil deposits were deeper. Layer I (5 YR 4-5/4) soil was fine textured, reddish brown in color, and had a high clay content. It was c. 14 to 21 cm. thick. Layer II (5 YR 5/6) was more yellowish red in color, with a grainy texture and included pieces of decayed bedrock. Excavation was halted at c. 25 to 36 cm. below datum. Both soil layers in Test Unit #1 were sterile. Soil appeared to be undisturbed.

Site 50-10-3729 (Figures 4 and 5)

Type: Stone cairn

Environmental Setting: Located on a slight promontory on a relatively gently sloping area of Ranch land. Area of slight erosion and some exposed bedrock. Vegetation dominated by buffelgrass, several *kiawe* trees in vicinity. Elevation c. 78 ft. AMSL.

Condition: Good

Probable Age: Indeterminate

Function: Marker

Dimensions: 1.91 m. N-S by 1.45 m. E-W by 0.90 m. height

Description: The site consists of one isolated cairn. This component is well constructed and rests on soil. It is constructed with relatively round basalt cobbles ranging from 20 to 50 cm. in diameter. Larger basalt rocks were generally located at the base of this feature. This site is c. 76 m. southeast of the waterline easement, and c. 130 m. southwest of Site 3727.

One test unit (0.5 x 1.0 m.) was placed into this cairn. Much of the feature was dismantled for safety reasons, prior to excavation. Stratigraphy was similar to both Sites 3727 and 3728. Layer I (5 YR 4/4) soil was fine textured, reddish brown in color, with a high clay content. It was slightly more granular than Layer I at Sites 3727 and 3728. It was c. 18 to 23 cm. thick. Layer II (5 YR 4/6) was yellowish red in color, with a grainy texture and included pieces of decayed bedrock. Excavation was halted c. 30 to 36 cm. below surface. Soil appeared to be undisturbed. This excavation unit was sterile.

Site 50-10-3730 (Figure 6)

Type: Stone cairn

Environmental Setting: Located in an area somewhat impacted by erosion. Land slopes moderately to the west or *makai*. Exposed bedrock in several areas. Vegetation dominated by buffelgrass, scattered *kiawe* trees and klu in vicinity. Elevation c. 75 ft. AMSL.

Condition: Good

Probable Age: Indeterminate

Function: Marker

Dimensions: 1.35 m. N-S by 1.09 m. E-W by 0.84 m. height

Description: The site consists of a stack of c. 16 basalt stones and cobbles c. 15 to 25 cm. in diameter, placed on outcrop bedrock. While its overall height is 0.84 m. above ground surface, the cairn itself is c. 0.43 m. high. This site is c. 70 m. south of Site 3729.

Site 50-10-3731 (Figure 7)

Type: Stone cairn

Environmental Setting: Located on a moderate slope, near relatively large area of exposed bedrock. Vegetation dominated by thick buffelgrass and several *kiawe* trees. Elevation 95 ft. AMSL.

Condition: Good

Probable Age: Post-Contact

Function: Marker

Dimensions: 1.71 m. N-S by 1.84 m. E-W by 0.79 m. height

Description: The site consists of a stack of c. 25 basalt cobbles c. 20 to 35 cm. in diameter, placed on exposed bedrock. While its overall height is 0.79 m. above ground surface, the cairn itself is c. 0.48 m. high. It is c. 100 m. east of Site 3730 and c. 112 m. southeast of Site 3729. One cobble used in construction exhibits a heavy equipment scar.

Site 50-10-3732 (Figure 8)

Type: Stone cairn

Environmental Setting: Located on a promontory near the eastern border of the study area. Much of the promontory consists of exposed bedrock. Vegetation consists of moderate to sparse buffelgrass cover, scattered *kiawe* trees, and isolated *pili* grass. Elevation 115 ft. AMSL.

Condition: Good
Probable Age: Indeterminate
Function: Marker

Dimensions: 0.67 m. N-S by 0.78 m. E-W x 0.30 m. height

Description: The site consists of a small stack of c. 14 basalt cobbles resting on thin, eroded soil. The cobbles range in size from 20 to 30 cm. in diameter. It is c. 98 m. southeast of Site 3731, and is near the property's eastern boundary. This cairn is on the highest portion of the southern half of the study area. A large coral chunk (see Table 1) was located c. 24 m. south of the cairn (see Table 1).

Site 50-10-3733 (Figure 9)

Type: Stone cairn

Environmental Setting: Located on gentle sloping terrain near the eastern boundary of the project area. Erosion has exposed areas of bedrock. Vegetation consists of buffelgrass, and scattered *kiawe* trees. Elevation 108 ft. AMSL.

Condition: Good to fair

Probable Age: Post-Contact

Function: Marker

Dimensions: 1.24 m. N-S by 1.43 m. E-W by 0.62 m. high

Description: The site consists of a relatively low cairn resting on thin soil. An old survey stake appears to have been incorporated into the cairns construction. Basalt cobbles range in size from 20 to 45 cm. in diameter. It is c. 46 m. northeast of Site 3732.

Site 50-10-3734 (Figure 10)

Type: Stone pile

Environmental Setting: Located on a somewhat eroded slope near the southern boundary of the study area. Grubbing and, possibly, blasting has disturbed the land c. 10 m. to the west. Vegetation consists of relatively thick buffelgrass and isolated *klu* and *kiawe*. Elevation 51 ft. AMSL.

Condition: Poor to fair

Probable Age: Indeterminate

Function: Possible clear pile

Dimensions: 1.68 m. by 2.18 m. E-W by 0.38 m. high

Description: The site consists of a low rock pile resting on very thin soil and bedrock. Angular basalt stones and cobbles c. 10 to 35 cm. in diameter from the feature. Some stones and cobbles incorporated in the feature appear to have been broken in the past and exhibit only slight weathering. This feature is c. 38 m. from the nearest archaeological site (3736).

No Site Number Assigned (Figure 11)

Type: Bulldozed terrace

Environmental Setting: Located on the eastern side of the waterline easement on the southwestern quadrant of the study area. Terrain slopes moderately to the west. Area bulldozed. Vegetation comprised of moderate buffelgrass cover and scattered *kiawe* trees. Elevation 54 ft. AMSL.

Condition: N/A

Probable Age: Modern

Function: N/A

Dimensions: 20 m. N-S by 25 m. E-W

Description: This non-numbered site is the result of activities associated with the construction of the Central Maui Transmission Waterline Easement #1 in the 1960s. Large boulders c. 0.8 to 1.1 m. in diameter make up this modern feature.

Site 50-10-3735 (Figure 12)

Type: Enclosure

Environmental Setting: Located on a promontory. Terrain slopes moderately to the west. Kulanihakoi Gulch is directly to the south. Area of erosion and exposed bedrock. Some possible grubbing to the west and northeast. Cattle trail runs in a E-W direction, immediately north of enclosure. Vegetation comprised of thin buffelgrass cover and scattered *kiawe*.

Condition: Fair to good

Probable Age: World War II

Function: Military

Dimensions: 2.76 m. N-S by 3.14 M. E-W x 0.51 m. maximum height

Description: The site consists of a low stone enclosure resting on thin soil and bedrock. This mushroom-shaped feature is on a promontory and faces westward or *makai*. It is somewhat roughly constructed with basalt stones and cobbles ranging from 10 to 40 cm. in diameter. In addition, five larger cobbles (c. 50 to 70 cm. in diameter) are incorporated into portions of the feature. Many of the cobbles used in this enclosure exhibit few signs of weathering. There are also several rocks that appear to have been broken and/or scraped by heavy equipment prior to being incorporated into the structure.

The inside diameter of this enclosure is c. 1.5 m. in diameter. Its walls are c. 50 to 65 cm. thick and tend to be two courses high. The feature ranges in height from 35 to 51 cm. above ground surface. An entrance c. 40 to 55 cm. wide is located on the southeastern site of the enclosure.

A 0.5 x 1.0 m. test unit, oriented to the north, was placed inside the feature. Soil encountered in the interior tended to be relatively shallow. Stratigraphy was similar to other areas of the project. Layer I soil was reddish brown in color (5 YR 4-5/4), with a compact, fine-grained texture and a relatively high clay content. Layer I also contained some small angular gravel in it. Layer II soil was a coarse grained, yellowish red soil (5 YR 4/6), with small pieces of decayed bedrock. Layer I was c. 6 to 9 cm. thick, while Layer II was c. 3 to 5 cm. thick. No material culture remains were discovered.

Site 50-10-3736 (Figure 13)

Type: Enclosure

Environmental Setting: Located on a slight promontory. Terrain slopes moderately to the west. Some erosion in general area. Grubbing and, possibly blasting has occurred west of the site. Vegetation comprised of moderate buffelgrass cover and scattered *kiawe* trees and some klu. Elevation 59 ft. AMSL.

Condition: Fair

Probable Age: Pre-Contact (?)

Function: Possible shelter

Dimensions: 2.85 m. N-S by 2.56 m. E-W by 0.58 m. maximum height

Description: The site consists of a low stone enclosure resting on thin soil. It is c. 105 m. northwest from Site 3735. This oval-shaped enclosure is constructed with angular basalt cobbles ranging from 10 to 40 cm. in diameter. Some of the rocks used in this enclosure exhibit little weathering. Several of the cobbles appear to have been broken, possibly by blasting.

The inside diameter of this enclosure is c. 1.9 m. N-S by 1.5 m. E-W. Portions of the structure have been partly collapsed - possibly by cattle. The feature's wall is c. 40 to 55 cm. thick and ranges from a low of 23 cm. to a high of 58 cm. above ground surface.

A 0.5 x 1.0 m. test unit was placed inside the feature. Soil encountered in the interior was shallow. Stratigraphy was similar to other portions of the study area. Layer I was c. 8 to 10 cm. thick, while Layer II was 3 to 5 cm. thick. Bedrock was intrusive in portions of Test Unit #1. In addition, soil was generally rocky. No material culture remains were discovered. Layer I soil was reddish brown in color (5 YR 5/4), somewhat compact, fine grained in texture, with a high clay content. Layer II soil was course grained, yellowish red in color (5 YR 4/6), with small pieces of decayed bedrock.

Site 50-10-3737 (Figure 14)

Type: Parallel alignment

Environmental Setting: Located in an eroded area near southern boundary of Ranch property. Exposed bedrock present. Blasting has occurred north of feature and possible grubbing in general are. Vegetation comprised of sparse to moderate buffelgrass cover, *kiawe* trees, and scattered klu. Elevation 69 to 79 ft. AMSL.

Condition: Fair

Probable Age: c. World War II

Function: Military road

Dimensions: 8 m. N-S by 119 m. E-W

Description: The site consists of two parallel stone alignments c. 6 m. apart. The southern alignment is c. 122 m. long and the northern alignment is c. 114 m. long. Both alignments are primarily constructed with large basalt cobbles and boulders c. 0.6 to 1.0 m. in diameter. Several of the basalt boulders used in the feature exhibit weathered heavy equipment scars. In general, both alignments consist of single, large cobbles and boulders placed linearly along a bearing of 81 degrees. Much of the area between the two parallel

alignments consists of exposed bedrock. A c. 1.0 m. diameter gravel pile is located at the western end of this site. A few portable remains were found near the site (see Table 1).

Site 50-10-3738 (Figure 15)

Type: Parallel alignment

Environmental Setting: Located near the southern boundary of the study area at the edge of Kulanihakoi Gulch. Some exposed bedrock present. Area of erosion.

Vegetation composed of moderate to thick buffelgrass cover and *kiawe* trees. Elevation 67 ft. AMSL.

Condition: Fair

Probable Age: World War II

Function: Military road

Dimensions: 8 m. N-S by 58 m. E-W

Description: This site is c. 46 m. south of Site 3737. It also consists of two parallel stone alignments c. 6 m. apart. Both alignments consist primarily of a series of large (c. 0.6 to 1.0 m. diameter), single cobbles and boulders placed linearly and parallel to the curving edge of the Kulanihakoi Gulch. The southern alignment is c. 61 m. long, while the northern alignment is c. 46 m. in length. An additional alignment segment c. 8.8 m. long is some seven meters to the west of the northern alignment. This appears to have been severed from the longer alignment with a bulldozer. Some boulders utilized in the construction of Site 3738 exhibit heavy equipment scars. Much of the area between the parallel alignments is exposed bedrock. A utilized cobble was found near the eastern end of this site (see Table 1).

Site 50-10-3739 (Figure 16)

Type: Parallel alignment

Environmental Setting: Located near the base of a promontory on a moderate to gentle sloping bank of Kulanihakoi Gulch. Some exposed bedrock present. Area of bulldozing to the west. Vegetation comprised of moderate buffelgrass cover and scattered *kiawe* trees. Elevation c. 49 ft. AMSL.

Condition: Poor

Probable Age: World War II (?)

Function: Military road remnant (?)

Dimensions: 5.7 m. N-S by 9.8 m. E-W

Description: This site is c. 76 m. west of Site 3738 and c. 30 m. southwest of Site 3735. Site 3739 consists of two relatively short, parallel alignments c. 3 m. apart. Both alignments consist of relatively large basalt cobbles (c. 30 to 60 cm. diameter) placed in a linear manner. The northern alignment is c. 9 m. long, while the southern one is 9.8 m. long. Two of the feature's rocks have what appear to be heavy equipment scars. No portable remains were located in the vicinity.

Site 50-10-3740 (Figure 17)

Type: Erosion containment walls

Environmental Setting: Located near the northern boundary of the study area on either side of a relatively small gulch. Gulch is c. 4 m. deep by 20 m. wide. Exposed bedrock and "blue rock" in area. Extensive bulldozing to northwest of the gulch, grubbing and apparent blasting to the east of the site. Vegetation comprised of thick buffelgrass, relatively abundant *kiawe* trees and some klu. Elevation c. 96 to 105 ft. AMSL.

Condition: Fair to good

Probable Age: Post-Contact

Function: Ranching

Dimensions: West wall - 11.0 m. N-S by 0.5 to 1.1 m. E-W. East wall 44.0 m. N-S by 0.5 to 0.8 m. E-W

Description: This site is located along either side of the small gulch that crosses the study area. It is c. 130 m. south of the northern project boundary. The west retaining wall is generally well built, and ranges in height on the gulch side from 0.5 to 0.7 m. above ground surface. The wall on the eastern back of the gulch is tumbled down in places due to erosion and, possibly cattle activity. This wall generally does not extend onto exposed bedrock. It is c. 0.6 to 0.9 m. in height on the gulch side. Both walls are constructed with relatively dense "blue rock", some of which exhibits heavy equipment scars. Cobbles range in size from 20 to 45 cm. in diameter. Some wire was observed in one portion of the eastern wall. Historic material noted in the area included metal, bottle glass fragments, an aluminum can, and metal wire.

Site 50-10-3741 (Figures 18 and 19)

Type: Midden and Lithic Surface Scatter

Environmental Setting: Located near the middle of western boundary of property. At the base of a moderate slope, portions of which appear to have been bulldozed. Exposed bedrock and outcrop are in vicinity. Area of erosion and deposition from upslope. Vegetation comprised of sparse to moderate buffelgrass cover, scattered *kiawe* trees, and isolated clumps of *pili* grass. Elevation c. 59 to 63 ft. AMSL.

Condition: Fair, eroded

Probable Age: Pre-Contact

Function: Temporary habitation

Dimensions: c. 68 m. N-S by c. 48 m. E-W

Description: This large midden and lithic surface scatter is located c. 53 meters from the western boundary of the subject parcel. Three fence posts cross a portion of Site 3741 on a bearing of 164 degrees. Surface finds included three unworked basalt flakes, four waterworn rocks, and two pieces of coral (see Table 1). In general, marine shellfish remnants are sparsely scattered over the site. Species represented on the surface are the same as those found in Test Units #1 and #2 (see Table 2).

Test Unit #1 was 1.0 x 1.0 m. square. Excavation was halted at c. 18 to 23 cm. b.s. when decayed bedrock was encountered. Stratigraphy was similar to other subsurface tests. However, the top c. 10 cm. of Layer I had been churned by cattle crossing the site over time. Layer I (5 YR 4-5/4) soil was fine textured reddish brown in color, with a relatively high clay content. It was c. 13 to 16 cm. thick. In all, eight different marine shellfish species were found in the top 10 cm. of Layer I (see Table 2). In addition, a utilized basalt flake was recovered from this layer. Layer II was c. 5 to 7 cm. thick. It was yellowish red in color (5 YR 4/6), with a grainy texture, and included pieces of decayed bedrock. Layer II soil was sterile.

Test Unit #2 was 0.5 x 1.0 m. in size. Excavation was halted at c. 11 to 14 cm. b.s. Stratigraphy was similar to Test Unit #1. However, Layer I was only c. 7 to 9 cm. thick. Most of Layer I was disturbed by cattle activity. Layer II was relatively intact. Two species of shellfish, one dense waterworn rock, and one piece of coral were located in Level 1 (0 to 10 cm. b.s.) of Layer I (see Table 2).

Site 50-10-3742 (Figure 20)

Type: Midden and lithic surface scatter

Environmental Setting: Located directly north of small gulch, near western property boundary. Area of exposed outcrop, very thin soil. Gentle sloping terrain. Vegetation comprised of sparse buffelgrass, *kiawe* trees common next to gulch. Elevation c. 48 to 52 ft. AMSL.

Condition: Poor, eroded

Probable Age: Indeterminate

Function: Possible temporary habitation

Dimensions: 21 m. N-S by 26 m. E-W

Description: This midden and lithic surface scatter is located c. 54 m. south of Site 3741 and c. 52 m. from the western boundary of the survey area. This is a very sparse surface scatter with very shallow soil deposits. Only two types of shell were observed in the site area: Conidae and Cypraeidae. Approximately eight pieces of shell were observed. Other surface portable remains included and unworked basalt flake, three waterworn rocks, a coral chunk, and four pieces of coral (see Table 1).

Site 50-10-3743 (Figure 21)

Type: Midden and lithic surface scatter

Environmental Setting: Located to the south of small gulch, near western property boundary. Area eroded, exposed bedrock, thin soil. Gentle sloping terrain. Vegetation comprised of moderate buffelgrass cover, and isolated *kiawe* trees and *klu*.

Condition: Poor, eroded

Probable Age: Pre-Contact

Function: Possible temporary habitation

Dimensions: 42 m. N-S by 52 m. E-W

Description: Midden and lithic surface scatter which included c. 25 pieces of the shellfish Conidae, Cypraeidae and Neritidae, and lithic materials consisting of two basalt cores, two unworked basalt flakes, four waterworn rocks, one coral chunk and three pieces of coral (see Table 1).

Site 50-10-3744 (Figures 22 and 23)

Type: Midden and lithic surface scatter

Environmental Setting: Located on a promontory at the base of a partly eroded slope. Some exposed bedrock in vicinity. Drainage area c. 20 m. to the north. Some possible bulldozing to north and west. Vegetation comprised of moderate buffelgrass cover and scattered *kiawe* trees. Elevation 60 ft. AMSL.

Condition: Fair, eroded

Probable Age: Pre-Contact

Function: Temporary habitation

Dimensions: 4.20 m. N-S by 6.10 m. E-W

Description: This small midden and lithic surface scatter is located c. 168 m. southeast of Site 3743. It is c. 105 m. north of the southern boundary of Ranch land. This site is relatively free of vegetation. Shellfish including Conidae, Cypraeidae and Neritidae were present on the surface. There were c. 10 pieces of shell observed. Collected portable surface remains included one utilized basalt flake, two unworked basalt flakes, one basalt core, one possible grinding stone fragment, one waterworn rock, one waste flake of volcanic glass, one volcanic glass core, one coral chunk, and one coral piece (see Table 1). Two test units, each 0.5 by 1.0 m. were excavated at this site.

Test Unit #1 was excavated to c. 30 to 35 cm. b.s. and was halted when bedrock was encountered. Stratigraphy was similar to Site 3741. The top c. 10 cm. of Layer I had also been churned by cattle crossing the site over time. Layer I (5 YR 4/4) soil was relatively fine textured, reddish brown in color, with a high clay content. It was c. 18 to 22 cm. deep. Two different species of marine shellfish were located in Level I (0 to 10 cm. b.s.) of this test unit (see Table 2). In addition, a utilized basalt flake was also recovered from Level 1. Layer II was c. 8 to 12 cm. thick. It was yellowish red in color (5 YR 4/6), with a grainy texture, and included pieces of decayed bedrock. Layer II was sterile.

Test Unit #2 was excavated to c. 22 to 25 cm. b.s. Stratigraphy was similar to Test Unit #1. However, Layer I was slightly thinner (14 to 18 cm.). Level 1 (0 to 10 cm. b.s.) of Layer I had also been somewhat churned by cattle movement. Cultural material was only located in Level 1. Portable remains included three unworked basalt flakes, one waterworn rock, and five pieces of coral (see Table 2). Layer II (5 YR 4/6) was c. 4 to 7 cm. thick, and no cultural material was recovered from the Layer II soil.

Site 50-10-3745 (Figure 24)

Type: Midden and lithic surface scatter

Environmental Setting: Located at the base of a low, eroded promontory on gently sloping terrain. Area of erosion and exposed bedrock. Vegetation comprised of

moderate to dense buffelgrass cover, *kiawe* trees common. Elevation 102 ft. AMSL.

Condition: Poor, eroded

Probable Age: Pre-Contact

Function: Possible temporary habitation

Dimensions: 7.0 m. N-S by 3.5 m. E-W

Description: This midden and lithic surface scatter is located c. 68 m. west of the eastern boundary of the project area. It is the most eastward or *mauka* of the surface scatter sites. This surface scatter is sparse, with shallow, eroded soil deposits. Shellfish observed include Conidae and Cypraeidae. Other surface portable remains included three unworked basalt flakes, one possible basalt core, one waterworn rock, one utilized basalt chunk, and one coral piece (see Table 1). One test unit 0.5 by 1.0 meter was excavated c. 12 to 15 cm. to decayed bedrock.

Test Unit #1 was sterile. Stratigraphy was similar to the other test units. Layer I (5 YR 4-5/4) was 7 to 9 cm. thick. While Layer II (5 YR 4/6) was 5 to 6 cm. thick. Layer I appeared to have been churned by cattle.

Site 50-10-3746 (Figure 25)

Type: Petroglyph

Environmental Setting: Located on gently sloping terrain. Area of erosion, with thin soil and some exposed bedrock. Drainage area c. 30 m. north.

Vegetation comprised of moderate buffelgrass cover, *kiawe* trees common. Elevation 99 ft. AMSL.

Condition: Fair, weathered rock surface

Probable Age: Pre-Contact

Function: Marker (?)/ Art (?)

Dimensions: On basalt boulder c. 1.10 m. high by 0.91 m. wide by 0.85 m. thick

Description: This petroglyph is pecked into a large weathered, somewhat porous rounded basalt boulder. The figure of a man is displayed on this boulder. Part of the figure's right leg appears to be missing or has weathered. In addition, a portion of a rounded object is depicted below the figure's left arm.

**APPENDIX B:
SHPD APPROVAL LETTERS**

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

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

GUY KAULUKUKUI
INTERIM FIRST DEPUTY

WILLIAM M. TAM
DEPUTY DIRECTOR - WATER

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

March 7, 2011

Ty Fukuroku, Civil Engineer
County of Maui, DPW-DSA
Via fax to: (808) 270-7972

LOG NO: 2011.0536
DOC NO: 1103MD05
Archaeology

Dear Mr. Fukuroku:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Grading & Grubbing Permit Application G 2011/0014, Piilani Promenade
Ka'ono'ulu Ahupua'a, Makawao & Wailuku Districts, Island of Maui
TMK: (2) 3-9-001:016, 170 & 171**

Thank you for the opportunity to comment on the aforementioned project, which we received on February 23, 2011. Our review is based on reports, maps and aerial photographs kept on file at the State Historic Preservation Division.

A search of our records indicates that an archaeological inventory survey of this parcel was conducted during the subdivision process of what was originally a larger parcel 016 (Xamanek 1994). That report documented twenty historic properties. Nineteen of the identified sites were determined significant for information content and SHPD concurred that no further work was required. One site (petroglyph) was removed from the original location and preserved at TMK (2) 2-2-006:009. During an earlier review of the proposed Ka'ono'ulu Ranch Large Lot Subdivision No. 2 in 2006, SHPD determined that there would be no effect to historic properties by the proposed subdivision. This proposed permit will entail mass grading of 88 acres, including significant deep cuts into the subsurface.

Given the above information, we recommend that an archaeological monitor be present during all ground-altering activities. We request that an archaeological monitoring plan be submitted to SHPD for review and approval pursuant to HAR §13-279. If you have questions about this letter please contact Morgan Davis at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Theresa K. Donham
Acting Archaeology Branch Chief
State Historic Preservation Division

cc: County of Maui, Department of Planning via fax to: (808) 270-7634
Maui County CRC, Department of Planning, 250 S. High Street, Wailuku, Hawaii 96793

1204

NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

WILLIAM J. AILA, JR.
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HISTORIC PRESERVATION
KAPOLEI ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 10, 2011

Robert Spear, Ph.D.
Scientific Consultant Services, Inc.
711 Kapiolani Blvd., Suite 975
Honolulu, Hawaii 96813

LOG NO: 2011.2060
DOC NO: 1108MD12
Archaeology

Dear Dr. Spear:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Monitoring Plan for the Pi'ilani Promenade South Project
Ka'ono'ulu Ahupua'a, Makawao District, Island of Maui
TMK: (2) 2-5-002:015 (por.) and 3-9-001:016**

This letter summarizes our review of the aforementioned plan (Chaffee and Dega July 2011; *An Archaeological Monitoring Plan for the Kaonoulu Marketplace Project Located in Kihei, Ka'ono'ulu Ahupua'a, Makawao District, Maui Island, Hawai'i* [TMK: 3-9-01:16 and (2) 2-2-002:015 por.]/SCS Project Number 1224 AMP-1), which we received on July 29, 2011.

The proposed project will involve grubbing, grading and development of 88 acres. A search of our records indicates that an archaeological inventory survey of this location was conducted (Xamanek Researches 1994). SHPD previously determined that a similar proposed project would have no effect in 2006, and more recently we recommended archaeological monitoring during a grubbing and grading permit review from Maui County (Log No. 2011.0536, Doc No. 1103MD05).

This plan is accepted as final pursuant to HAR §13-279-4. Please notify the Maui and Oahu offices via fax at the start and completion of archaeological monitoring. Upon receipt of this letter please submit one paper copy of your report marked Final to our Kapolei office along with a CD containing a searchable pdf version of the final report and a copy of this approval letter, marked to the attention of the Kapolei Library. If you have questions about this letter please contact me at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Morgan E. Davis
Lead Archaeologist, Maui Island Section
State Historic Preservation Division

APPENDIX C
COMMUNITY MEETING TRANSCRIPTS
25 February 2014

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Piilani Promenade Cultural Consultation Meeting
February 25, 2014

Transcribed by: Jessica R. Perry, CSR, RPR

1 Sarofim Realty Investors, Inc. hosted a Cultural
2 Consultation Meeting on February 25, 2014, from 6:00
3 p.m. to 8:00 p.m. at the offices of Goodfellow Bros.,
4 Inc., located at 1300 N. Holopono Street, Suite 201,
5 Kihei, Maui, Hawaii. In attendance were:

6 Charlie Jencks
7 Brett Davis
8 Eric Fredrickson
9 Kimokeo Kapahulehua
10 Kelii Taua
11 Mike Lee
12 Levi Almeida
13 Basil Oshiro
14 Sally Ann Oshiro
15 Clare Apana
16 Brian Nae`ole
17 Florence K. Lani
18 Daniel Kanahale
19 Jacob R. Mau
20 Lucienne deNaie

21 A copy of the sign-in sheet is attached as Exhibit A.
22
23
24
25

1 MR. JENCKS: Hi, everybody. Are we ready
2 to go, Mr. Audio/video?

3 MR. KINNIE: We're good to go.

4 MR. JENCKS: Good deal. Okay, thank you
5 all for coming. My name is Charlie Jencks. I'm the
6 owners representative for Piilani Promenade, which is
7 a project that you can see the land with dust control
8 fences in north Kihei. We are in the process of doing
9 an environmental impact statement, which as you all
10 probably know and understand involves a couple can of
11 things. One of those is a complete archaeological
12 inventory survey that we need to do for the project,
13 for the EIS.

14 Way back when, when the land was owned by
15 Mr. Henry Rice, he -- in the mid, early '90s, he hired
16 Zemanek to go out and do the archaeological survey
17 for the property. When we contracted with Chris Hart
18 & Partners, and Brett Davis is here from Chris Hart &
19 Partners, to do the AIS, I thought it would be best
20 and most efficient to have Zemanek redo the work as
21 an update from the AIS. So Eric's firm was hired and
22 Eric has completed a draft AIS that contains two of
23 the sheets that he's handing out right now.

24 The purpose of tonight's meeting is to,
25 number one, get a presentation from Eric on what was

1 found way back when and what we know about it today
2 and update it, because we have an updated AIS. And
3 number two, to take what he's going to tell you and
4 then have a discussion from a cultural perspective
5 what this property means to you and what you know
6 about the property, because what we'd like to do is
7 include that information as a part of the file when
8 they resubmit the AIS. The intent tonight is to
9 record video and audio. That information then will be
10 used to develop a transcript, which we will then
11 append to the AIS at some point in the future so the
12 file is complete.

13 You know, we've looked at the property
14 multiple times. I think it's decorum to ask you what
15 you think. I went to Lucienne and asked her who --
16 who should be invited to this meeting, and she came
17 up with a good list of people that I have (inaudible)
18 before and I think this should be a good discussion
19 and I look forward to it.

20 So without any further ado, may I present
21 to you Mr. Eric Fredrickson. We are going to go from
22 6:00 to 8:00, as is standard procedure here. If
23 you're going to speak, your name, so we know who it is
24 on the record so it's easy to transcribe. Remember
25 that, your name and then you talk. I said my name,

1 Charlie Jencks, so everyone knows who I am.

2 So, Eric, please, take it away.

3 MR. FREDRICKSON: Thank you, Charlie.

4 And hi, everyone. Thank you for coming. As Charlie
5 said, I'm Eric Fredrickson. I grew up on Maui and
6 have been doing archaeology for a long time. Does
7 everybody have a handout? There are a couple pages
8 that came out. Okay. (Inaudible).

9 What I'll do is before we get started, if
10 it's okay, if everybody would just say hi, I'm --
11 (inaudible) -- just to say hi. So I probably won't
12 remember everybody's name, but just at least so we can
13 all kind of say.

14 MS. DeNAIE: Hi, I'm Lucienne deNaie.

15 MR. LEE: Aloha, I'm Michael Kumukauoha
16 Lee.

17 MR. ALMEIDA: Aloha, Levi Almeida.

18 MR. OSHIRO: Basil Oshiro.

19 MR. KANAHELE: Daniel Kanahale.

20 MS. APANA: Clare Apana.

21 MS. OSHIRO: Aloha. Aunty Sally Oshiro.

22 MR. NAE`OLE: Aloha, Brian Nae`ole.

23 MS. LANI: Aloha, I'm Florence Kea`ala
24 Lani.

25 MR. MAU: Aloha. My name is Jacob Mau.

1 MR. KAPAHULEHUA: Aloha. Kimokeo
2 Kapahulehua.

3 MR. TAU`A: Aloha. Kumu Tau`a.

4 MR. DAVIS: My name's Brett Davis.

5 MR. JENCKS: Charlie Jencks.

6 MR. FREDRICKSON: Again, thanks all for
7 coming. The whole purpose of this is to -- for
8 information and then of course to get input from you
9 folks. As Charlie said, we originally carried out an
10 inventory survey, an archaeological inventory survey
11 of this parcel, which is this pink portion right here,
12 it was 88 acres originally, and a portion of it now is
13 going to be developed as housing that's not directly
14 involved with this project, which is now known as
15 Piilani Promenade. So I think the on the ground
16 component is about 75 or so acres.

17 In 1994 the archaeological inventory
18 survey that we conducted -- and I was on the ground
19 for all of that. We located 20 sites, ranged from
20 rock piles, some which were indeterminate function and
21 then some which were makers. Some really low, some
22 were a bit higher. We also found some enclosures, and
23 I'll discuss them in a bit, and we also found what we
24 are called surface scatters, which basically is an
25 area where folks in the past were doing something,

1 eating, maybe working on tools, whatever, because
2 people were going mauka-makai, and this was an area --
3 it was kind of a stop point. It wasn't a place where
4 people were living permanently because it's too dry.
5 We also found a petroglyph that was on a bolder, and
6 it's a good-size boulder, three or so feet in
7 diameter. It was out in the middle of basically a
8 pasture area. It had all been -- it was owned
9 previously by Honua`ula Ranch and they'd run cattle on
10 it. That boulder was a (inaudible). It was actually
11 removed during the project while we were working --
12 the report was in draft form and the prior owner took
13 away. It went Upcountry, and it's in the same
14 ahupua`a, but it's not on the property.

15 It was somewhere in this area, kind of
16 near where this proposed Kihei-Upcountry highway is,
17 originally. And that -- if you folks look at that,
18 that map that came out is site 3746, which is kind of
19 right up in this area. And again, that one was --
20 that was taken off site.

21 At the time of the 1994 survey, all of
22 the sites that we did locate were found to be
23 significant, further information content under
24 criteria D. No additional work was recommended at
25 that time. The petroglyph, because of its cultural

1 significance, also was designated important under
2 criteria E. And there was a -- preservation was
3 recommended for it, but didn't get to that point
4 because it was removed. The recommendation probably
5 at the time would have been preservation on site
6 somewhere. It was in an area that was not very
7 secure. I mean, it was just out in the middle of just
8 an open field. So that's a synopsis of what happened
9 in the 1994 work.

10 Now here we are 2014. Happy new year, by
11 the way, to all of you. There are some off site
12 portions of this project that, you know, that wasn't
13 even known in 1994 that anything was going to happen.
14 So recently we came back, there's one -- there's an
15 easement -- or, excuse me, there will be a road that
16 comes from this project out to Ohukai, and then
17 there's this -- it was titled a drainage easement, but
18 now it's actually going to be used just to reroute the
19 waterline. Right along the Wailuku-Makawao district
20 line, which on that map that you folks have there's
21 like an easement that's indicated, and that's the
22 central Maui transmission waterline. It's a really
23 big waterline. It's a 36-inch diameter waterline. It
24 was completed, at least in this portion of Kihei, in
25 1979, according to water department records. So that

1 comes across kind of the middle, diagonally across the
2 property line -- or, excuse me, the project area, but
3 that line is going to be diverted in this easement,
4 and then it will be on the southern side in the
5 project area, and then it connects down into the --
6 into where it is down on the other side of Piilani
7 Highway, which is down this direction.

8 And, I don't know, Charlie, maybe you can
9 help. Is this -- is this going to be connecting in
10 here?

11 MR. JENCKS: Yes, that's (inaudible).

12 MR. FREDRICKSON: So it will come in
13 toward the south, southwest, in the southwest border
14 and connect toward the system that's in place. That
15 will be a major improvement and also action.

16 Other things that are proposed, all of
17 this is required archaeological work to check out, is
18 this access road here and then it comes up here and
19 then this is -- is it a million gallon watertank?

20 MR. JENCKS: Yes.

21 MR. FREDRICKSON: A million gallon
22 watertank is proposed. So we covered this area as
23 well. This -- this area here is I believe leased by
24 Monsanto for -- they're growing corn there. This
25 whole area has been previously impacted by that

1 activity associated with land clearing.

2 There's another area -- so there's these
3 three -- four areas, actually. There's this access
4 road that goes out to Ohukai. Then you've got this
5 access road that goes up to the watertank, then this
6 easement, which was proposed for drainage formerly,
7 but that's no longer going to be used for that. It's
8 just the -- there will be a waterline kind of on the
9 makai side of the western side of the new waterline
10 will be diverted -- or not diverted, but excavated and
11 then laid in place and go down there.

12 The additional area that's going to be --
13 that was looked at, but, I mean, just basically, it's
14 shoulder right-of-way, is this pink area over here.
15 And that basically has to do with future improvements
16 that this project is going to be required to do on the
17 other side of the Piilani Highway.

18 So those areas we looked at this year,
19 and no new sites were identified or anything in those
20 areas. This area has been disturbed quite a bit. A
21 lot of your sheet erosion, there's no more topsoil,
22 it's down to bedrock. This part of Kihei, not
23 everywhere, but in a lot of areas has gotten really
24 shallow soil, and over 100 or so years of grazing and
25 everything, the grass has been eaten down and then in

1 the summer, it's stressed, you get rain, soil -- soil
2 has been washed away. So you get some pedestaling
3 effect of rocks and stuff. If anybody here has been
4 to Kahoolawe, not quite as severe because there's not
5 as much soil as there is on Kahoolawe in a lot of
6 areas, but you'll see like rocks and stuff that are
7 just stuck up on little pedestals of soil.

8 So let's take a -- just a brief look at
9 the sites that we actually located in the 1994 survey,
10 and what we did -- because a lot of time elapsed,
11 we've reevaluated sites, and in the prior survey there
12 wasn't additional work recommended for the sites that
13 were located. The preservation issue for the
14 petroglyph is something that was set on the side,
15 because it's not here. If it was here, I certainly
16 would -- that would be recommended for preservation.
17 There have been some discussions with the former
18 landowner -- I don't know what's occurred yet -- about
19 trying to have the petroglyph returned, but there's
20 nothing that I've heard at this point.

21 These sites -- the sites started from
22 3729, and there are 20 of them, so the petroglyph, the
23 last one, is 3746. So sites 3729 through site 3746,
24 those are the sites that were identified.

25 MS. DeNAIE: And did you take photos of

1 most of the sites?

2 MR. FREDRICKSON: Yeah, they're in --

3 MS. DeNAIE: They are --

4 MR. FREDRICKSON: In the appendix, in the
5 back of the inventory survey from 2000 -- or 1994,
6 they're in that, but not -- they may not be in this.

7 MS. DeNAIE: This was -- well, they were
8 like sort of --

9 MR. FREDRICKSON: Yeah, they're black and
10 white.

11 MS. DeNAIE: Yeah.

12 MR. FREDRICKSON: Which is -- that
13 preserves the best.

14 MS. DeNAIE: Oh, I'm sorry, Lucienne,
15 just asking about -- there's pictures of the sites.
16 So you have these pictures in black and white --

17 MR. FREDRICKSON: Yes.

18 MS. DeNAIE: -- if anybody needed to see
19 (inaudible)?

20 MR. FREDRICKSON: Yeah. So sites 3727
21 through, let's see, okay, 3728, this is 3729. What
22 are these, Charlie, I'm not quite --

23 MR. JENCKS: (Inaudible).

24 MR. FREDRICKSON: Oh, okay. Thank you.
25 These are -- these were stone piles that were just --

1 and we actually tested a couple of them to see what,
2 if anything, was underneath, just trying to get an
3 approximate idea of the age, that sort of thing. Most
4 of the piles appear to be placed on bedrock, on
5 outcrop bedrock. We didn't locate anything in -- in
6 the -- in the test phases. A couple of them had
7 artifacts that were nearby, which isn't -- it's not a
8 surprise. Hawaiians were transiting back and forth.

9 Some of the other sites -- so there's --
10 let's see, 28 -- 3728, 3729, 3730, those are stone
11 piles, (inaudible). An interesting one is -- what's
12 this one, Charlie? I'm trying to --

13 MR. JENCKS: I don't see the number on
14 it.

15 MR. FREDRICKSON: I think that one is --
16 that's 37 I think 20 -- that's part of 3728, I
17 believe. But that's a -- appeared to be a possible
18 agricultural site, but we didn't find any evidence for
19 it. I'm just going to get out my -- the other table.

20 MS. DeNAIE: Is that this one? Because
21 that's 27.

22 MR. FREDRICKSON: 3727. Thanks. I've
23 got my other table out. This has stone piles and
24 there was some -- some -- the traditional --
25 traditional cultural remains were -- was on the

1 surface. That was when we tested and weren't sure
2 what it was, and our -- at that point the guests that
3 we had was possible agricultural function. This is
4 one that merits more study. So this one will have
5 what's called data recovery work done on it in the
6 future, once the State Historic Preservation Division
7 reviews the report and once they concur, if that's --
8 if that's reasonable. It was not recommendation in
9 1994, views of things were a bit different, and the
10 state said no, no further work was needed.

11 I spent -- just a quick thing about
12 myself, just a brief -- I was on the Cultural
13 Resources Commission for ten years, two separate
14 five-year terms, and times have changed, so there does
15 need to be some more work done to try to get
16 additional information. That one, site 3727, is
17 recommended for data recovery, and so is the 3728.
18 There are other stone piles which we came across.
19 Thanks, Charlie.

20 Again, these -- if you folks can see this
21 bedrock around, there's bedrock in many of these
22 areas, just more examples of stone -- of stone piles,
23 some of them pretty high. 3731 was about -- you know,
24 about like that tall, two and a half -- two and a half
25 feet or so. Some were a bit lower. This one, 3734

1 was only about 35 centimeters, maybe a foot and a half
2 high.

3 One thing, that one we probably will be
4 doing some more -- some more work on. That's one that
5 I'm still thinking about it. It said no further work,
6 but there are a lot of -- a lot smaller rocks in that
7 pile, so it may merit some additional work, and
8 basically it would be just taking a section and seeing
9 what's underneath it.

10 Again, bedrock is right there, and it's
11 not a really big, you know, deep pile. Any time I see
12 piles that are, you know, kind of good size, always
13 there's a possibility there could be iwi there. When
14 there's bedrock and stuff around, it's a little bit
15 less, because it's not -- especially if it's not that
16 deep, but still we -- that's why we probably are going
17 to check to make sure, see if we can get any more
18 information on it.

19 The area in the past was -- have been
20 under ranching for quite a while, hundred plus years.
21 The military was in there, in this part all over in
22 Kihei during World War II and you see evidence of it
23 all over the place. I worked on the Big Island a long
24 time ago for Bishop Museum, and also on Maui, and
25 you'll get these -- we found a couple of them

1 C-shapes, is what they're called, and it was basically
2 a place where they would set up practice for machine
3 gun -- have a machine gun there, and sometimes you'll
4 find spent shell casings from practice and stuff. But
5 the military had been in the area.

6 We looked at a couple of enclosures too,
7 which I think they're -- yes, are over here. Site
8 3735, 3736, we tested, didn't locate anything, but we
9 probably will go back and do some more -- some more
10 work on those. 3735 -- or, excuse me, 3736, this one.
11 This one we think is probably military. We may go
12 back and check that as well. Then we had some
13 alignments. 3737, 3738 and 3739, two of them, 3737
14 and 3738 were pretty long, especially 3737. I mean,
15 60, 70 feet long, linear, parallel. Some of the rocks
16 and the alignments had been -- I mean, it wasn't like
17 really carefully stacked. It's like a bulldozer had
18 gone through and the rocks were on the edge. There
19 are some heavy equipment scars on some of the rocks
20 and lots of like exposed -- like bedrock, flat, but
21 it's like the -- there was hardly any rocks on the
22 inside, so it's like it had been cleared of rocks. It
23 looked like bulldozing, because there was metal --
24 excuse me, heavy equipment scarring on the rock, on
25 some of the rocks. Same with 3738. It wasn't as long

1 of a segment.

2 There is a possibility that because
3 there's a lot of bulldozing that had happened on the
4 parcel over the years in the past -- and some of it
5 could have been related to like the fire department
6 too, because sometimes Kihei has got the wild fires
7 and they will take bulldozers out wherever need be
8 just to try to -- for public safety.

9 Also, with the central -- central Maui
10 transmission line was put in in the '70s, like I said,
11 it's a three-foot diameter line. It's a big one, and
12 they buried it pretty deep, and so when all of that
13 work was going on, they had to have construction, you
14 know, access roads and all that to get the equipment
15 in and lay it, lay the pipe and everything, so that
16 was a pretty big disturbance event that went through
17 the middle of the property.

18 Yes, Lucienne.

19 MS. DeNAIE: Lucienne. Did you read in
20 the report -- I guess it was Septric. They did a
21 report for the parcel immediately mauka.

22 MR. FREDRICKSON: Mauka.

23 MS. DeNAIE: And they found an
24 alignment -- I didn't see a picture of it, because I
25 didn't see the actual report. I just saw it in

1 another report, the map, but it sounded like kind of a
2 similar thing, an alignment of two things of stones
3 that were, you know, so far apart. Did you ever
4 encounter any pictures or anything to compare it, if
5 it's the same?

6 MR. FREDRICKSON: We just have gotten
7 that report. The state didn't have -- the SHPD didn't
8 have --

9 MS. DeNAIE: Yeah, I tried to get it
10 (inaudible).

11 MR. FREDRICKSON: Yeah, I will -- if you
12 want to take a peek at it, I just got it in PDF.

13 MS. DeNAIE: I would love to.

14 MR. FREDRICKSON: And I will email it to
15 you.

16 MS. DeNAIE: Oh, that would be great.

17 MR. FREDRICKSON: But what I was going to
18 say is -- excuse me -- is near the watertank site, off
19 the project, we just were -- just wanted to just take
20 a look around the area. We did note a bulldozed -- an
21 old bulldozed -- a road that had been bulldozed that
22 had kind of some rough alignment, you know, like
23 similar to these, but the -- there were smaller bits
24 of rock as they dug down a little bit more and there
25 was a little bit more soil, but again, it's probably

1 World War II era.

2 MS. DeNAIE: Be interesting just to even
3 line them up and see just part of that history. I
4 don't know if that's your job, but --

5 MR. FREDRICKSON: We found -- we found
6 another one down -- it was off project, Piilani farm
7 that Monsanto operates for their corn, near it, on
8 another -- I think it was on Haleakala Ranch land, we
9 saw another one of these. There was a World War II
10 road that actually ran through that property that went
11 off property and there was another one of these where
12 a bulldozer had gone through relatively long ago, and
13 you get this kind of a parallel alignment, and it's
14 pretty -- you know, you've got basically a bulldozer
15 blade width that goes through.

16 We found one more. There were three
17 total. The other one was not as long, 3739 up here.
18 Again, outcrop, bedrock, nothing in the interior
19 portion of it. 3740, which is in the little gully
20 that crosses the parcel -- a portion of the parcel,
21 erosion containment walls, and it has like old fencing
22 stuff in it and probably ranch (inaudible), so things
23 didn't get washed -- washed out when that gully did
24 flow, because when it rains, the water comes down
25 pretty -- pretty fast.

1 MS. DeNAIE: And Lucienne here. We do
2 have a former cowpoke here.

3 MR. FREDRICKSON: I'm looking forward
4 to --

5 MS. DeNAIE: Brian Nae`ole, and he rode
6 up and down here in his youth out of high school.

7 MR. NAE`OLE: 1979.

8 MS. DeNAIE: And so, you know -- and your
9 ohana worked for the ranch too, yeah.

10 MR. NAE`OLE: Yes.

11 MS. DeNAIE: Yeah, so, and Aunty Florence
12 too. So they might be able to answer some questions
13 about ranching practices.

14 MR. FREDRICKSON: Oh, yeah, no, I would
15 hope that -- I'm just talking, and, you know, feel
16 free to interrupt me and then I'll shush and then I'd
17 love to hear information from you folks, because
18 you've seen an awful lot of interesting things over
19 the years.

20 MS. DeNAIE: And we also have Jacob Mau,
21 who worked for DOCARE, and so he -- he took his Jeep
22 all over the place, so we're just hoping that, you
23 know, some of the stuff, though, they'll know
24 something about.

25 MR. FREDRICKSON: That's great. I

1 appreciate everybody, again, taking the time on what
2 is a Tuesday at 6:00, whatever, beautiful day, but I
3 know there's other things you could be doing, so I
4 appreciate it.

5 The -- and then the sites 3741 to 3745,
6 those are what are termed surface scatter, and those
7 are definitely traditional Hawaiian sites. They had
8 shell fish, like marine shell fish scattered around,
9 not lots, but some. Somebody stopped there maybe a
10 couple times, and some -- some artifacts, or like
11 pieces of coral that people brought in. We did find
12 on another project further Makena way, south from
13 here, but on the mauka side of Piilani Highway,
14 similar elevation, a place that had been -- it's kind
15 of a stop -- a resting station, a rest station, kind
16 of had an enclosure, not real -- a lot of effort put
17 into it, but it's because it was just used not that
18 often, but that actually ended up being a workshop, if
19 you will, where folks were coming up from the ocean
20 and reducing volcanic glass, taking the opala stuff
21 off so they didn't have as much to pack up the -- up
22 mauka. And that one -- that site also had food
23 remains.

24 MS. DeNAIE: Excuse me. Lucienne. Was
25 that the one that was preserve the sort of over near

1 the Monsanto area?

2 MR. FREDRICKSON: That's a different one.
3 That one had a possible religious or ceremonial
4 function, but yes, that was a different one.

5 MR. LEE: Hi. Michael Lee. When you get
6 into the Hawaiian traditional practice, when you find
7 a lot of coral on one of these mounds and stuff, that
8 links to the Ku ceremony of au`au, when you go to the
9 ocean and you cleanse and then you bring back a piece
10 for -- usually it's a heiau or an offering site.

11 MR. FREDRICKSON: Yeah, these -- we
12 didn't find much -- much -- it was small -- small
13 pieces of coral, not like branch --

14 MR. LEE: Yeah, usually (inaudible) --

15 MR. FREDRICKSON: -- (inaudible) chunks
16 of branch coral.

17 MR. LEE: Right, chunks (inaudible)
18 normally.

19 MR. FREDRICKSON: That site that Lucienne
20 brought up that's further south that was preserved did
21 have some --

22 MR. LEE: (Inaudible).

23 MR. FREDRICKSON: -- excuse me, branch
24 coral in it, and that was one of the rationale -- one
25 of the rationales we used to say, hey, you know, it's

1 possible ceremonial function, preserve.

2 MR. LEE: Right.

3 MR. FREDRICKSON: But these four surface
4 scatters, 3741 to 3745, the biggest one is 3741, which
5 we did -- it's pretty substantial. It's about 50, 60
6 feet, 60 feet in diameter, kind of, but it's not a
7 clean circle or anything, but that's -- that one needs
8 to have more work done, and so that would also be one
9 that's going to be -- that we're going to recommend
10 data recovery on. So we'll go back in and do some
11 more testing. We didn't locate any subsurface
12 component of it. It was only material on the top,
13 and, again, shallow soil, a lot of erosion has
14 occurred in the area, but that was certainly an area
15 where people were stopping. There were some volcanic
16 glass pieces that were there, but not good stuff,
17 waste plates where it was just a place to lighten --
18 lighten the load so you can take the good stuff up
19 mauka.

20 3742 is another one, and that one will --
21 it was just a few pieces of shell and a couple small
22 pieces of coral and a water worn rock, and it's
23 basically -- you know, somebody took it there, and
24 it's called a manuport, if it's not something that was
25 like an artifact or formal artifact. So that's

1 another one that we'll do some more excavation on --
2 or excavation on. We didn't excavate that one.

3 3743 is another one of these surface
4 scatters that we'll also do some excavation,
5 excavation on. And 3744, that one we put in a couple
6 test units. A good amount of food midden, not a ton,
7 but more than the others, and it was in the top 10
8 centimeters, which was about 6 1/2 -- 6 -- not even 6
9 inches, 5 -- less than 5 inches of soil is for the --
10 where the cultural material was and there wasn't
11 anything deeper than that. It wasn't really deep soil
12 deposited.

13 All of these areas have been traversed by
14 cattle a lot. So it's possible the cattle just
15 walking through might have pushed some of the shell
16 down, but it's possible could have been covered by
17 sheet erosion, water and dirt just going across, but
18 it was certainly in the area where people were -- you
19 know, they'd stop there, not on a regular basis, but
20 they'd stop there at some point in the past. Again, a
21 traditional site, though, it's not something that was
22 very recent.

23 3745, another one, we tested that, same
24 thing, got a little bit of shell midden in the soil
25 deposit and -- but nothing below that. No charcoal or

1 anything. That was something we were looking for to
2 try to -- so we could get a radiocarbon date -- sample
3 so we could submit it to try to get an idea of about
4 how old the site might be, but we didn't find any on
5 all the testing that we did.

6 Yeah, Lucienne?

7 MS. DeNAIE: Lucienne. It looked like on
8 your chart that the -- that last midden scatter was
9 somewhat near where the petroglyph stone was --

10 MR. FREDRICKSON: Yeah, that one was
11 about --

12 MS. DeNAIE: (Inaudible)?

13 MR. FREDRICKSON: It was -- I'm trying to
14 remember how close it was. It was -- it wasn't right
15 next to it. It was like -- just picture yourself out
16 in the -- out in the field. It was probably 40 -- 30
17 or 40 meters, 100 plus feet away, maybe a little bit
18 farther, but it went -- comparatively speaking, it was
19 close, certainly closer than anything -- any other of
20 the sites on the project. And then the petroglyph
21 itself was itself was, again, it was on a boulder
22 about three feet in diameter and it was a real -- the
23 rock was pretty porous, like if you rubbed up against
24 it, really -- you know, you could get a pretty good
25 sanding off of it and it was weathered, and it may

1 indicate that it was really, really old, or it may
2 indicate that, you know, the rock is just more prone
3 to getting weathered. But it's certainly interpreted
4 as a traditional -- traditional site. Figure of a
5 male, possibly with a basket or something, not sure,
6 but, again, this is what got taken away.

7 Yes, Mike.

8 MR. LEE: Mike Lee. That circle on the
9 bottom, was it like weather worn on one side that you
10 could see it was a circle but it wore down or someone
11 just completed what they thought should be the
12 completed portion?

13 MR. FREDRICKSON: It -- really good
14 question. This was our interpretation. It was kind
15 of like -- it was discontinuous. It's like over here,
16 we couldn't even -- you know, even see if the leg --
17 I'm sure the leg had been there, but it was -- again,
18 it was real weathered, but that was our -- it appeared
19 that it was circular, but this -- the part that's
20 dashed lines is -- that's what our interpretation was
21 that that's what it appeared to do. There were a
22 couple sections that were partial, partial
23 (inaudible).

24 MS. DeNAIE: Showing (inaudible).

25 MR. FREDRICKSON: Oh, yeah, thank you.

1 And again, this boulder was transported off site.

2 MS. DeNAIE: Lucienne. Do you have like
3 a fairly clear black and white picture of it that is
4 in electronic form at all? It might be interesting
5 (inaudible) cultural practitioners.

6 MR. FREDRICKSON: I could go back and
7 look -- look in some of our old project photos, and
8 I -- I'm sure it wouldn't be difficult to scan it or
9 anything. It would -- and I'm happy to send -- to
10 send it, to distribute that.

11 MS. DeNAIE: Yeah, we'd really appreciate
12 it.

13 MR. FREDRICKSON: So that's -- that's the
14 summary of the sites that were located and what is
15 going to be the proposal for -- because some
16 additional work does need to get done on some of
17 the -- on some of the sites, the ones that I shared
18 with you folks. And, excuse me, the data recovery
19 will -- I mean, it's -- that we do as much work as we
20 can, get as best information as possible, and
21 sometimes you don't -- you don't get a lot more
22 information, sometimes you do. It just -- it just
23 depends. I'm not super optimistic, because of the
24 real shallow soil. It would be great to get a couple
25 carbon samples, but I don't know. All we can do is

1 try the best we can. Yeah.

2 MR. LEE: Mike Lee. Is there going to be
3 a walkthrough for what these sites are, a consulting
4 walkthrough?

5 MR. FREDRICKSON: Possibly later in
6 the -- like when it's dry, prior to maybe data
7 recovery.

8 UNIDENTIFIED MALE: Because it's like --
9 you cannot see anything now.

10 MS. DeNAIE: It's (inaudible).

11 MR. FREDRICKSON: (Inaudible), but nobody
12 else. Nothing else. Yeah, Daniel.

13 MR. KANAHELE: Daniel Kanahale. Eric,
14 yeah, before I ask my questions, I just want to
15 preface it by saying that this is part of a
16 consultation process, according to HAR 13-7-276,
17 where -- you know, where you're asked to seek the
18 views of those who may have knowledge of the history
19 of the area with regards to site significance and site
20 function and site identification, so first of all, I
21 wanted to ask the 2014 -- well, I did read the 1994
22 archaeological inventory survey. I read it two years
23 ago, so it's been awhile. My understanding, that was
24 accepted --

25 MR. FREDRICKSON: Uh-huh.

1 MR. KANAHELE: -- by SHPD at the time.

2 MR. FREDRICKSON: Yeah.

3 MR. KANAHELE: So is this a supplement to
4 that that you're undertaking? Is this something that
5 you are going to be submitting for --

6 MR. FREDRICKSON: It will be submitted.

7 MR. KANAHELE: -- for review again and
8 acceptance again?

9 MR. FREDRICKSON: Well, the 1994 --
10 this -- the 88-acre project area, that's -- that part
11 of it was accepted before. There was no monitoring
12 recommendation or no further work recommended at the
13 time in 1994. This project, like I said earlier,
14 takes this -- this lot is a different land owner, but
15 still it was part of the original survey in 1994, so
16 that -- there weren't any sites located on this at the
17 time, but that's still, in my mind, I'm considering it
18 part of the -- of this overall project, so to speak.
19 The -- so the sites that were found in 1994, that's
20 the reevaluations, just see, you know, is the -- are
21 they still significant, would they still be -- are the
22 significance evaluations valid today.

23 The criterion D evaluations certainly --
24 you know, certainly are. The petroglyph under -- is
25 significant under criterion E for its cultural

1 importance. Again, it's in longer on the project;
2 however, it's still -- doesn't mean its cultural
3 significance goes away.

4 MR. KANAHELE: Just to -- just to follow
5 up.

6 MR. FREDRICKSON: Yes.

7 MR. KANAHELE: So your recommendations --
8 because I don't see the 1994 recommendations on --

9 MR. FREDRICKSON: Yeah, there -- at the
10 time the views about criterion D sites were -- the
11 amount of work were a little different that was
12 figured, that was agreed upon, like, okay, well,
13 there's enough information that's been collected. And
14 the State Historic Preservation Division concurred,
15 yeah, no additional work needed in -- at that time.
16 In 2014, in my opinion, there should be some
17 additional work done on the -- on close to half of the
18 sites, to try to see if any additional information can
19 be gathered. I mean, it's just -- just doing the best
20 that can be done, and also, I mentioned a little
21 earlier, in the 1994 inventory survey, no monitoring
22 requirement was put in place. So there was no
23 monitoring at all, and that was something that, again,
24 that's 20 years ago. That has changed, and I
25 completely agree that, yeah, I mean, even though it is

1 shallow soil and everything, there should be
2 archaeologic -- precautionary archaeological
3 monitoring carried out.

4 And the State -- the State Historic
5 Preservation Division, actually in 2011, approved an
6 archaeological monitoring plan that covers some of
7 this property and some of the area mauka that -- of
8 this property that Lucienne brought up that a 2008
9 survey had looked at on the -- not in this area, but
10 the area mauka. So there is an archaeological
11 monitoring requirement that covers much of the
12 property right now, and the plan has been accepted by
13 the State Historic Preservation Division.

14 Because this -- you know, it's not a
15 project-specific monitoring plan, though, and SHPD has
16 already indicated that, hey, this project has changed,
17 because originally it was 88 acres, but now -- well,
18 it's less, this part of the original survey is a
19 little less, but there's this off site improvement
20 areas that they were never surveyed when we did the
21 original work. This was just this one -- this one
22 property. So these areas have been looked at.

23 The monitoring will also -- will
24 extend -- it will be for this portion, the 88 acres,
25 including the 13 acres or thereabouts, which is owned

1 by a separate entity, not part of the Piilani
2 Promenade. It took me awhile to get my -- wrap my
3 brain around this, but I finally do understand, so I
4 know how frustrating it can be to not completely
5 understand what a project is, because I saw this all
6 the time on the Cultural Resources Commission, so I --
7 Charlie was very patient with me, but I -- but I do
8 understand what the scope of the project is, because
9 this is the first time I've been involved with it
10 since 1994.

11 I mean, I didn't do -- we didn't do any
12 of the work in 2011 for the monitoring plan,
13 preparation or anything. This was just kind of --
14 Charlie called me last year about this and I was like,
15 hmm, okay, I was always -- it was always difficult for
16 me because of what had happened with the petroglyph,
17 and I just -- it was something that just -- didn't
18 have anything to do with them or anything. It was
19 just one of those things that happened.

20 MR. LEE: Mike Lee. Was there an LCA for
21 this whole property?

22 MR. FREDRICKSON: Yes, and I'm sorry, and
23 I know someone here -- it was a very large one. It's
24 5,000 plus acres to Heeiwa, and I don't have that --

25 MR. NAE`OLE: I have the apopuka. Brian

1 Nae`ole.

2 MR. FREDRICKSON: Oh, thank you.

3 MR. NAE`OLE: Land Commission Award,
4 3237.

5 MR. FREDRICKSON: 3237.

6 MR. NAE`OLE: Mahalo.

7 MR. FREDRICKSON: Thank you.

8 MR. NAE`OLE: And I have an apopuka.

9 MR. KANAHELE: Was there a consultation
10 process in 1994, somewhat like this, that occurred?

11 MR. FREDRICKSON: No, not -- not like
12 this at all. It was, again, different -- different
13 time. I'm trying -- we -- I think I brought -- who
14 came out (inaudible).

15 MR. KANAHELE: I'm sorry, Daniel
16 Kanahele.

17 MR. FREDRICKSON: I think -- and I'll
18 double check, Daniel, but I believe Les Kuloloio came
19 out to look at some of the -- like some of the surface
20 scatters and stuff, because he's been involved with
21 this for an awfully long time with -- you know, with
22 being interested in what is found, and he came out and
23 looked at -- looked at some of the sites, and I
24 believe he saw the petroglyph, but we didn't have, I
25 mean, as many folks -- and again, thank you for all,

1 you know, coming -- at the time who participated.

2 Yeah.

3 MR. KANAHELE: One other comment before
4 I -- my understanding was in 1994 -- I don't know when
5 the petroglyph was removed.

6 MR. FREDRICKSON: It was in 1994.

7 MR. KANAHELE: But it was removed without
8 the permission of the state?

9 MR. FREDRICKSON: It was -- it was taken
10 from the property before the inventory survey report
11 had been finalized before the state had accepted it.

12 MR. KANAHELE: So still it was considered
13 a historic property and removed from the site without
14 permission of the state at that time?

15 MR. FREDRICKSON: As far as I know, there
16 wasn't any permission, but I -- it was the land owner
17 at the time, and they -- they -- they took it, I
18 believe with good intentions, because it was -- it
19 would be in a safer -- you know, safer area.

20 MR. KANAHELE: But you couldn't do that
21 today, for example?

22 MR. FREDRICKSON: Oh, no. Well --

23 MR. KANAHELE: Do you remove a site
24 before a preservation plan was put in place?

25 MR. FREDRICKSON: It's -- it's pretty

1 tricky. You -- the preservation plan needs to get put
2 in place, and if it's not, it's kind of a gray area,
3 and I don't really want to say that too much, just
4 because there are landowner rights that can be kind
5 of -- override some things. I don't want to go too
6 much into.

7 MR. LEE: (Inaudible) tried to do some
8 research --

9 MR. FREDRICKSON: Uh-huh.

10 MR. LEE: -- for Hawaiian cultural
11 significance under Article 12, Section 7. Mike Lee.
12 So -- thank you -- so we'll look at that, we'll look
13 at survey notes and stuff like that.

14 MR. FREDRICKSON: It would be a lot -- if
15 something like this were to happen now, it would be a
16 lot different, I think, the result would be a lot
17 different.

18 MR. LEE: This was in 19 --

19 MR. FREDRICKSON: 1994.

20 MR. LEE: 1994.

21 MR. JENCKS: Charlie Jencks. My
22 understanding is that the state requested, subsequent
23 to the relocation of the stone Upcountry, they
24 requested that the land owner do the relocation --

25 MR. FREDRICKSON: There was some sort of

1 a relocation plan, but --

2 MR. JENCKS: Did you guys do that?

3 MR. FREDRICKSON: I don't think we did.

4 I don't remember, but that's --

5 MR. JENCKS: That was done --

6 MR. FREDRICKSON: That's something I will
7 look at.

8 MR. JENCKS: That was done and accepted
9 by the state.

10 MR. FREDRICKSON: Yeah, and there is
11 reference to it, so --

12 MR. LEE: The relocation was to bring it
13 back?

14 MR. FREDRICKSON: No, no, this was --

15 MR. JENCKS: To keep it up.

16 MR. FREDRICKSON: -- to -- (inaudible).
17 It wouldn't be -- yeah, it would be a relocation,
18 because from here Upcountry.

19 MR. JENCKS: Charlie Jencks. The point
20 there is that the state knew about the relocation, the
21 state had asked a land owner to do a study to
22 formalize it, they blessed it --

23 MR. FREDRICKSON: Yeah, and --

24 MR. JENCKS: -- and closed it out.

25 MR. LEE: I see.

1 MR. FREDRICKSON: And again, not the
2 ideal -- not the ideal, but there were some -- there
3 were actions that were taken to I guess make it
4 official.

5 MR. LEE: I see.

6 MS. DeNAIE: Lucienne deNaie. I did come
7 across sort of (inaudible) SHPD file, and I think the
8 basic discussion was, well, Mr. Rice's intentions were
9 good. (Inaudible) see it defaced or (inaudible).
10 However, he didn't follow proper procedure, so our
11 only choice here -- and they didn't -- they didn't
12 really think that they might have a choice to contact
13 lineal descendents of the land or anybody else and see
14 if anyone else wanted to say anything. They felt
15 their only choice was to provide a process to
16 formalize what had already happened, because the
17 intentions weren't bad.

18 MR. FREDRICKSON: Yeah.

19 MS. DeNAIE: You know, he didn't steal it
20 to start his own museum.

21 MR. FREDRICKSON: Right, to do some
22 tourist attraction.

23 MS. DeNAIE: He just said, well, you
24 know, it's out here in the open and I don't know what
25 I'm going to develop and, you know, to keep it from

1 harm, I'll just move it some place else.

2 MR. FREDRICKSON: Yeah, it wasn't done
3 with malice or anything. It was done with good
4 intentions. Again, it was 1994. A lot different than
5 2014.

6 MR. LEE: Article 12 -- Mike Lee, Article
7 12, Section 7 was in 1978, so it -- it's still covered
8 under the State Constitution, which because they did
9 not contact the lineal descendents, they're
10 technically in violation of the Constitution when it
11 comes to our gathering rights and religious cultural
12 practice rights were not considered. State has made
13 many mistakes while being -- this is not
14 grandfathered. It would have been grandfathered if it
15 was '77, you know, under that action, but because it
16 falls under that umbrella of we just have to find
17 specifically what those cultural practices were, if we
18 can find it as a findings of fact, that would be cause
19 to bring it back when this property is secured for
20 what it's supposed to do, to have a place back, you
21 know, maybe as a pedestal and a cleaning to
22 (inaudible) to have it back on the property because of
23 that significance. That's what I believe.

24 MR. FREDRICKSON: And the contact person
25 (inaudible) anybody does have any questions at the

1 State Historic Preservation Division is Hinano
2 Rodrigues. He's pretty knowledgeable about that
3 stuff, so if anybody does have questions about it, I
4 mean, certainly feel free to call him up. Thank you.
5 Good questions and info.

6 So any other questions?

7 MS. DeNAIE: Sorry. I have so many
8 questions. Lucienne deNaie. This project is
9 immediately bordered by a gulch. I notice that when
10 SCS did the high school site, right across the gulch
11 from it, they did note that there were sites in the
12 gulch.

13 MR. FREDRICKSON: Oh, I'm sure there's
14 sites in the gulch.

15 MS. DeNAIE: And outside the project
16 scope, but they noted them when they did some work on
17 the parcel on the other side of Waipuiani Gulch.
18 They also noted that there were some sites in that
19 gulch, even though it was outside the project area of
20 the Hi-Tech center area. So are the land owners
21 willing to have the portion of the gulch that kind of
22 surround here also surveyed, because it seems like it
23 could inform us a little bit more about maybe what was
24 going on here?

25 MR. FREDRICKSON: Yeah, good question.

1 The tricky part about that is it's a different -- this
2 is -- I believe this is all Haleakala Ranch; is that
3 correct?

4 MS. DeNAIE: (Inaudible).

5 MR. FREDRICKSON: Or, yeah, sorry,
6 (inaudible) Ranch.

7 MS. DeNAIE: So it's the same people
8 whose land you're surveying (inaudible).

9 MR. FREDRICKSON: At that time, yeah.
10 And it would be -- it would be an owner -- land owner
11 permission -- you'd have to have -- because you can't
12 any more just kind of go on to somebody's property and
13 go, oh, by the way, you have this site and this site
14 and this site and you need to do X, Y and Z.

15 MS. DeNAIE: Well, it's interesting
16 because, you know, they commissioned -- Honua`ula
17 commissioned a study of the area up until the property
18 line of this property, and yet recorded nothing in
19 this gulch, and, you know, people have seen sites in
20 that gulch, so it's sort of like a no man's land right
21 now. I mean, I guess we could take it up with SHPD
22 and ask that somehow, you know, it be included in the
23 other review, but it just seems like there was no
24 imaginary line between this gulch and this land. It's
25 like they were functioning as --

1 MR. FREDRICKSON: Sure. Well, and mauka
2 and makai do.

3 MS. DeNAIE: And you saw a (inaudible) or
4 something around (inaudible) stone, it probably came
5 from this gulch, because it's (inaudible). Also,
6 Brian, what were you saying about the gulch had gone
7 down like it was eight feet higher before or something
8 like that?

9 MR. NAE`OLE: Well, when I used to work
10 on the ranch with my uncle, John Nauwau, we used to
11 ride horses all down through there. I remember the
12 gulch as very shallow, but as the years go by, it gets
13 heavier and heavier, and you can see the way the
14 action of the water coming down is like --

15 MR. FREDRICKSON: (Inaudible) big flood
16 events.

17 MR. NAE`OLE: It's like tidal waves.
18 Yes, exactly, you know, and it got really deeper, you
19 know, from the time I saw it, because you couldn't
20 get -- you couldn't go on these lands, only if you
21 were to work on the lands.

22 MR. FREDRICKSON: Uh-huh.

23 MR. NAE`OLE: So that's the only way you
24 could see them, but riding horse, you're practically
25 right next to the gulches.

1 MR. FREDRICKSON: Oh, yeah.

2 MR. NAE`OLE: You're seeing all -- more
3 vegetation, a lot of paninis, a lot of walls, a lot of
4 lava -- man-made walls. So when you're looking at it,
5 you just vision what it was back then. The waters
6 from old-timers, they used to say it was very heavy.
7 It was dangerous. In fact, couple times my uncle had
8 to just sleep right there because (inaudible) was just
9 running.

10 MR. FREDRICKSON: Too much, yeah.

11 MR. NAE`OLE: And you would have had to
12 wait at least 12 hours, maybe more or maybe less.

13 MR. FREDRICKSON: I remember down by
14 Kamaole I, before they, you know, raise the road, I
15 mean, there were times where it's like, oh, not going
16 any further south --

17 MR. NAE`OLE: You know, it looks rainy up
18 on the top and nice and sunny down here, but then when
19 nature comes --

20 MR. FREDRICKSON: Just look out.

21 MR. NAE`OLE: -- wait 45 minutes. That's
22 why the ground is -- you can see it. You can vision.
23 It's getting -- you know, it's corroding, and how it's
24 corroding, it's getting heavier and heavier, so...

25 MR. FREDRICKSON: So you think in your --

1 in your lifetime, like -- how long did you work for
2 the ranch?

3 MR. NAE`OLE: I worked for the ranch five
4 months. I went to high school, Baldwin High School,
5 so I had the opportunity to go on a work furlough.

6 MR. FREDRICKSON: Oh, neat.

7 MR. NAE`OLE: With the job.

8 MS. DeNAIE: And what year was that,
9 Brian?

10 MR. NAE`OLE: This is back in --

11 MR. JENCKS: Let's be careful about our
12 names so we can keep track of what's going on.

13 MR. NAE`OLE: So Brian Nae`ole,
14 (inaudible). Back in 1979 I had that opportunity,
15 because uncle and in fact my grandfather used to do
16 all the roads back then. They had many, many stories.
17 They told us certain places not to go, certain places
18 to go to. So we were pretty much, you know, all word
19 of mouth, but does the experience, by looking at it
20 today, you can see a lot of devastation, you know, in
21 this area. So how can we make it safe, you know? And
22 a lot of these gulches, like this gulch or this --
23 that is coming across the property, it wasn't there.
24 So you see the overload of water transferring to
25 different areas. So we're diverting water that we

1 wasn't supposed to, because back in the old days the
2 water just flowed naturally. So you see the
3 difference.

4 And I know some of you guys in here, you
5 know, by experience we see this all the time. Every
6 year, every ten cycle, every twenty cycle, you know,
7 it changes. So we don't know if we're coming to our
8 catastrophic findings of disaster or is it naturally
9 made that way. Because back in the old days they had,
10 you know, the kupunas to -- the konahikis, the anuis
11 had it all studied down, because they knew how to
12 divert. Today we're just figuring out by word of
13 mouth so we're not really pressing it by natural.
14 We're just diverting it. So if you look by
15 construction, I think that's where the problem is.
16 So --

17 MS. LANI: Florence Lani. I was born in
18 Ulupalakua and my dad -- all my families were all
19 cowboys. My brothers, I have two brothers that worked
20 the ranch and one of my brothers, he works with -- my
21 dad was a heavy equipment operator for Ulupalakua
22 Ranch.

23 UNIDENTIFIED MALE: (Inaudible).

24 MS. LANI: Yeah. And then in about --
25 when I was about almost ten years old we moved to

1 Kula. That's where the (inaudible) Rice arena is now.
2 That's where my dad worked for Harold Rice. He was
3 the only operator that Harold Rice would have knocking
4 all the kiawe trees. My sister and I, he used to take
5 us on his bulldozer and go to red hill, and my mom --
6 he would pack us, and my dad used to find these big
7 bombs.

8 MR. FREDRICKSON: Oh, yeah?

9 MS. LANI: And he would bring it home and
10 he would put it by the door. Yeah, he don't even know
11 it's alive, and we didn't know, and, you know, my mom
12 always told him to take away that big thing, it's so
13 heavy, and he told (inaudible). He puts the bomb
14 right there and they don't know anything, but my dad
15 had so much trouble with the ranch, and he would let
16 my dad do anything. Harold Rice, my dad was one
17 (inaudible) best purpose, and only he would get brand
18 new trucks every year. He loves my dad so much,
19 that's why he would take care. We always have
20 presents every year, you know, from Harold Rice, and
21 then came Aske, all of his family, we raised with his
22 two boys, you know, Freddie and Henry. So, you know,
23 we just like family, but he used to come from Kula all
24 the way down here to behind Maui Lou because he had
25 all --

1 MR. FREDRICKSON: Oh, the road.

2 MS. LANI: The area, yes, and we always
3 going back and forth. And like Brian, they're the
4 boys, so all of them was just riding on the trucks and
5 everything with my dad, and we seen see many things,
6 you know, through our years, you know, as we were
7 growing up, but then after when they past down, then,
8 you know, my brothers started working, and one past on
9 and that's how our life was always. You know, so I'm
10 still (inaudible) in the place where I was born and
11 raised. So I know a lot, and our lineal descendents
12 is all grave back there in Lahaina.

13 MR. FREDRICKSON: Oh, in Lahaina?

14 MS. LANI: Yes.

15 MR. FREDRICKSON: Now, did you -- this is
16 Eric Fredrickson. I'll try to say my name too so
17 whoever is transcribing this doesn't get too upset.
18 When you folks used to come from Ulupalakua down --
19 did he come to Kihei area a lot?

20 MS. LANI: We would use that top road
21 from the highway in the back road coming all down to
22 Makena.

23 MR. FREDRICKSON: Uh-huh.

24 MS. LANI: That's our road every day
25 going La Perouse, all the way to Kihei, we'll never

1 forget the areas, how (inaudible). Only (inaudible)
2 kiawe trees, so we can park anyplace, you know.

3 MS. DeNAIE: Lucienne. Aunty Florence,
4 what years were these?

5 MR. FREDRICKSON: Yes, thank you.

6 MS. LANI: This is back like in the '70s,
7 I mean in the '50s, you know, because I was born in
8 1939 here in Ulupalakua, and by the time five, six
9 years old he took us to Kula and Makawao, and from
10 then on my dad worked ranch all the time from then on.

11 MR. FREDRICKSON: So all for -- go ahead,
12 I'm sorry.

13 MS. LANI: And, you know, when he brought
14 us -- that is about like '52, '53. My dad always had
15 to drive the bulldozer, because he knocks every tree
16 down, you know, the kiawe tree. Red hill is his
17 favorite spot. Always go there and camp up here
18 (inaudible).

19 MR. MAU: Get all the fire wood.

20 MS. LANI: Yes, yes. And the bulls. Oh,
21 my mom and dad, I remember they used to trick a lot,
22 and they would sleep on the roadside, and my sister
23 and I just running around and (inaudible) bulls, ho,
24 just fighting and fighting, and they were just
25 sleeping because they were all drunk (inaudible). But

1 I remember these days, you know, like before, so --
2 and I never thought I gonna see that and remember
3 those things, but I -- we always used to come out, and
4 there was mean stories about that point, all the rain
5 used to come from behind (inaudible), comes down a lot
6 of times, you know, my mom said they know about these
7 wheelbarrow. When this wheelbarrow is making noise,
8 they hear the noise from up there coming down, you
9 better make room, because it's -- before they have all
10 this kind of stories and the wheelbarrow would just
11 come from up there, going full speed, and you -- they
12 know, and they just move on the side. (Inaudible),
13 you know, they use these kind of words. We tell them,
14 we don't know what they telling us. Why you moving
15 over there, daddy? We supposed to be on the road, but
16 no, he tells no, you wait, wait. Wait and keep quiet,
17 no say nothing, just respect, okay. Yeah, and big
18 wheelbarrow just come swishing right down, right down
19 to the ocean.

20 And my dad travels all the way down from
21 Makena going to La Perouse, he says he's going
22 (inaudible) nighttime by himself. He going with the
23 car and he see this cow walking in the middle road and
24 he telling the cow, go blowing the horn, telling him
25 to the move, the cow, the cow's going, he's taking his

1 time, taking his time, and he said when the bull --
2 the cow turned around and look at him, had mad face.
3 (Inaudible) those kind of stories they tell us, and oh
4 (inaudible) my mom and dad (inaudible) never taught us
5 to -- you know, don't -- you know, this is only to
6 respect. They have things that way, but respect those
7 things and we were taught that, you know. Don't
8 damage or don't go -- do anything talk back and say
9 anything, just respect that, and that's how we were
10 raised today to respect. Know who you come from, you
11 know, that's how we have to teach our children, our
12 grandchildren, the generations going down, and I'm so
13 happy that I (inaudible), I continue to learn what my
14 tutu, because we used to -- we was raised with the
15 olden tutu ways, yeah, so we know how to survive. No
16 lights, no water, wash hands.

17 MR. FREDRICKSON: You remember -- you
18 remember that. Kids now --

19 MS. LANI: I went through hell.

20 MR. LEE: Mike Lee. Aunty, how did you
21 guys find springs, since you needed water, or did you
22 pack water?

23 MS. LANI: Yes.

24 MR. LEE: Pack water?

25 MS. LANI: Yes. We had a lot of water

1 catchment, and (inaudible) big property we had, tutu
2 to used to make us early in the morning, we have to
3 get up, learn how to work, and no more this kind
4 toilet you have today. It's outhouse, you know, and
5 it's not near and in the house. You have to walk.

6 MR. MAU: (Inaudible).

7 MS. LANI: We still have that today,
8 because where I'm staying now, I living like that. My
9 kids didn't want that, but today they're used to that.
10 Just not (inaudible). They know, and they love it.
11 They (inaudible) they look up to going to the country,
12 do what you want, you know, in the country.

13 MS. DeNAIE: Lucienne. Aunty Florence,
14 so have you ever like hiked down the gulch that runs
15 down, you know --

16 MS. LANI: Oh, yeah.

17 MS. DeNAIE: -- all the way --

18 MS. LANI: With my dad sometimes.

19 MS. DeNAIE: (Inaudible).

20 MS. LANI: Yes, and that's very true what
21 Brian is saying, because sometimes we can't cross
22 over. We have to, you know, stay -- stay there, but
23 (inaudible) --

24 MS. DeNAIE: (Inaudible) along the side?
25 How did you folks (inaudible) --

1 MS. LANI: Walk, and there's horse to --
2 you know, he packs us on the horse, or sometimes he
3 can use the bulldozers to come down and follow.
4 That's why sometimes it blocks up and he has to be the
5 one to knock the kahawai, you know.

6 UNIDENTIFIED MALE: So there's like big
7 trees or stuff --

8 MS. LANI: Yeah, sometimes.

9 UNIDENTIFIED MALE: -- flood came, yeah.

10 MS. LANI: Yeah, and he has to go, yeah,
11 to go and clean it, yeah. And if he can't pass, we
12 have to just find an area. My dad knew where to go
13 and, you know, make sure that we are, you know,
14 safety, yeah, yeah. So we knew how to live life the
15 hard way, but, you know --

16 MR. FREDRICKSON: When you were -- this
17 is Eric again. Aunty, when you folks -- you know,
18 when you were a kid like walking in some of the
19 gulches or, you know, like Lucienne just said, the
20 Kulanihakoi Gulch, do you remember seeing anything
21 anywhere like coming down the gulch from anyplace
22 anywhere, like caves, anything like that?

23 MS. LANI: Well, before it wasn't like
24 that. Once in a big while we used to have a lot of,
25 you know, rain, rain day -- then that's the only time

1 we see big boulders come down, then, yeah, it will hit
2 the side, so, you know, on the side sometimes you just
3 hits the side, and that's where the bank gets soft,
4 yeah, hits the bank and the water hits it again and it
5 will just fall, and it gets wider. Yeah, it's when he
6 has to go in and clean it out, make room again so the
7 water can, you know, go down.

8 MR. FREDRICKSON: Go down the channel.

9 MS. LANI: Yes. Yeah. So he always
10 taught us about being careful to go, where to go in
11 the -- you know, when you see water, don't go
12 (inaudible).

13 MR. FREDRICKSON: It comes fast. It's
14 scary.

15 MR. LEE: Aunty Florence, did your father
16 ever talk about pahoehoe lava tubes on this property
17 or that came from the side gulch or something that
18 went around this property or through this property,
19 like lava tube for a cave?

20 MS. LANI: Oh, no, but -- no, he was
21 all -- no, we never did enter, you know, through --
22 always following the -- either the roadside or making
23 roads. You know, sometimes the roads get all block
24 up, and he -- damaged by rain and everything, stones
25 cover 'em up, so he has to (inaudible). (Inaudible),

1 yeah. And sometimes he goes to the kahawai too, but
2 then, you know, he has to go look all the way --
3 that's why from up there to down here he has to look
4 the safest place to make the (inaudible).

5 UNIDENTIFIED MALE: (Inaudible).

6 MS. LANI: Yeah, (inaudible), yeah.

7 MS. DeNAIE: Lucienne here. Now, I know
8 both of you folks used to go down to the shoreline
9 here too.

10 MS. LANI: Yes.

11 MS. DeNAIE: Over where like Menehune
12 Shores is, like that. What was that like? What did
13 (inaudible) --

14 MS. LANI: (Inaudible). Yes, yeah, a
15 lot, we could go hukilau down the beaches, you know.
16 That was when nothing was (inaudible), just kiawe
17 trees (inaudible).

18 MS. DeNAIE: And what kinds of stuff --
19 Lucienne again. What kind of stuff did you find down
20 there?

21 MS. LANI: Used to pick up limu and all
22 kind of limu, all the Hawaiian limus that you could
23 get, that's our area, just enough for us to take home
24 to eat, you know. It was -- and the water wasn't
25 liked to. Today there's slimy, the limu is slimy.

1 When you eat it, you can taste the (inaudible), the
2 taste of the lotion, yeah. So that's why I hardly --
3 hardly get it now. There's laws you can only take so
4 much, so, you know, everything's changed today.

5 MR. FREDRICKSON: It's Eric here. A
6 question actually for both of you folks. You know
7 when you folks were let's say small kid times going
8 like down to the -- to the shore, like Lucienne and
9 Mike were talking about, compared to like then to more
10 recent, what's your impressions of like how much limu
11 is there now compared to like when you were -- you
12 know when you were younger and -- because, you know,
13 you folks --

14 MS. LANI: A lot. A lot.

15 MR. FREDRICKSON: -- a resource, just
16 because -- to see the changes, you know. So, I'm
17 sorry, I interrupted you.

18 MS. LANI: Yes, my uncles were all
19 fishermens too. We'd go down Makena, La Perouse and
20 they would put a building there and that's what did
21 their job every day, and they would gather -- when
22 they gather, they pull the nets and they get fish,
23 limu, they always would share for all the families,
24 you know, because before we didn't have the kind that
25 you can go paddle or sell, you know, we would trade

1 our goods that we have, but there's rare, not today,
2 you don't see that kind of limu hardly, huh-uh.

3 MR. LEE: Aunty Florence, are we talking
4 about like lipoa, palahalaha, aalaula, lipeepee?

5 MS. LANI: Lipoa, lipeepee, all those,
6 yeah, huluhuluwaena.

7 MR. LEE: (Inaudible).

8 MS. LANI: Yeah, tutu taught us how to,
9 you know, make all the -- and it was not liked to.
10 Today you don't hardly see all those. It's all -- the
11 rocks -- every rock when you take, you know how to
12 take it out, there's always -- next time there's
13 always more, but today you don't -- you scrape the
14 rock, so that's why hardly.

15 MR. NAE`OLE: Brian Nae`ole. Back in the
16 '70s when we used to go pick up limu, remember we used
17 to go down there all the time, we were told numerous
18 times not to go in certain areas. We used to always
19 stay in like more towards the makai -- well, more
20 Makena side, because there were certain things that
21 you couldn't go more by the fishpond, but I remember
22 the limu that was so plentiful before. The fishes
23 was -- they were like right there. Not liked to,
24 they're pretty much disappearing.

25 But I remember when we go gathering, we

1 lay nets, and the limus was like lipeepee, wawae`iole,
2 ogo, you know, you never had to go too far, because
3 everything was right in the area. Now you have to go
4 like further down to St. Theresa's. Even St.
5 Theresa's is pretty much getting, you know, wiped out.
6 I guess corrosion. But by experience, the fish was
7 like -- you didn't have to go far. Now it's -- you
8 walk -- or you go in the water, everything is just
9 dead, more sand, everything is all covered up. Back
10 in the days, you can see the difference from that
11 times to what it is today. So we're pretty much
12 destroying things right in front of our eyes, and how
13 to do it, I think it takes the whole community to
14 really save it. Because this place has food,
15 resources, and I think that's part of our culture of
16 living, because that was what we used to cut up
17 tomatoes, you know, just basic stuff that we grow and
18 we add to the limu, because that was part of our --
19 like rice, you know. So now you look at it now, we
20 don't go there, because we know it's -- there's no
21 gain, you know, and even the -- you know, things are
22 just different now, compared to what it was back then.

23 So like aunty was saying, you know, all
24 that years, you know, we only hear from our ohana what
25 they tell us to do and what not to do. So I don't

1 know if anyone here ever went there lately or ever
2 tried to go and see if it came back alive.

3 MS. DeNAIE: Kimoqueo?

4 MR. LEE: Yeah, we've been doing for the
5 last four years around that place, where Kimo is
6 (inaudible) -- oh, Mike Lee -- for the good work that
7 they're doing, you know, with the young people and
8 trying to teach them to bring it back. Like we went
9 down there on the lauo o Pele is coming out, the
10 pakapaka is there. This is not the season for the
11 palahalaha, usually April, May or August or October,
12 because water has to be warm for that one, but that
13 one loves freshwater. On the northern side of the
14 fishpond is where you have the spring coming down and
15 it feeds all the limu.

16 Limu and freshwater are one and one. You
17 know, certainly limu like limu kala and also your limu
18 koko needs the Jacuzzi of the ocean crashing, not just
19 the water, and sand going over crashing, like the
20 wawae`iole. They live off the sand inside their
21 little pods. And the aalaula, because you've gotta
22 clean, hard time cleaning that limu because the sand
23 inside.

24 MR. MAU: Plenty rubbish.

25 MR. LEE: Plenty rubbish inside. So

1 unless you know how to clean it properly, you don't
2 want to, you know, handle, a lot of work to clean that
3 one. So -- and lipoa needs plenty, plenty freshwater,
4 and that's like December that the (inaudible) moon
5 cuts that -- that limu to replant.

6 So we've been down there. We've taken
7 films of where you guys have been working, and
8 palahalaha was there profusely, which we use for
9 medicine and stuff for the lungs, yeah, and the lauo o
10 Pele we use for cultural practice. That one you have
11 to lawala and imu because like (inaudible), tough, but
12 it can be eaten when you put it in the hot water and
13 blanch it and it gets soft. But manawaea needs plenty
14 Jacuzzi action and freshwater, and you got six
15 different kinds from the very purple purple to the
16 rice type, you know, the green one, kane wahine one,
17 so all of this stuff, the health of the ocean depends
18 on two things, the estuary -- see, used to have pili
19 grass that used to grow, hold everything in place so
20 when the water comes down, you don't tear off the
21 sides of the gulches, yeah, so, dig, dig, dig, dig, if
22 it's all pili grass. The invasive have come in so the
23 tearing takes place. That's one of the reasons.

24 And then when you get to the estuary --
25 they kind of made it narrow, so instead of having the

1 natural plants so when the water does flow down from
2 up mauka -- that water is supposed to be crystal clean
3 coming into the ocean. That doesn't destroy anything.
4 It actually adds, yeah. But because it's coming down
5 muddy, because you don't have pili grass to bend over
6 and deep roots that go like this like limu in the
7 water, holding everything together so the water does
8 pilau, it doesn't turn red, so by the time you get to
9 the ocean, you also had your grasses down makai and
10 big so it spreads out, so when hits the energy doesn't
11 (indicating) and all the rubbish and everything and
12 red water going in and then getting inside.

13 So, you know, a project like this,
14 because the gulches are so important for the
15 drainage -- you cannot do -- you know, the arrogant
16 thing in the state, they said you have to have
17 drainage for this project. The drainage was natural.
18 The mauka takes care of the drainage, but you have to
19 make sure that the right kind of grasses -- it was
20 known that pili grass grew inside, but you now have to
21 plant it because the invasive -- the birds kukai and
22 then they take over and so you literally have to
23 replant that and take out the invasives, so that when
24 this happens --

25 And concretizing isn't good.

1 Concretizing is when, you know, they did that in New
2 Orleans, and they don't do that any more, and they did
3 it at Iao. Think don't do that. I mean, nowadays you
4 don't do it, because it has to percolate down, because
5 there's an underwater natural channel freshwater
6 that's going into the ocean.

7 So all of these protocol for safety, when
8 you get -- as you said, Brian, when this builds up and
9 it let's loose, those big boulders will crack all the
10 concrete stuff, you know, and you cannot house water
11 underneath to settle in. It's going to have a
12 devastating effect, because you're going against the
13 flow. And when you go against the flow on a -- say, a
14 one-week straight rain, it's going to bust over the
15 banks and just go like this.

16 I mean, we see that in Manoa, we see that
17 down when you go to Waikiki when it -- those big
18 ditches were flooding over, and it's those events
19 health and safety, not the regular small event, but
20 the fishery is dying. That's a native cultural
21 resource that ties into this property and this
22 project, and that's Article 12, Section 7. Article
23 7 -- Article 11, Section 7, the natural flow is
24 supposed to be protected, surface and subsurface.

25 So there are -- there are a win-win for

1 everybody. It's a doable, is what I'm saying, if the
2 proper things are put into place. It's a doable. I
3 mean, we're not here to be in the middle ages, but so
4 long as we can keep the ocean clean and that water
5 coming down fresh, this is a plus for everybody, you
6 know, if that is part of the mitigation plan. Because
7 Army Corps of Engineers will do a 10 million dollar
8 grant, you know, not out of the pocket of the
9 developers but to make sure that the Clean Water Act
10 and all of that stuff, the protocols are kept,
11 something to really keep in mind, you know.

12 MR. KAPAHULEHUA: Kimoqueo Kapahulehua.
13 Another good example is Malama Maunaloa in Oahu, where
14 they have taken mauka-makai and remove all the
15 invasive seaweed and now they're moving back in the
16 land and going up and taking care, like (inaudible)
17 field in Maunaloa.

18 MR. LEE: Exactly.

19 MR. KAPAHULEHUA: So you talking exactly
20 that kind of idea.

21 MR. LEE: Because I live -- Mike Lee. I
22 lived on Summer Street from '62 to '79, so when we
23 went out Paiku lagoon, palahalaha all over. It was
24 one of the most known places, besides Ewa, for ogo,
25 okay. People took bags, big bags of ogo out there, I

1 mean huge bags. This is before any, you know,
2 (inaudible), and the octopus, the he`e, pulling he`e,
3 you know, like crazy, but that ended when they busted
4 into the springs and for the (inaudible) and they were
5 literally not letting the springs (inaudible) ocean.
6 And so then we see a big turn over and change and all
7 the palahalaha disappeared, the ogo started -- the
8 invasive started coming in and the problem.

9 And then the governor, when he was a
10 congressman, put this bill in and they really brought
11 it back. It can be brought back is the good news, is
12 what you're saying. We can bring all of this back, if
13 we do proper management plans for it.

14 MR. ALMEIDA: Levi Almeida, and to
15 further speak, to touching, you know, the (inaudible).
16 I'm actually kama`aina of Iao and (inaudible) near the
17 ocean, so is my family, and, you know, concretizing
18 and tampering with the natural flow of -- you know,
19 the natural waterways has been extremely detrimental
20 to the ocean resources in that area.

21 What it's akin to, you know, you have an
22 ordinary garden hose, yeah. You can water your
23 plants, you can -- you know, it's gentle, yeah, but
24 when you start concretizing and tampering with it,
25 what happens is you no longer have a garden hose.

1 You now have a fire hose, and we turn it on and it
2 blasts everything, you know, causing further erosion.

3 So I think with the gulches, it's
4 important for us to, you know, really be precise and
5 to have a really, really deep and clear understanding
6 of what the effects is going to have from, you know,
7 touching these waterways.

8 UNIDENTIFIED MALE: Go ahead, Basil.

9 MR. OSHIRO: Basil Oshiro. From what
10 I've been hearing from everybody is we've got to be in
11 spirit with the land. We've got to know what the land
12 is telling us. We with cannot create -- actually, we
13 are creating pollution by industrialization, but
14 there's solutions to it. We've got to look at -- like
15 Kihei, the deep floods we having. Somebody's not in
16 spirit with the land. (Inaudible) ranch was one of
17 the faults of that. I can say that much because they
18 just -- they forest the whole area over there, and
19 what came down here, all the (inaudible) from up there
20 came out down here. Yeah.

21 And we just overdeveloping our wetland.
22 We putting concrete where the water supposed to
23 settle. Because you can look up mauka, the Hawaiian
24 homes are there, those gulches are huge. So you know
25 water comes down through there in -- you know, you can

1 say catastrophic amounts. And where it's gonna end up
2 if you have concrete? It cannot flow in the land. It
3 comes out to a certain amount, it disperses itself and
4 settles and creates a water table, because we on
5 volcanic islands, and the dirt is only so thick. It
6 will settle on the bedrock and that's our water table.
7 And that's a common sense kind of thing.

8 We've gotta listen what the land is
9 telling us, and industrialization is going to happen,
10 whether we like it or not, but we gotta be in spirit.
11 If the land tells us something, listen. We cannot
12 just develop. Listen to the land and find solution to
13 that, what's happening. Otherwise, we're not gonna
14 have Hawaii. We're only -- we're so limited on our
15 land space. You look mauka, you think, oh, we get a
16 whole bunch of land. We don't. We just a needle in a
17 haystack right now looking at it.

18 Look at our rain forest. It's moving
19 farther and farther up the mountain. Yeah, you go up
20 to Polepole, oh, it's a big area, because we one speck
21 of dust in that area, but look down from there, you
22 see the vast area, it's actually all wetlands. Yeah,
23 you look at where Aunty Florence guys, they talking
24 about right here, that's part of our wetland. The
25 water comes down, disperses and goes down to our

1 bedrock, but that water table is being depleted. They
2 think we have a lot of water, west Maui, east Maui,
3 Kula, but (inaudible) Haleakala, I'm quite sure
4 there's just maybe at the most two water tables that
5 we keep drawing. Water from Mokuauia coming to Kihei.
6 They want to pump it (inaudible) Kula because Kula
7 don't have enough water. Farmers starving out there.

8 So we better listen to the land instead
9 of growing homes and making industrializations. Let's
10 grow farm land and food so we can be self-sustainable,
11 because within my lifetime I hope to see something
12 happen, that the -- we will be self-sustainable, in a
13 way that we don't have to depend on the outside so
14 much.

15 I come from -- I the only one from my
16 family as a commercial fisherman, and a lot to do with
17 the -- what we have on land, up mauka, makai, gonna
18 affect our waters. And everybody's talking about the
19 same -- same thing, and if we not in spirit with what
20 we have here, we all gonna suffer. Our future
21 generations are gonna suffer. So whenever you folks
22 decide -- we not trying to stop all developments, but
23 to be in spirit with what our kupuna had, how they did
24 it, and listen and be in spirit. It's the main thing
25 I'm talking about.

1 Right now I see Kihei, the land is
2 fighting back with the flooding, you know. Can see
3 enough already, slow it down. Study. Do studies or
4 research before you go ahead and do things, and right
5 now that promenade, I live right up mauka of that, and
6 the grass, the forest is the one that containing the
7 water. If it rains -- you have to have real big
8 rains. If it's concrete, the jungle over there, we're
9 gonna lose it, yeah.

10 Like (inaudible) Kula gulch, (inaudible)
11 Kula gulch, you don't see it flow too often. When it
12 comes, it's crazy, and if you're gonna concrete around
13 that and divert the gulches, what's gonna happen?
14 Like Mike said, it's gonna overflow. You cannot fool
15 nature. You gotta build in spirit with nature and
16 it's part of our land. So I think I talk enough
17 already. Thanks.

18 MR. KANAHELE: Yeah, getting -- you know,
19 speaking of.

20 UNIDENTIFIED MALE: Your name.

21 MR. KANAHELE: Oh, Daniel Kanahele.
22 Sorry. Speaking of the archaeological inventory
23 survey, really to understand site significance of any
24 individual cultural feature, you have to understand
25 the cultural landscape that surrounds it. And so

1 often, you know, we look at just a small slice of a
2 pie. We look at it through, you know, sort of tunnel
3 vision. We can't do that, because we know as
4 Hawaiians that it's a much bigger picture, and we're
5 talking about a cultural landscape.

6 And so we're talking about the gulches,
7 Kulanihakoi and Kaonoulu, which Basil says doesn't
8 flow very often, but when it flows, it's crazy. It
9 means a lot of water comes down. We have to look at
10 our cultural landscape, and the gulches are cultural
11 resources, and it's part of the reason why you have
12 traditional sites there.

13 MR. FREDRICKSON: Sure.

14 MR. KANAHELE: Because of the water,
15 because of the access (inaudible) ocean. And we know
16 there was a lot of activity going down near the ocean,
17 you know, this makai -- you had Kalepalepo
18 (inaudible). You have a lot of people down there. So
19 I have hiked Kulanihakoi gulch many times. I know for
20 a fact that if you go along the southern boundary of
21 the project area and the gulch and as you make that
22 (inaudible) left turn in the gulch, gulch (inaudible)
23 and it turns north. There are sites, there are walls
24 along the gulch there, which is, you know, adjacent to
25 the property.

1 So I think it's important to -- in order
2 to understand the sites that you're looking at, to
3 understand the sites that are adjacent to it, what's
4 next to it, especially the sites in the gulch, because
5 it's apparent that that was used a lot. So who is --
6 who is going to cover that? Who is going to look at
7 those sites that are just right, right next to this
8 project area right along the gulch? Because the
9 project area will impact the gulch, Kulanihakoi. It
10 will impact Kaonoulu Gulch.

11 So who is going to look at those sites?
12 Will it be -- will it be part of this reassessment
13 that, you know, the survey is undergoing?

14 MR. FREDRICKSON: Really the question --
15 Eric here, Fredrickson. Again, the gulch area per se,
16 though, is -- it's not the same landowner, and trying
17 to look at that -- one has to absolutely have
18 permission, one, and -- because landowners tend to
19 be -- especially large landowners, tend to be somewhat
20 sensitive about having sites identified on their
21 property that they're not necessarily wanting to do
22 anything with or know about really.

23 Having said that, some landowners are --
24 you know, they have like land managers, et cetera that
25 they do have a level of interest about it -- if they

1 do know of something, making sure that they don't
2 inadvertently bulldoze through a site complex or
3 something, but actually looking at sites that are off
4 the project area that have not been surveyed before,
5 trying to do that is something that -- I mean, it
6 sounds -- it would be neat to do, but that can't --
7 that can't be done with this project. It's a -- I
8 mean, it would be neat from an archaeological point to
9 do that.

10 MR. KANAHELE: Is that a potential area
11 of impact for the proposed -- proposed --

12 MR. FREDRICKSON: I'll let Charlie answer
13 that, because that's -- I'm looking at the
14 archaeology. My understanding -- I will say one
15 thing, Daniel, that this easement -- excuse me, here,
16 that's on the mauka, the eastern side, this originally
17 was classified as a drainage easement, which would
18 have brought drain and from up slope and just emptied
19 it into the gulch. That -- that has been taken --
20 that potential use is no longer something that's
21 proposed. It's just going to be used for this
22 waterline, the central Maui transmission waterline
23 that will go around -- more around the property.

24 MR. KANAHELE: Okay. Close to the fence?

25 MR. FREDRICKSON: It will be -- it will

1 be next -- it will be mauka of the fence and then it
2 will be on the southern part of -- in the property
3 itself.

4 MR. KANAHELE: Okay.

5 MR. FREDRICKSON: But Charlie can
6 speak -- Charlie Jencks can speak to your question
7 about, you know, are actions of the project -- I mean,
8 like development actions going to potentially do
9 something to the gulch.

10 MR. JENCKS: Charlie Jencks. I would
11 just say, Daniel, that, you know, we -- Eric described
12 fairly accurately how the engineering plans for the
13 project changed because I learned very quickly I
14 didn't want to divert water and put it in Kulanihakoi
15 gulch for a lot of reasons. Number one, I didn't to
16 mess with the gulch in any fashion. And number two, I
17 didn't want to be influencing stream flows down stream
18 from the property, because that affects other people
19 unfairly.

20 So for those reasons, we backed
21 completely out of that approach to the stream,
22 diverting any water to the Kulanihakoi Gulch, and
23 we've -- we had a conscious effort to make sure that
24 we were not doing any work close to the (inaudible).
25 With that said, however, I'll take under advisement

1 your request and look at that in the context of the
2 plans we have today and we'll fiddle with that.

3 MR. KANAHELE: So -- Daniel Kanahale.
4 So, Charlie, your plans aren't to divert Kaonoulu
5 Gulch to the east side of the project area into
6 Kulanihakoi Gulch? There's no plans to divert
7 Kaonoulu Gulch?

8 MR. JENCKS: That stream -- that
9 intermittent stream bed is not being diverted to
10 Kulanihakoi Gulch, that's correct.

11 MR. KANAHELE: Is it being changed in any
12 way, shape or form?

13 MR. JENCKS: What it does, it comes
14 down -- it comes down here. It's going to be diverted
15 in a culvert over here, then down with the exact same
16 spot that it crosses under Piilani Highway.

17 MR. KANAHELE: I see. You are diverting
18 it.

19 MR. JENCKS: So there is no increase in
20 flow or velocity as a result of that diversion.

21 MR. KANAHELE: On the map there is drawn
22 the actual gulch, Kaonoulu Gulch, are you changing
23 that, that's what I'm asking?

24 MR. JENCKS: It's going over from here,
25 over here, then down here.

1 MR. KANAHELE: So you're diverting?

2 MR. JENCKS: Yeah, but not in -- not into
3 Kulanihakoi Gulch. It was at one time. Henry's
4 original proposal was to take it over to here and put
5 it in the gulch over here.

6 MS. DeNAIE: Lucienne deNaie. I think it
7 might be interesting, just from an archaeological
8 perspective, to look at this project in terms of what
9 the land might have looked like 400 years ago or so.
10 And I'm really intrigued by what Brian and aunty are
11 saying about Kulanihakoi Gulch being so much more
12 shallower, because imagine if this is kind of a piece
13 of land between two gulches. Because if you look at
14 the 1922 topo map, Kaonoulu Gulch is pretty prominent
15 on that. It's a little dotted blue line. It's not
16 just, you know, some little checkered marks saying
17 there's sort of a gully. It -- it had a life of some
18 sort. It joined in to Kulanihakoi Gulch down below
19 what is now Piilani Highway. There probably was sort
20 of a wetlands or something there, because two water
21 places coming together, because it's very low lying
22 (inaudible).

23 UNIDENTIFIED MALE: (Inaudible).

24 MS. DeNAIE: And if you look at the 1930s
25 maps you see as then the conjoined flow goes

1 through -- now it's Kaonoulu Estates and down near
2 that place where it always floods near the whale
3 sanctuary, where, you know, this gulch, Kulanihakoi
4 Gulch comes out at that point there. There was a big
5 (inaudible), and it's on the map. So in other words,
6 it was a big, open lagoon swampy area. Now there's
7 like a little channel, like Michael referred to
8 earlier, Michael Lee noted this.

9 So in essence what you have was land that
10 might have been between two areas that had maybe some
11 spring feeding and certainly intermittent flow and
12 certainly not intermittent flow like 15, 20 feet
13 below, maybe 5 feet down or 6 feet down. And so I
14 heard you say earlier, well, nobody lived here because
15 there was no water, but 400 years ago it could have
16 been --

17 UNIDENTIFIED MALE: Down closer to the
18 coast there certainly would have -- were people living
19 there, yeah.

20 MS. DeNAIE: Right. And I just wonder,
21 because, you know, when you look at the archaeological
22 surveys for a number of other places that are at this
23 same elevation, a lot of times they're fairly empty.
24 They've been pretty smashed up by military -- the
25 activities or by ranching activities. It's

1 interesting that this one had all these mitten
2 scatters and other, you know, the petroglyph, that
3 there's more petroglyphs further up the gulch that
4 were found in Socheck's report.

5 You know, I'm with whoever said we
6 need -- I think it was Daniel. You need to look at
7 the cultural landscape. And I realize you can't go
8 out and do other people's work, but I'm really happy
9 that we're looking at this report, because I know
10 you're a hard working archaeologist. I've read so
11 many of your reports and I really respect your work
12 and I really respect the fact that you like to dig.
13 You're personally curious about this.

14 So I would just say that let's take a
15 look at this land. It may be that the reason that we
16 have these mitten scatters is that so much soil that
17 used to be there was washed away earlier simply
18 because the same erosion effect that has cut down that
19 gulch, Kulanihakoi Gulch, and sort of (inaudible) in
20 Kaonoulu Gulch, has kind of, you know, impacted the
21 flatter part of the land. Because there's sheet flow
22 that comes across it too.

23 UNIDENTIFIED MALE: Oh, yeah, definitely.

24 MS. DeNAIE: Plenty of sheet (inaudible).

25 That's why we had that big cement thing there. It's

1 not just for the gulch. It's for all the sheet flow
2 too. So in terms of the significance, I mean, I hope
3 that, you know, your investigations shed more light on
4 what's there, but even if they don't, I think we may
5 have to assume that some of it may have been washed
6 away, but if there's a way to design this project as
7 (inaudible) parking lots, just so there's a sense of
8 history left here, so there's a couple plaques that
9 say, oh, here's a little -- here's a little -- I
10 notice there was an enclosure that was near one of the
11 mitten scatters, and it seemed like that mitten
12 scatter, number 3744 had two layers, had kind of a
13 larger selection artifacts, maybe a grinding stone,
14 this and that, maybe there's a little bit going on
15 there. I mean, if that can be preserved in a parking
16 lot somewhere and you give up like four parking
17 spaces, but you have a sense of -- Kaonoulu is not a
18 very wide ahupua`a. I mean, I bet you wouldn't oppose
19 that if that could be arranged, but just throwing this
20 out, that there may be a whole other landscape view of
21 this as we put the pieces together of what conditions
22 were like 400 years back when people were using these
23 kind of implements, what things were like further up
24 the gulch, and what was happening down at the ocean,
25 which was pretty busy. So end of rant.

1 MR. MAU: Jacob Mau. You know, I started
2 working for the state Department of Land and Natural
3 Resources in 1961, and part of my responsibility was
4 once a week I would read the rain gauges from Cosner
5 Grove, I go down Puluau, Puniiu, I come out Waikamoi,
6 and I go inside the reservoir, read the rain gauge. I
7 come out, I go inside Waiahole spring, which is
8 Olinda. I come back down, I go up Pulipuli. I take
9 the sky road, I come down on the skyland ridge, come
10 down Pulipuli, go read the rain gauge. And there were
11 times, especially in the winter months when you get
12 the Kona wind or the Kona rain, there's a river. I
13 don't know if you guys been up Pulipuli, get one
14 concrete crossing (inaudible).

15 UNIDENTIFIED FEMALE: Yeah, yeah.

16 MR. MAU: Sometime I cannot even come
17 home until the water go down. And I stand up there, I
18 sit down, I look. You see the water going all the way
19 down to Kihei and all the dirt and mud and everything
20 down there. I go, wow, I wish I had a video camera,
21 you know, just to show the devastation.

22 Another thing, I was fortunate in 1963 or
23 '64, I worked on Kahoolawe. We did a first
24 reforestation -- first we did eradication, get rid of
25 all the sheep and the goats that were -- I think

1 Kaonoulu Ranch, yeah, the Rice family had use of --

2 MS. DeNAIE: They had some use, yeah.

3 MR. MAU: Kahoolawe, so we had to get rid
4 of all of the goats and the sheep, and you like see
5 the damage, you know, over there, the erosion, the
6 damage. I look at that, you know, and (inaudible) no
7 more money for camera, but you look at the damage, the
8 erosion, you know, all over that island, the
9 devastation to all the native (inaudible), the kiawe
10 tree, the goats get so hungry, they climb the kiawe
11 tree and they go up on the limb, eat as much as they
12 can on the trees, because that's all they can eat. On
13 the ground no more nothing, you know, all gone.

14 So things like that can happen again,
15 yeah, but today (inaudible) we did all the
16 reforestation on Kahoolawe, so now get plenty rain,
17 plenty rain. Everything stay pono now, I hope. Okay,
18 that's it.

19 MR. NAE`OLE: Brian Nae`ole real fast.
20 Talking about what Lucienne was saying about 400 years
21 ago, does anybody in here knows Hewahewahapakuka, who
22 he was back then?

23 MS. DeNAIE: Eldon Liu does, but he
24 couldn't come tonight.

25 MR. NAE`OLE: Hewahewa was a kahu for

1 Kamehameha the Great, and he had some kind of
2 significant thing back in here, because back then over
3 here was green. Now we're like vacant, you know, we
4 cannot go on the land, but back in the old days they
5 used to work the lands before, so maintenance was
6 pretty well organized. So had a significant life here
7 in Kaonoulu, because Kamehameha the Great trusted
8 Hewahewa, because Hewahewa was his high priest at the
9 time.

10 So what was significant was vegetation,
11 food, resources, fishpond was all in one area, and
12 that land mass is so magnificent, it's high and it's
13 low, you know, and it makes sense, because we're just
14 trying to find --

15 MS. DeNAIE: Pili grass too. Lucienne.
16 Pili grass was on this site. It was in your report.
17 It's still there.

18 MR. LEE: Mike Lee. Hewahewanui was my
19 8th great grandfather. His granddaughter Kapele, was
20 mother of Neole, who married Kawaha, who had Julia
21 Alapa`i, who is my grandmother, who when she was with
22 Nahili or Nahele, the child that she had in the Maui
23 genealogy's keiki na miki, Captain Meek's daughter,
24 Liza Meek, alii haole, who is my 4th great
25 grandmother. The secret was that so long as you keep

1 the natural forest going, okay, the (inaudible) keep
2 double rain, okay.

3 So what happens is the water from the
4 ocean condenses and then it goes down in dew from the
5 morning time all the way to 1:00 and then you get the
6 secondary rain that takes place. The cloud forms.
7 This is the neck for the area. It's the neck. It
8 comes down and shoots over to -- this is the naulu.

9 UNIDENTIFIED MALE: Naulu.

10 MR. LEE: Naulu for the uaulu rain that
11 comes down. So long as you keep -- now, what happened
12 was Kahona set this on fire, burned this, stopped
13 this. This is the neck, and it's related to the mo`o
14 that goes through here, which everything is made for
15 the mo`o from east to west to clear everything from
16 the mountain to the sea, but if you keep this in check
17 up here, the neck run, the naulu rain will take -- the
18 cloud will form, and that's part of Puumahoi's job
19 over here.

20 So this takes the moisture. In October
21 the moisture that comes off of the south -- the
22 southeast and south, what happens is there's plankton
23 inside that moisture from the surf. It gets very cold
24 in mauka, but it comes cold down below and it
25 condenses all of that. And what happens is it

1 fertilizing everything. It's more fertile than weeks
2 and weeks of rain of the so you never see one drop of
3 rain come, and everything turn green. And it's
4 like --

5 MS. DeNAIE: From the fog?

6 MR. LEE: From the mist that comes down.
7 That's the secret in the family structure of doing
8 that. So when you keep that in check, then nauulu
9 comes and the uaulu rain takes place. You wipe that
10 out here, it stops it here, and then this no longer --
11 the fishery no longer proliferates because the
12 underground pahoehoe lava tube and the mo`o is used to
13 clear all of that stuff, so that the fishery is going
14 to be impacted in a positive way, and that's why the
15 nakoas are set up here, here, here, it intersects with
16 the fishery and in December, through the right moon,
17 (inaudible) can go right across. Just suck you right
18 across.

19 So if it's kept in check, then everything
20 goes. Keokea Lani, which on the earth is part of
21 Puumahoi and her breast and Keokea Lani in the sky
22 match up together, and everything flows. Break that
23 cycle, you choke it all off, right down the whole
24 thing.

25 MR. KANAHELE: Question. Eric, yeah, I

1 know our time is running short, the cultural impact
2 assessment for this project area was done in 1994? I
3 know there was a CIA done -- no, I think it was
4 2000 -- (inaudible).

5 MR. FREDRICKSON: We didn't do the CIA --
6 there was no requirement in '94 and we didn't do
7 the -- I believe there was one done, but we didn't do
8 one on this project.

9 MR. KANAHELE: Okay. (Inaudible) 2004,
10 because I read a CIA for the project.

11 UNIDENTIFIED MALE: Yeah.

12 MR. KANAHELE: (Inaudible) did that? I
13 think around 2004, something like that. And it was
14 very short, because there was actually no one
15 interviewed. There was no one found to interview,
16 but, I mean, I'm just wondering if that should be
17 redone, if there should be a CIA, because there's like
18 two people here.

19 The other quick question -- oh, I see
20 (inaudible). Another -- the other quick question is,
21 you know, can we set a date for a site visit at green
22 dry season, Charlie?

23 MR. JENCKS: Charlie Jencks. Yes, you
24 can. We will. And number two -- that's with regard
25 to the site visit. And number two with regard to the

1 cultural impact assessment, it has been redone by
2 Hanapono as a part of this project application. It
3 will be in the AIS.

4 MR. KANAHELE: It's done or it's going to
5 be done?

6 MR. JENCKS: It has been done. It will
7 be included in the draft AIS when it's published for
8 review.

9 MR. KANAHELE: I wasn't aware that it was
10 underway.

11 MR. JENCKS: Done.

12 UNIDENTIFIED MALE: Did you hear,
13 (inaudible)?

14 UNIDENTIFIED MALE: No, I just heard
15 about it now.

16 MR. LEE: Mike Lee. Can you do a
17 supplemental for aunty and uncle over there for the
18 CIA? Because they are cultural resources that are
19 valuable and lineal descendents of the --

20 MR. JENCKS: What I would suggest you do
21 or they do is comment, as a part of the draft comment,
22 and then we have to address that.

23 MR. LEE: Okay. Good.

24 MR. JENCKS: That's basically the purpose
25 of that document is to put out a draft document. You

1 have a chance to comment on every aspects of the
2 document, and then we have to address those comments.

3 MR. LEE: Okay. Fair.

4 MR. JENCKS: Okay, it is literally
5 straight up 8:00. I want to thank every -- hold on.
6 I want to thank everybody for coming. Clare, you
7 didn't say a word.

8 MS. APANA: (Inaudible). I just have a
9 question. So everyone has given such great input, I
10 mean, it's a record meeting. Seems like all the
11 kanaka are pretty much in agreement about the flow of
12 water and preserving the coastline, keeping the water
13 clean, flowing down and keeping it flowing, but -- so
14 how does -- where do you take this? Where do you take
15 this, Charlie, these comments and --

16 MR. JENCKS: Well, like I said when I
17 started the meeting, we have an audio man here. We'll
18 take this audio recording, it will be put into a
19 transcript. That transcript will then be attached to
20 the AIS, which is part of the EIS for the project.
21 Okay. And you will then have a chance to comment on
22 the transcript, if you wish, and also comment on the
23 AIS as a part of the project and the cultural impact
24 assessment.

25 MS. APANA: Does this comments get to

1 be -- does it have a chance to be seen as an impact,
2 as a cultural impact?

3 MR. JENCKS: You'll see it in context in
4 the document and you'll be able to read that and you
5 can comment on that. Okay?

6 UNIDENTIFIED MALE: (Inaudible).

7 MR. JENCKS: As I understand your
8 question, that's a yes. Okay, thank you for coming.

9 UNIDENTIFIED MALE: Thank you, Charlie.

10 MR. JENCKS: Have a good evening.

11 (End of audio-recorded proceedings.)

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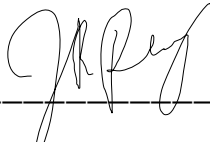
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I, Jessica R. Perry, Certified Shorthand Reporter for the State of Hawaii, hereby certify that the audio-recorded proceedings were transcribed by me in machine shorthand and thereafter reduced to typewritten form; that the foregoing represents to the best of my ability, a true and correct transcript of the audio-recorded proceedings had in the foregoing matter.

I further certify that I am not attorney for any of the parties hereto, nor in any way concerned with the cause.

DATED this 21st day of March, 2014, in Honolulu, Hawaii.



Jessica R. Perry, CSR, RPR
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**Piilani Promenade Cultural Consultation Meeting
February 25, 2014**

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APPENDIX G
Archaeological Impact Survey of Kulanihakoi Gulch
dated August 2008

**AN ARCHAEOLOGICAL INVENTORY SURVEY
ON A 516.32-ACRE PARCEL LOCATED IN
KĪHEI, KA`ONO`ULU AHUPUA`A, MAKAWAO DISTRICT,
MAUI ISLAND, HAWAII
[TMK (2) 2-2-002:015 por.]**

Prepared By:
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Revised August 2008

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ABSTRACT

From January to April, 2007, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey on a large parcel of open land located in Kīhei, Ka'ono'ulu Ahupua'a, Makawao District, Maui Island, Hawai'i [TMK: 2-2-02: 015 por.]. Forty new archaeological sites were identified and recorded during this work. Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, enclosures, platforms, a mound and a wall. Historic sites found during this work pertained to agriculture and military training activities.

Data Recovery is recommended for Sites 6405 and 6412. These sites consist of mixed pre-Contact and historic military components, representing adaptive re-use of pre-existing sites in the area.

Preservation is recommended for Sites 6390, 6413, 6414, 6415, 6416, 6419, and 6420. These sites represent Hawaiian traditional structures in the barren zone, where habitation is understood to have been limited and extremely temporary.

Under the circumstances owing to the nature and intended preservation of these sites, Archeological Monitoring is recommended during any ground altering work planned for the parcel. With the exception of Monitoring, no further work is recommended for any of the agricultural mounds or miscellaneous historic sites, as these have very little potential for providing further data.

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INTRODUCTION

At the request of Mr. Henry Rice of Ka`ono`ulu Ranch, Scientific Consultant Services, Inc. (SCS) conducted an Archaeological Inventory Survey, on a large parcel of open land located in Kīhei, Ka`ono`ulu Ahupua`a, Makawao District, Maui Island, Hawai`i [TMK: 2-2-02: 015 por.] (Figures 1, 2 and 3). Proposed development on this lot consists of a master planned project district with an integrated concept, whereby land use will be organized around a commercial and mixed-use village center to serve these planned neighborhoods. A combination of commercial, light industrial, residential, recreational and public/quasi-public uses is anticipated as part of the project area's land use.

SCS personnel Tomasi Patolo, B.A., Dea Funka, B.A., and Bryan Armstrong, B.A. conducted this work between January 24 and April 6, 2007 under the general supervision of Michael Dega, Ph.D. The Archaeological Inventory Survey was conducted to investigate the presence or absence of cultural remains in the form of archaeological structures and/or subsurface deposits.

This Archaeological Inventory Survey consisted of 100 percent systematic survey of the project area, site recording, and limited subsurface testing. The total area subject to this assessment was composed of over 516 acres of open land most recently used for cattle ranching. The results of this work were extensive. Forty new archaeological sites have been identified and recorded (Figure 4). These range in age from the late pre-Contact period to the modern era.

PROJECT AREA DESCRIPTION

The project area is located in Ka`ono`ulu Ahupua`a, east of the Wailuku-Makawao boundary that cuts across the *ahupua`a*. It is bordered on the north by Waiakoa Ahupua`a and to the south by Kōheo Ahupua`a. The southwestern boundary abuts Pi`ilani Highway for some distance and then jogs inland ending with its northwest corner on the Wailuku-Makawao boundary (see Figure 2). The entire parcel was part of the Kaonoulu Ranch lands and spans from a half mile to approximately two miles inland of the coastline within an area archaeologically known as the "barren zone".

The project area soils are dominated by Waiakoa Extremely Stony Silty Clay Loam (WID2). This soil type is generally associated with highly eroded landscapes with shallow, 3 to 25 percent slopes and low precipitation (Foote *et al.* 1972: 126). Kīhei gets less than ten inches of rainfall per year (Armstrong 1983). The elevation ranges from 40 to 600 feet above mean sea

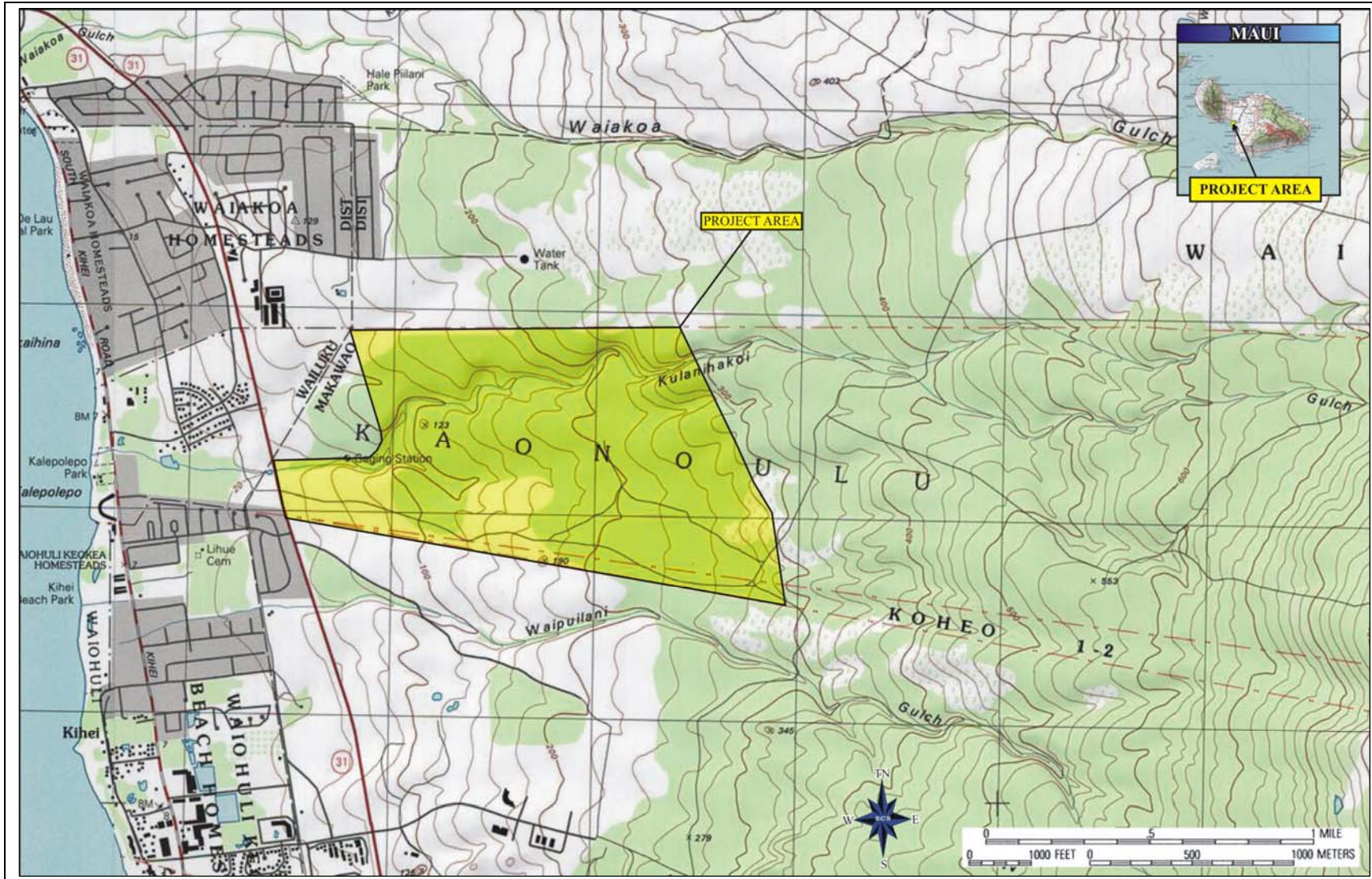


Figure 1: USGS Pu'u O Kali Quadrangle Showing the Project Area.

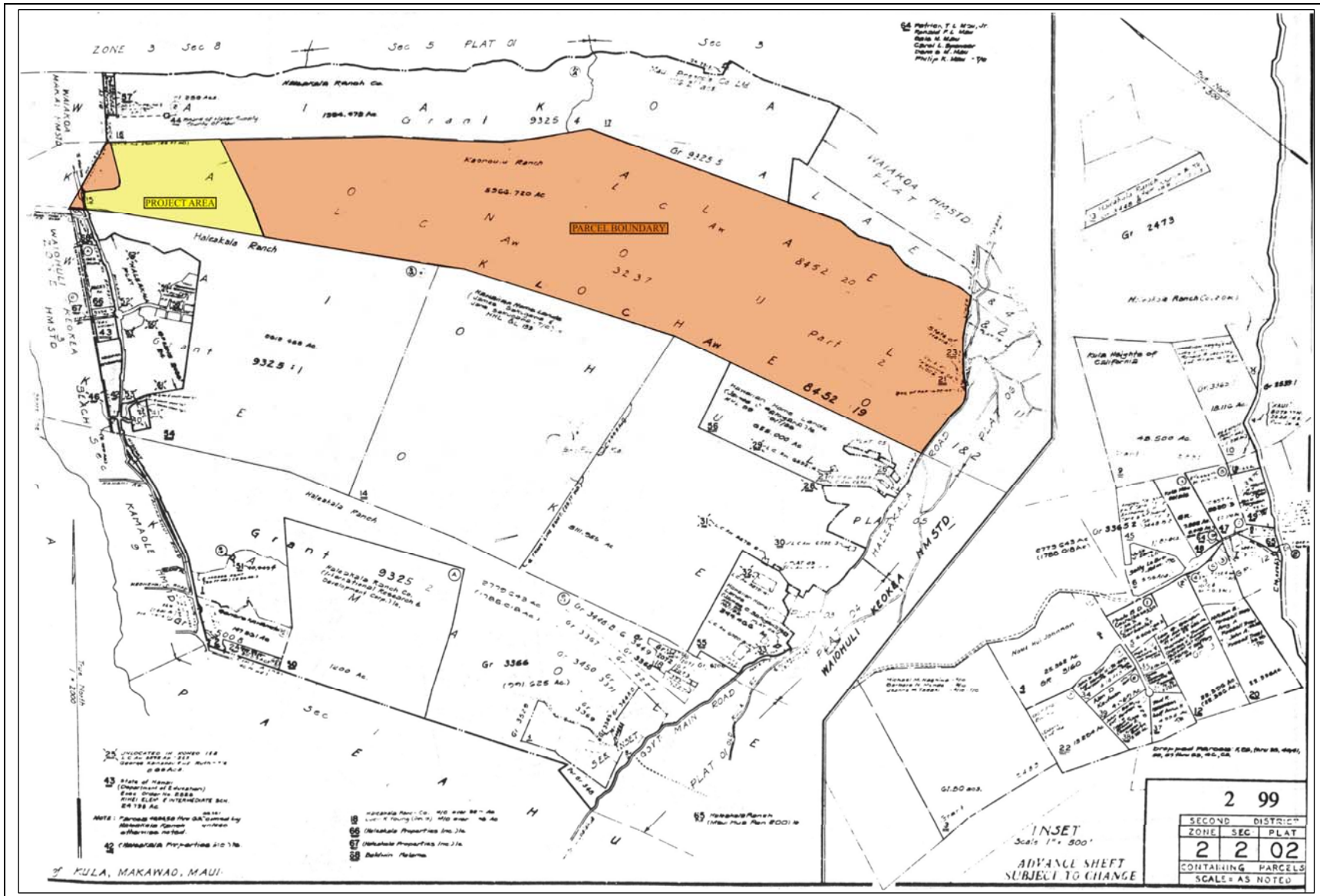


Figure 2: Tax Map Key [TMK] Showing the Project Area as a Portion of Lot 15.

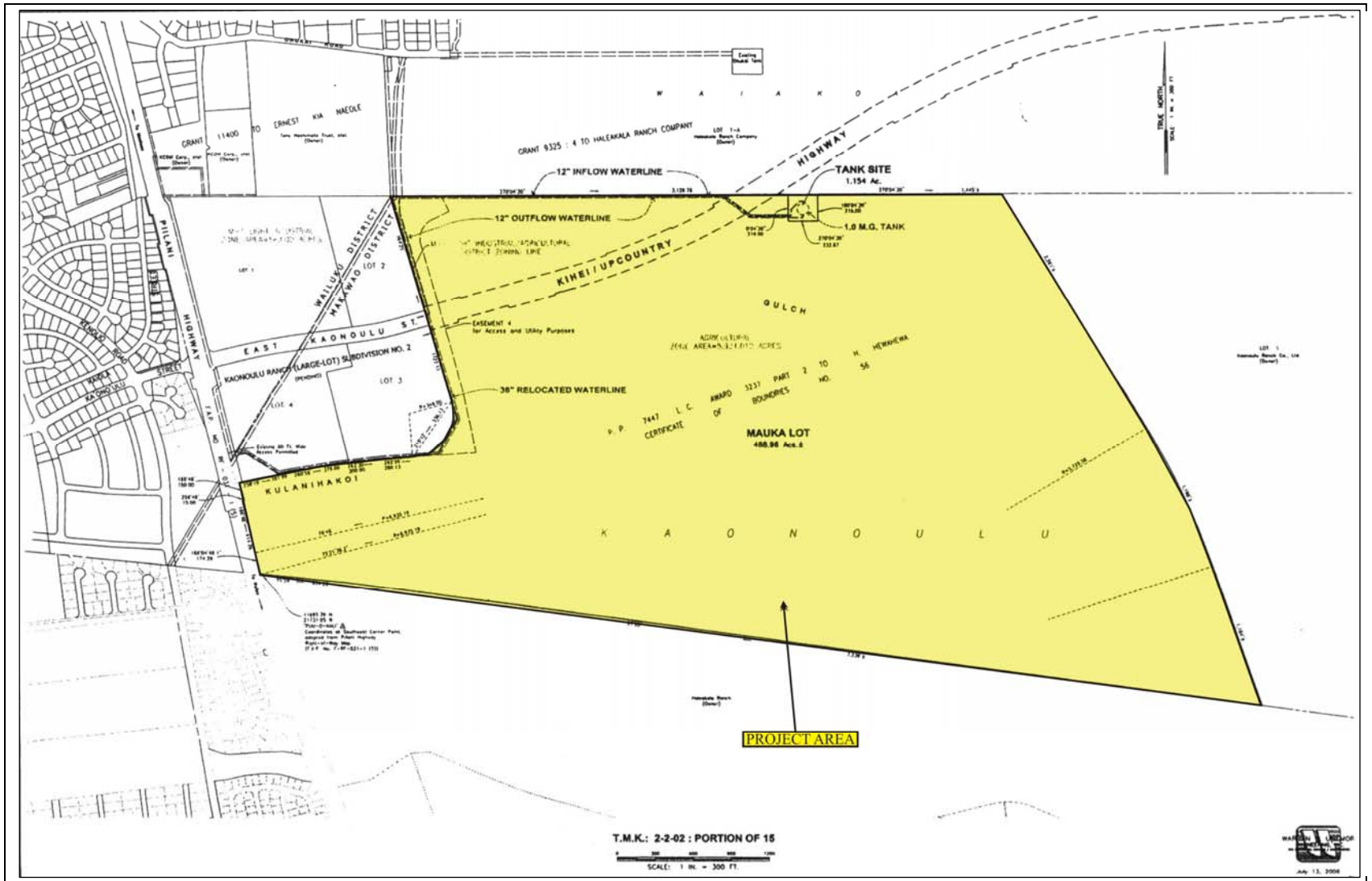


Figure 3: Tax Map Key [TMK] Showing the Project Area in Detail.

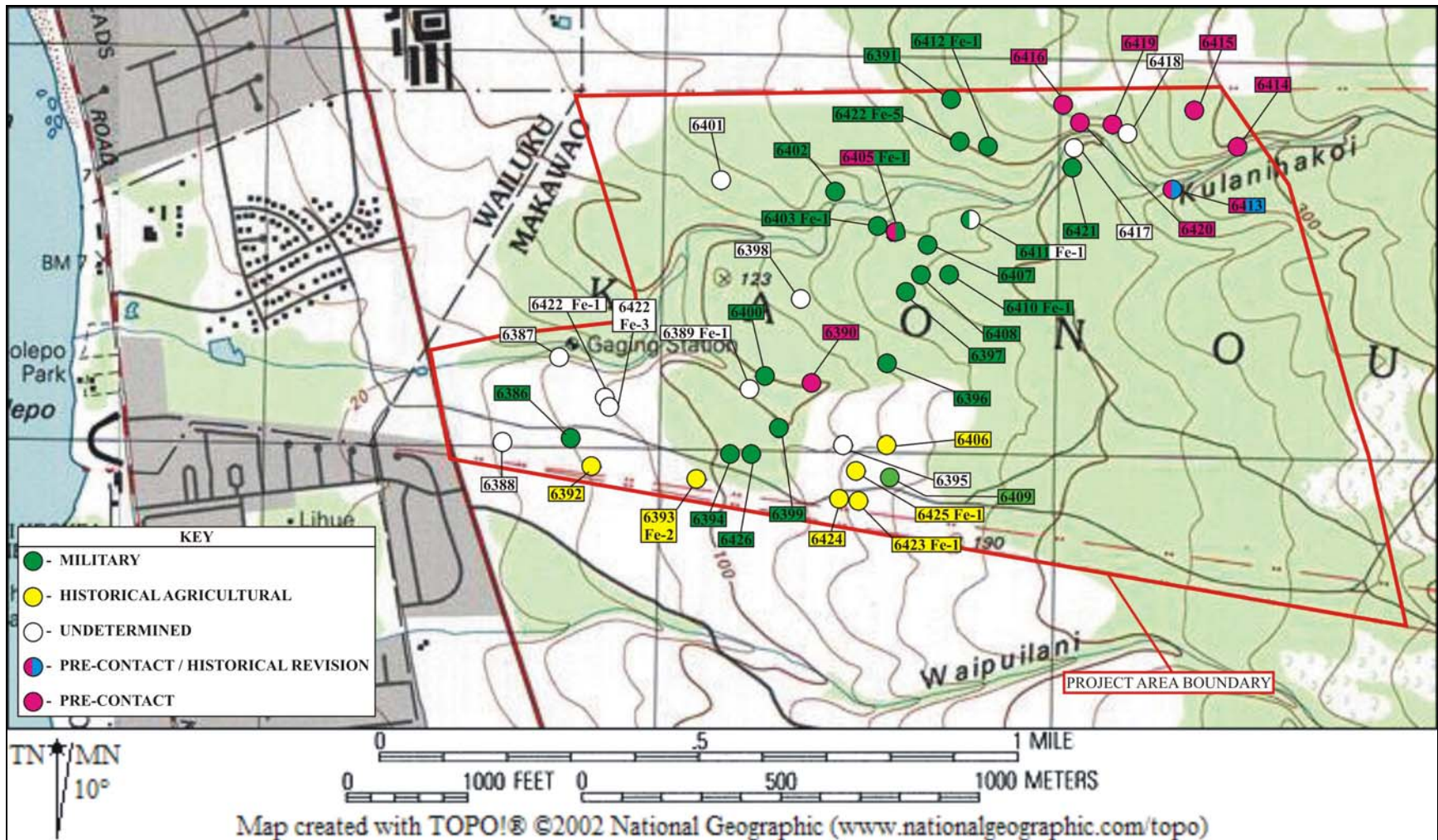


Figure 4: Plan View Map of the Project Area Showing GPS Points for the Sites Identified During Inventory Survey

level (amsl). The northeastern flank of the project area is marked with a steep natural gulch, called Kulanihakoi. While there is a general absence of perennial streams throughout the project area environs, Kulanihakoi Gulch does support a perennial stream during seasons of particularly heavy rainfall.

BARREN ZONE

In geographical and physiological terms, the barren zone is an intermediary zone between direct coastline and back beach areas to upland forests and more montane environments. The barren zone is a medial zone that appears to have been almost exclusively transitory, or at best, intermittently occupied through time. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (i.e., C-shapes, alignments) dominate the few documented traditional-period site types (pre-Contact) in the area through time. Post-Contact features are generally limited to walls and small alignments, respectively associated with ranching and military training in the area.

The barren zone was an intermediary region between verdant upland regions and the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone and tool procurement materials (basalt, wood) were selected from other locales as well. Sediment regimes in the area are shallow, most often overlying bedrock, and perennial water sources are virtually non-existent.

Cordy (1977) divided the Kīhei (inclusive of Kaonoulu) area into three environmental zones (or subzones when one considers the entire *ahupua`a*): coastal, transitional/barren, and inland. The current project location occurs in the transitional or barren zone: the slopes back of the coast with less than 30 inches of rainfall annually (Cordy 1977:4).

This barren zone is perceived as dry and antagonistic to permanent habitation. Use of the area would primarily have been intermittent or transitory, particularly as the zone could have contained coastal-inland trails and would have marked an intermediary point between the two more profitable ecozones. The region remains hostile to permanent habitation, only having been “conquered” in recent times through much modern adaptation (i.e., air conditioning, water feed systems, etc.).

Based on general archaeological and historic research, the barren zone was not subject to permanent or expansive population until recent times. This intimates that population pressure along the coast was minimal or non-existent in the Kīhei coastal area through time. As such, architectural structures associated with permanent habitation sites and/or ceremonial sites are not

often identified in the area. The prevailing model that temporary habitation-temporary use sites predominate in the barren zone has been authenticated further by recent research.

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. The island was formed by two volcanoes, Mount Kukui in the west and Haleakalā in the east. The younger of the two volcanoes, Haleakalā, soars 2,727 m (10,023 feet) above sea level and embodies the largest section of the island. Unlike the amphitheater valleys of West Maui, the flanks of Haleakalā are distinguished by gentle slopes. Although it receives more rain than its counterpart in the east, the permeable lava flows of the Honomanū and Kula Volcanic Series prevent the formation of rain-fed perennial streams. The few perennial streams found on the windward side of Haleakalā originate from springs located at low elevations. Valleys and gulches were formed by intermittent water run-off. The environment factors and resource availability heavily influenced pre-Contact settlement patterns. Although an extensive population was found occupying the uplands above the 30-inch rainfall line where crops could easily be grown, coastal settlement was also common (Kolb *et al.* 1997). The existence of three fishponds at Kalepolepo, north of the project area, and at least two *heiau* (shrine, temple, place of worship) identified near the shore confirm the presence of a stable population relying mainly on coastal and marine resources.

Agriculture may have been practiced behind the dune berms in low-lying marshland or in the vicinity of Keālia pond. It is suggested that permanent habitation and their associated activities occurred from A.D. 1200 to the present in both the uplands and coastal region (*Ibid.*).

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1979:383; Fornander places Kaka`alaneo at the end of the fifteenth century or the beginning of the sixteenth century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i`ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted; his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*), which customarily continued inland from the ocean

and upland into the mountains. Extended household groups living within the *ahupua`a* were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili`āina* or *`ili* were smaller land divisions next to importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa`āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the *ahupua`a* of Ka`ono`ulu, which translated means literally “the desire for breadfruit” (Pukui *et al.*:86).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. Within the *ahupua`a*, residents were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111).

During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugarcane, *Saccharum officinarum*), *mai`a* (banana, *Musa* sp.), and *`uala* (sweet potato, *Ipomoea batatas*) were also grown. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on the leeward side of Maui was likely to have begun early in what is known as the Expansion Period (AD 1200–1400, Kirch 1985). According to Handy (1940: 159), there was “continuous cultivation on the coastal region along the northwest coast” of Maui . He writes:

On the south side of western Maui the flat coastal plain all the way from Kihei and Ma`alaea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fishermen’s houses, where sweet potatoes were grown in the sandy soil or red lepo [soil] near the shore. For fishing, this coast is the most favorable on Maui, and, although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population, which presumably inhabited this leeward coast, ate more sweet potatoes than taro with their fish.... [*ibid*]

There is little specific information pertaining directly to Kīhei, which was originally a small area adjacent to a landing built in the 1890s (Clark 1980). Presently, Kīhei consists of a six-mile section along the coast from the town of Kīhei to Keawakapu. Scattered amongst the agricultural and habitation sites were places of cultural significance to the *kama`āina* of the district including at least two *heiau*. In ancient times, there was a small village at Kalepolepo based primarily on marine resources. It was recorded that occasionally the blustery Kaumuku Winds would arrive with amazing intensity along the coast (Wilcox 1921).

There were several fishponds in the vicinity of Kīhei; Waiohuli, Ka`ono`ulu-kai, and Kalepolepo Pond (Site 50-50-09-1288), which is also known by the ancient name of Kō`ie`ie Pond (Kolb *et al.* 1997). Constructed on the boundary between Ka`ono`ulu and Waiohuli Ahupua`a, these three ponds were some of the most important royal fishponds on Maui. The builder of Kalepolepo and two other ponds (Waiohuli and Ka`ono`ulu-kai) has been lost in antiquity, but they were reportedly rebuilt at least three times through history, beginning during the reign of Pi`ilani (1500s) (*ibid*; Cordy 2000).

Oral tradition recounts the repairing of the fishponds during the reign of Kiha-Pi`ilani, the son of the great chief Pi`ilani, who had bequeathed the ponds to Umi, ruler of Hawai`i Island. Umi's *konohiki* (land manager) ordered all the people from Maui to help repair the walls of Kalepolepo's fishponds. A man named Kikau protested that the repairs couldn't be done without the assistance of the *menehune* who were master builders (Wilcox 1921:66-67). The *konohiki* was furious and Kikau was told he would die once the repairs had been made. Ka`ono`ulu-kai was the first to be repaired. When the capstone was carried on a litter to the site, the *konohiki* rode proudly on top of the rock as it was being placed in the northeast corner of the pond. When it was time for repairs on Waiohuli-kai, the *konohiki* did the same. As the last pond, then known as Ka`ono`ulu-kai, was completed, the *konohiki* once again rode the capstone to its resting place. Before it could be put into position, the capstone broke throwing both the rock and *konohiki* into the dirt. The workers reportedly said “*Ua konohiki Kalepolepo, ua eku i ka lepo,*” or, “the manager of Kalepolepo, one who roots in the dirt” (*ibid*:66). That night a tremendous storm threw down the walls of the fishponds. The *konohiki* implored Kikau to help him repair the damage. Kikau called the *menehune* who rebuilt the walls in one night. Umi sent for Kikau who lived in the court of Waipi`o Valley from then on. The region of Ka`ono`ulu-kai and Ka`ono`ulu-kai fishpond became known as Kalepolepo fishpond (*ibid*).

The Kalepolepo fishponds were rebuilt by Kekaulike, chief of Maui in the 1700s, at which time it supplied `ama`ama (mullet) to Kahekili II. Again, it was restored by Kamehameha I when he ruled as governing chief over Maui, and for the last time in the 1840s, when prisoners

from Kaho`olawe penal colony were sent to do repairs (Kamakau 1961; Wilcox 1921). At this time, stones were taken from Waiohuli-kai pond for the reconstruction of Kalepolepo. It was here at Kalepolepo that Kamehameha I reportedly beached his victorious canoes after subduing the Maui chiefs. The stream draining into Keālia pond (north of the project area) became sacred to royalty and *kapu* to commoners (Stoddard 1894).

Trails extended from the coast to the mountains, linking the two for both economic and social reasons. A trail known as the *alanui* or “King’s trail” built by Kihapi`ilani, extended along the coast passing through all the major communities between Lāhainā and Mākena, including Kīhei. Kolb noted that two traditional trails extended through Ka`ono`ulu. One trail, named “*Kekuawaha`ula`ula*” or the “red-mouthed god”, went from Kīhei inland to Ka`ono`ulu. Another, the Kalepolepo trail, began at the Kalepolepo fishpond and continued to upland Waiohuli. These trails were not only used in the pre-Contact era, but were expanded to accommodate wagons bringing produce to the coast in the 1850s (Kolb *et al.* 1997:61).

WESTERN CONTACT

Early records, such as journals kept by explorers, travelers and missionaries, Hawaiian traditions that survived long enough to be written down, and archaeological investigations, have assisted in the understanding of past cultural activities. Unfortunately, early descriptions of this portion of the Maui coast are brief and infrequent. Captain King, Second Lieutenant on the *Revolution* during Cook’s third voyage briefly described what he saw from a vantage point of “eight or ten leagues” (approximately 24 miles) out to sea as his ship departed the islands in 1779 (Beaglehole 1967). He mentions Pu`u Ōla`i, south of Kīhei, and enumerates the observed animals, thriving groves of breadfruit, the excellence of the *taro*, and describes the sugarcane as being of an unusual height. Seen from this distance and the mention of breadfruit suggest the uplands of Kīpahulu-Kaupo and `Ulupalakua were his focus.

In the ensuing years, LaPérouse (1786), Nathaniel Portlock and George Dixon, (also in 1786), sailed along the western coast, but added little to our direct knowledge of Kīhei. During the second visit of Vancouver in 1793, his expedition becalmed in the Ma`alaea Bay close to the project area. (A marker commemorating this visit is located across from the Maui Lu Hotel). He reported:

The appearance of this side of Mowee was scarcely less forbidding than that of its southern parts, which we had passed the preceding day. The shores, however, were not so steep and rocky, and were mostly composed of a sandy beach; the land did not rise so very abruptly from the sea towards the mountains, nor was its surface so

much broken with hills and deep chasms; yet the soil had little appearance of fertility, and no cultivation was to be seen. A few habitations were promiscuously scattered near the waterside, and the inhabitants who came off to us, like those seen the day before, had little to dispose of. [Vancouver 1984:852]

Archibald Menzies, a naturalist accompanying Vancouver stated, "...we had some canoes off from the latter island [Maui], but they brought no refreshments. Indeed, this part of the island appeared to be very barren and thinly inhabited" (Menzies 1920:102). According to Kahekili, then chief of Maui, the extreme poverty in the area was the result of the continuous wars between Maui and Hawai'i Island causing the land to be neglected and human resources wasted (Vancouver 1984:856).

THE MĀHELE

In the 1840s a drastic change in traditional land tenure resulted in a division, or Māhele, of island lands. This system of private ownership was based on western law. While a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. I, 1938:145 footnote 47, 152, 165–6, 170; Daws 1968:111; Kelly 1983:45; Kame`eleihiwa 1992:169–70, 176).

Among other thing, foreigners demanded private ownership of land to insure their investments (Kuykendall Vol. I, 1938:138, 145, 178, 184, 202, 206, 271; Kame`eleihiwa 1992:178; Kelly 1998:4). Once lands were made available and private ownership was instituted the *maka`āinana* (commoners) were able to claim the plots on which they had been cultivating and living, if they had been made aware of the foreign procedures (*kuleana* lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, *`okipū* (on O`ahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). The awarded parcels were called Land Commission Awards. If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA, issued a Royal Patent number, and could then take possession of the property (Chinen 1961: 16). Fifty-five LCA claims were made for land in Ka`ono`ulu.

As western influence grew, Kalepolepo, west of the project area became the important provisioning area. Europeans were now living or frequently visiting the coast and several churches and missionary stations were established. A Mr. Halstead left medical school on the East coast of the continent to become a whaler and after marrying the granddaughter of Issac

Davis, settled in Kalepolepo on land given him by Kamehameha III (Kolb *et al.* 1997). His residence and store situated at Kalepolepo landing was known as the Koa House having been constructed of *koa* logs brought from the uplands of Kula. The store flourished due to the whaling and potato industry and provided an accessible port for exported produce. Several of Hawai'i's ruling monarchs stayed at the Koa House, including Kauikeaouli (Kamehameha III), Kamehameha the IV, Lot Kamehameha (V), and Lunalilo. After viewing the surroundings, Wilcox stated, "...Kalepolepo was not so barren looking a place. Coconut trees grew beside pools of clear warm water along the banks of which grew taro and ape..." (1921:67). However, by 1887 this had changed. Wilcox continues:

...the Kula mountains had become denuded of their forests, torrential winter rains were washing down earth from the uplands, filling with silt the ponds at Kalepolepo...ruins of grass huts [were] partly covered by drifting sand, and a few weather-beaten houses perched on the broad top of the old fish pond wall at the edge of the sea, with the Halstead house looming over them dim and shadowy in the daily swirl of dust and flying sand..." [*ibid*]

As early as 1828, sugar cane was being grown commercially on Maui (Speakman 1981:114). Sugar was established in the Makawao area in the late 1800s and by 1899, the Kihei Plantation Company (KPC) was growing cane in the plains above Kīhei. In 1908, the Kihei Plantation was absorbed by the Hawaiian Commercial and Sugar Company (HC&SC); the new-formed company continued cultivating what had been the KPC fields into the 1960s. A 200-foot-long wharf was constructed in Kīhei at the request of Maui plantation owners and farmers and served inter-island boats for landing freight and shipping produce to Honolulu (Clark 1980). In 1927, Alexander and Baldwin became the agents for the plantation (Condé and Best 1973). A landing was built at Kīhei around 1890.

Kaonoulu Ranch lands have been in the Rice family since 1916. Previously, both the Haleakalā and Kaonoulu Ranches leased the then Crown lands for pasture and other ranching activities. The introduction of a dependable water supply in 1952 set a foundation for overseas investment and development, which has thrived along the coastal region of Kīhei.

PREVIOUS ARCHAEOLOGY

Archaeological studies in the greater Kīhei area began in the early twentieth century with T. Thrum (1909), J. Stokes (1909–1916), and W. M. Walker (1931). These surveys included areas of leeward Maui and inventoried both upland of the Kula District and coastal sites (Figure 5).

The barren zone areas of this study have recently been subject to a proliferation of archaeological studies as residential and business endeavors expand from the coastline into other reaches of the Kīhei area. Concomitant with modern expansion involves necessary historic preservation work. The following section provides a general overview of archaeological studies in the general Kīhei area, focused on the barren zone.

As noted by Hammatt and Shideler (1992:10), “what is particularly striking in the many archaeological reports on Kīhei is the general paucity of sites within the transitional or barren zone.” Cordy (1977) and Cox (1976) all conducted large-scale survey in this zone that led to the recordation of only small, temporary habitation or temporary use sites. Several other studies in this zone of Kama`ole Ahupua`a, including those conducted by Mayberry and Haun (1988) and Hammatt and Shideler (1990), also only revealed the presence of temporary habitation and temporary use loci.

McDermott (2001:100) states that site densities are typically quite low within the “barren zone” with multiple studies having been conducted on large parcels (Kennedy 1986, Watanabe 1987, Hammatt and Shideler 2000, Kikiloi *et al.* 2000) that did not lead to the identification any pre-Contact sites. However, military sites related to World War II (WWII) training exercises have been previously documented in the area (McGerty *et al.* 2000), these sites often consisting of low, short alignments or walls. The few radiocarbon dates acquired from the area indicate definitive use of the landscape in later prehistory c. A.D. 1500 to 1600+.

SCS, and others, have more recently conducted numerous projects in the vicinity of the present project area. Several studies have been conducted in association with development of the Maui Research and Technology Park and the Elleair Maui Golf Club (Kennedy 1986; Hibbard 1994; Chaffee *et al.* 1997; McGerty *et al.* 2000; Sinoto *et al.* 2001; Tome and Dega 2002; Monahan 2003).

Kennedy (1986) conducted an archaeological reconnaissance of the entire 150.032 acres of the then-proposed Maui Research and Technology Park (TMK:2-2-02, since changed to 2-2-24). Kennedy’s study, which did not include subsurface testing (excavation), concluded that no archaeological sites or features were located within the project area.

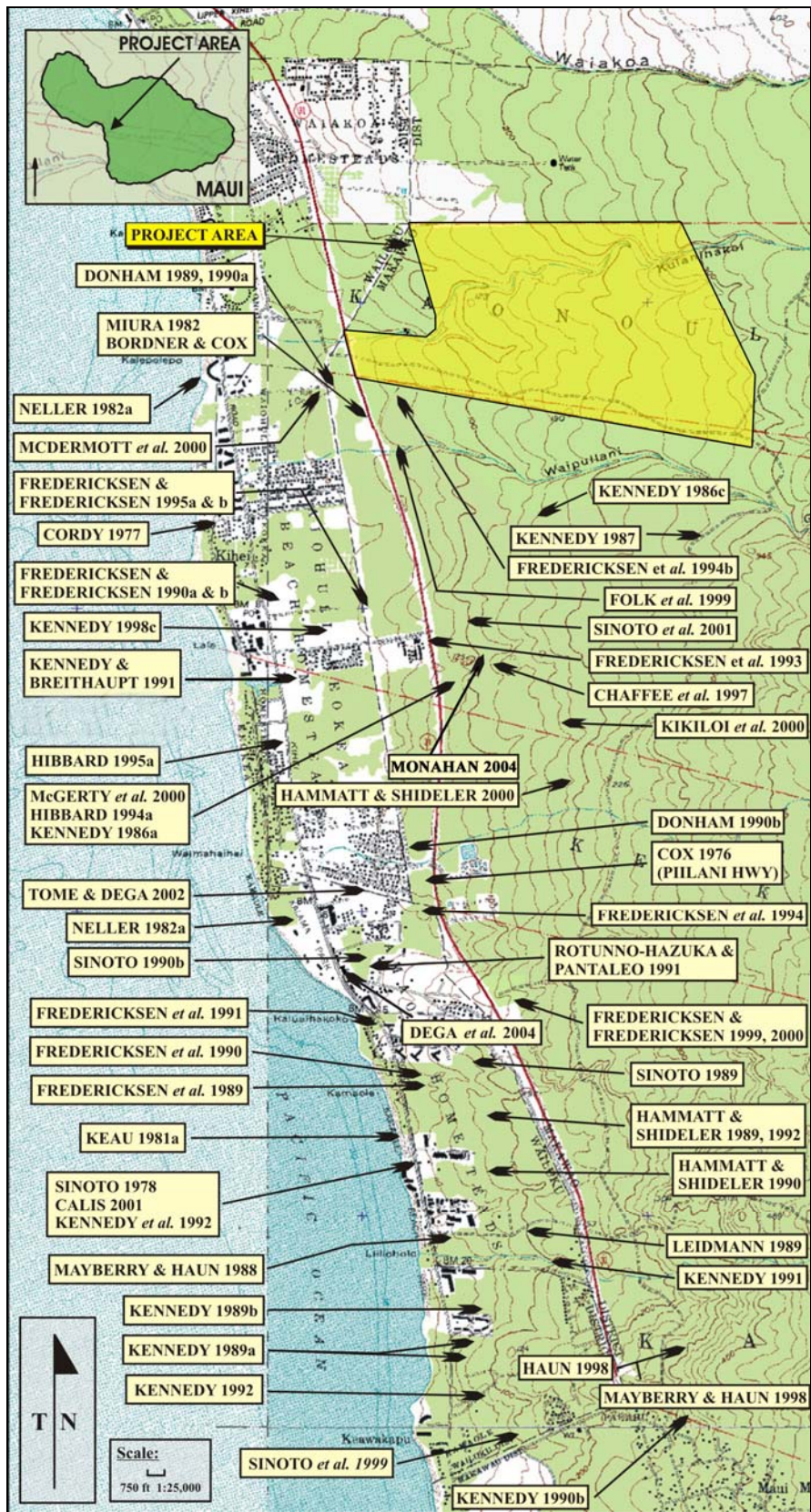


Figure 5: USGS Map Showing Locations of Previous Archaeological Investigations.

Chaffee *et al.* (1997) conducted an Archaeological Inventory Survey, including subsurface testing, of a portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Three sites consisting of ten archaeological features were identified. The features included remnant terraces, stone alignments, a mound, and a modified outcrop. All of the sites were interpreted as agricultural in function with the exception of a rock mound that may have functioned as a religious feature.

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing, of a 28.737-acre portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Other than one surface feature, a small arrangement of stacked boulders interpreted as a 'push pile,' this survey yielded no evidence of historic or prehistoric significance.

Theresa Donham conducted an Archaeological Reconnaissance Survey of the Haleakalā Greens Subdivision area (Hibbard 1994). She identified a low, circular rock mound, a historical site with multiple features on the crest of a prominent ridge, a linear rock mound or wall remnant, a rock-filled terrace outlined with a low, rock wall, and other modifications along a rock outcrop. Shell midden was observed on the surface inside an enclosure.

McGerty *et al.* (2000) surveyed 15 selected areas within the Elleair Maui Golf Club, and identified five archaeological sites (State Site Nos. 50-50-10-5043, -5044, -5045, -5046, and -5047) containing a total of seven surface features. The surface features were interpreted as agricultural terraces, perhaps dating from the pre-Contact period, and C-shaped rock formations (fighting positions) built during World War II training. Ten excavation units placed within these features yielded no cultural material.

Sinoto *et al.* (2001) conducted an Archaeological Inventory Survey of a parcel adjacent to the subject property. No archaeological or historical sites or features were identified.

Tome and Dega (2002) conducted an Archaeological Inventory Survey along the northeastern flank of the Elleair Maui Golf Club property. They identified a historical ranching corral and a short agricultural wall, collectively designated State Site No. 50-50-10-5233. No other structures or subsurface deposits were identified. No traditional Native Hawaiian sites or features were identified. Another Inventory Survey along the southern flank of the Elleair Maui Golf Course (Dega 2003) failed to yield any archaeological or historical features.

Scientific Consultant Services (SCS), Inc. conducted Archaeological Inventory Survey (Monahan 2004) on two undeveloped lots totaling approximately 56.647 acres near the Elleair Golf Course in Kīhei, Waiohuli and Ka`ono`ulu Ahupua`a, Wailuku (Kula) District, Kīhei, Maui Island, Hawai`i [TMK: 2-2-24: Portion 12 and 13]. A pedestrian survey and subsurface testing was performed in advance of a proposed residential project near the Elleair Golf Course. Four surface features consisting of stacked basalt stones were located within the project area; each was assigned a separate state site number. Test excavations yielded buried cultural material consistent with traditional Native Hawaiian activities at three of the four sites (Sites 50-50-10-5506, -5507, and -5509). Excavation at the fourth site (-5508)—a C-shaped rock pile consistent with a World War II military training feature—did not yield any subsurface evidence. The discovery of three traditional Native Hawaiian sites in this area is significant, as previous studies have generally failed to document any such activity. One of these sites (-5509) yielded a modern radiocarbon date (0 ± 50 BP), but its context is questionable and it may not be associated with the buried artifacts. Two other sites (-5506 and -5507) did not yield charcoal, although both contained buried traditional artifacts and midden. No additional archaeological work was recommended in the project area (Monahan 2004).

As may be gleaned from this praxis of archaeological studies for the barren zone, site expectation and site density is low for the area. Even large-scale surveys at times have failed to document sites of any time period in this dry area. A majority of the pre-Contact population of Kīhei was settled along the coastline, nearer resources, while lands above 2,000 ft. amsl. were also heavily occupied from the c. A.D. 1400s. Thus, the ‘barren zone’ became a medial zone between a coastal and inland population. Coupling the lack of major water resources and the shallow depths of the soils, the barren zone became an infrequent occupation area. Given the paucity of significant sites in the barren zone, however, the sites that are identified in this zone become much more significant.

PROJECT AREA EXPECTATIONS

The current project area falls into the barren zone. Archaeological reconnaissance and inventory survey work in the barren zone have yielded only a modest amount of evidence for traditional and historic-period activity. Documented sites in the general area primarily include agricultural terraces and short walls, C-shaped structures (military period), and historic ranching features (walls, corrals).

As this project area is located within the barren zone, it was not expected to yield many, if any, traditional-type sites. Previous archaeology in the area (McGerty *et al.* 2000) attests to the likelihood for encountering numerous sites relating to military activity on the parcel. Historic agricultural sites, such as rock mounds, roads, and berms were also anticipated for this site, as it has long been a working ranch.

METHODOLOGY

This Inventory Survey consisted of full systematic pedestrian survey of the project area, thorough recordation of all sites and component features and limited test excavations. Survey was conducted in 10 to 15 meter transects throughout the project area. Site recordation consisted of thorough site description and assessment, GPS location and plan view mapping of most sites (see Results for exceptions), and site photography. Excavations were conducted in five sites. These excavations consisted of 0.5 by 0.5 m test units. These excavations were plotted on the plan view map for each corresponding site, and recorded in level-by-level subsurface documentation. Any recovered artifacts selected from this site were sent to the SCS Laboratory in Honolulu for analysis and curation. A single radiocarbon sample was collected and analyzed by Beta Analytic, Inc (Appendix A). The results of this work are described below.

RESULTS

A full, systematic pedestrian survey was conducted from January 24th to April 6th, 2007. This phase of the Inventory Survey yielded 40 previously undocumented archaeological sites pertaining to all phases of occupation of the subject parcel: pre-Contact, Historic, Military and Modern. These sites were thoroughly documented as they were discovered.

The following site descriptions are presented in numeric order and include site significance assessments according to the criteria established for the State Register of Historic Places, and details of corresponding excavations within each site section (details regarding the criteria established for SHIP follows in the DISCUSSION AND RECOMMENDATIONS section below).

50-50-10-6386

Site 6386 is a circular rock mound measuring approximately 1.6 m in diameter (Figure 6). Located in the western end of the project area, this single-feature site was a military structure. Unlike agricultural mounds, which are typically very close together and loosely stacked and piled, this feature displays orderly construction in which the boulders, though

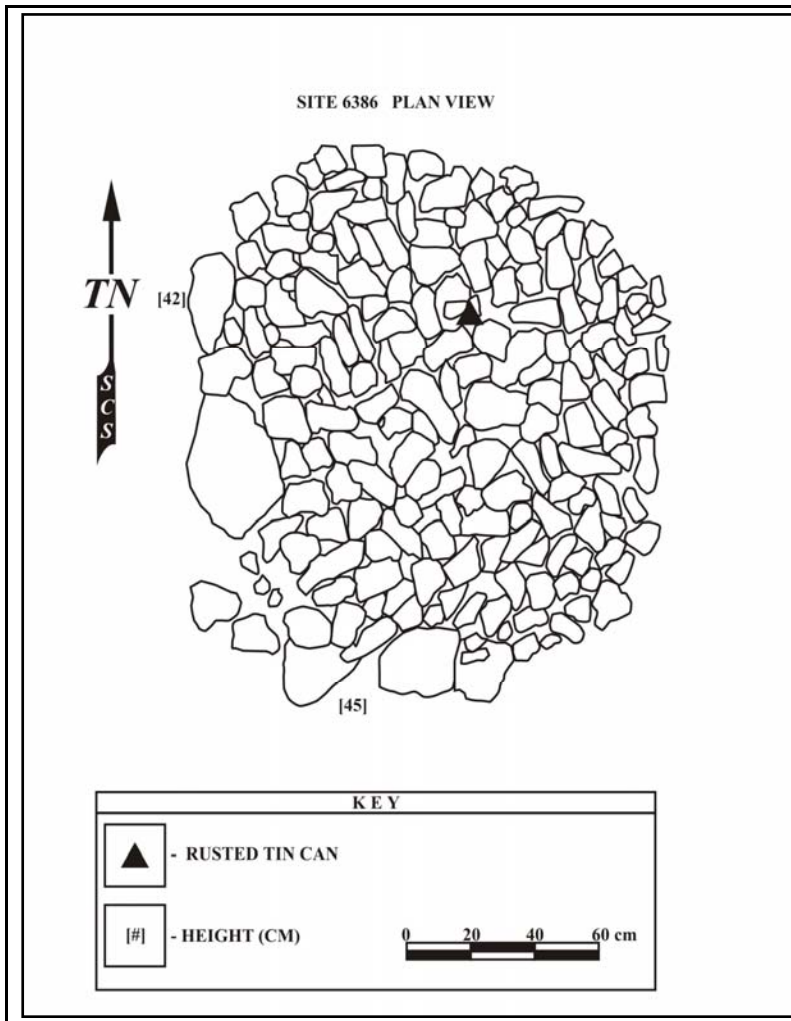


Figure 6: Plan View of Site 6386.

roughly broken and angular, are neatly stacked and faced up to two courses high (approximately 45 cm). Many single-feature sites similar to this one have been documented in this project area, though they are diffuse and distributed widely throughout the lot. Site 6386 is typical of the many other rock mounds found in the project area. Some boulders have bulldozer scars and the area around the site displays exposed bedrock, indicating that this feature was built with a machine. This site, as a possible World War II military training feature, is considered significant under Criterion D, which highlights its potential to yield information pertaining to the history and prehistory of the island of Maui, as well as the state of Hawai'i as a whole.

50-50-10-6387

Site 6387 is a dirt road following the southern edge of Kulanihakoi Gulch (Figure 7). The road, over 130.0 m long bears northwest-southeast with a neatly stacked retention terrace

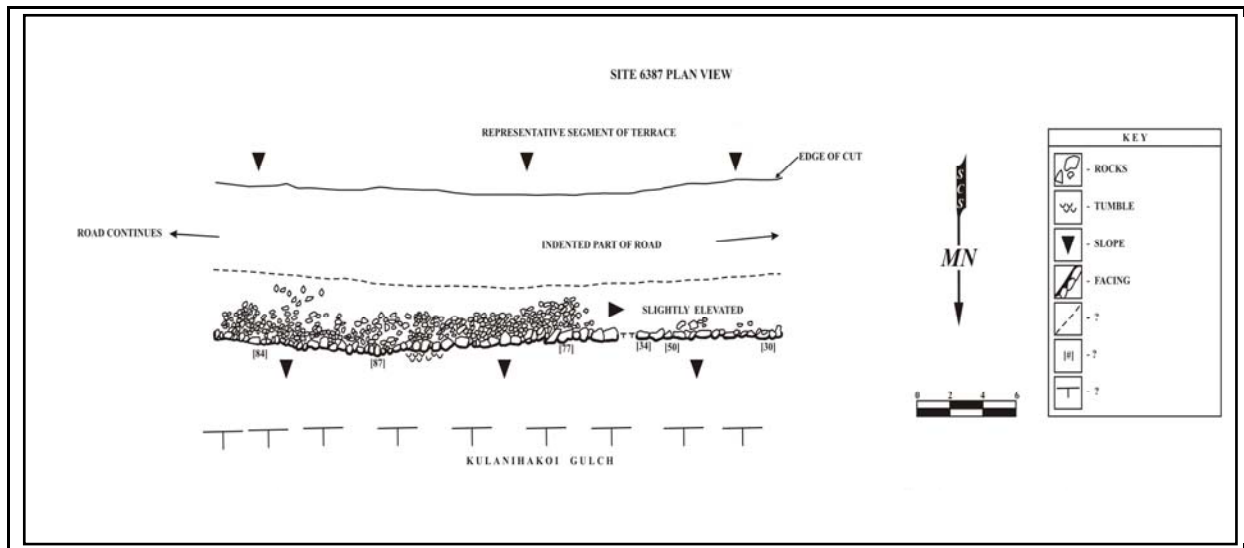


Figure 7: Plan View of Site 6387.

along its north side, facing the gulch. The terrace lines the gulch and is constructed of small- to medium-sized basalt boulders neatly stacked in three to eight courses. Intermittent, naturally occurring boulders are integrated into the construction as well. The road is Historic, though there is no evidence that further associates it with military or ranching activities this site has been evaluated as significant under criterion D for its potential to yield information pertaining to the history of Maui and the State of Hawai`i.

50-50-10-6388

Site 6388 is a single rock mound located in the southwest corner of the project area (Figure 8). Site 6388 is likely a remnant of the extensive bulldozing activities that once occurred in this part of the project area. The mound is oval-shaped, measuring 1.5 by 1.1 m, and consists of loosely piled stones of varying sizes. The cortex on the surface of these stones is discolored, indicating that they were once buried, giving evidence to the conclusion that the mound is related to bulldozing activities that once occurred extensively in this project area. There is also a notable portion of modern debris, especially plastic bags, intermingled in the stones that make up this feature. This site is considered significant under criterion D for its potential to yield information pertaining to the history of Maui and the state of Hawai`i.

50-50-10-6389

Site 6389 consists of four Historic features, all rock mounds, located on the south side of Kulanihakoi Gulch, in the center of the project area (Figure 9). These features are each

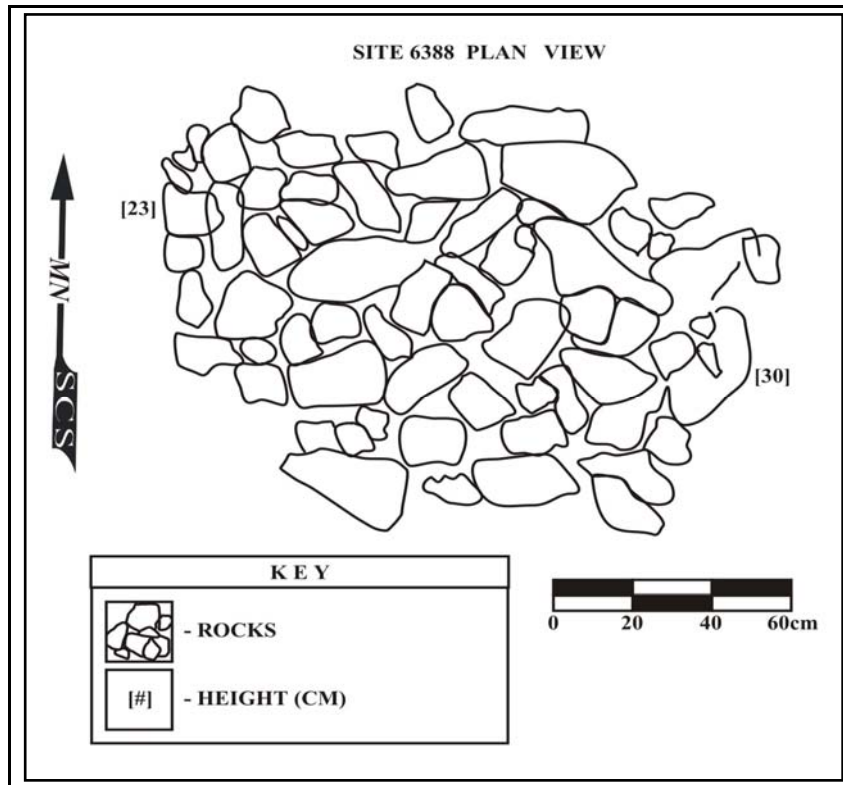


Figure 8: Plan View of Site 6388.



Figure 9: Photographic Overview of Site 6389.

constructed of angular, broken up basalt cobbles and boulders, indicating that these features were built using heavy equipment. Features 1 through 3 are clearing mounds, while Feature 4 is associated with road retention. Features 1 through 3 vary in size from 3.0 by 2.0 m to 5.0 by 1.6 m in diameter and up to 0.9 m high. Feature 4, which lies approximately 10.0 m to the northwest, measures 6.9 by 1.3 m and up to 0.8 m high. This feature is on a moderate slope and was likely constructed for erosion control. This Site is significant under criterion D due to its potential to yield information pertaining to the history and/or pre-history of the island of Maui and the state of Hawai'i.

50-50-10-6390

Site 6390 is a rock mound that differs from those previously discussed in morphology and construction material (Figure 10). This single-feature site, located approximately 150.0 m west of 6389, has been neatly stacked atop bedrock and measures 2.0 by 1.5 m. Unlike the mounds previously discussed, the basalt boulders and cobbles are unaltered, with sedimentary deposits visible in between the stones within the feature. This deposit indicates the feature's antiquity, as erosive processes have filled in the open-spaces in this feature, as opposed to others discussed herein. While there is no artifactual evidence to indicate the feature's function, it is safe to say that it predates the mechanically constructed sites, such as 6386, 6388, and 6389. It is associated with the pre-Contact period. As such, this site has potential to yield information pertaining to the pre-history of Maui and the state of Hawai'i and is therefore significant under criterion D.

50-50-10-6391

Site 6391 is a C-shaped structure that is located approximately 11.0 m from the north boundary of the project area along a segment of dirt road that is "curbed" on both sides by linear boulder piles (this road is described in 6401). The C-shape is constructed of small- to medium-sized subangular and subrounded boulders which measured 5.0 by 4.1 m, and also integrates naturally deposited rock (Figure 11). No facing is present, though the materials are neatly piled to form the architecture of the feature. The C-shape opens to the southwest, delineated by a semi-circular natural rock outcropping. The morphology of this site, particularly the lack of stacking and facing, implies that it was not for Traditional cultural use, but may have been constructed as part of a military training exercise. It's proximity to the uniquely "curbed" road (6401) further supports this conclusion. This site is as a possible military training structure and use as temporary habitation is considered significant under criterion D for its potential to yield information pertaining to the history and/or pre-history of Maui and the state of Hawai'i.

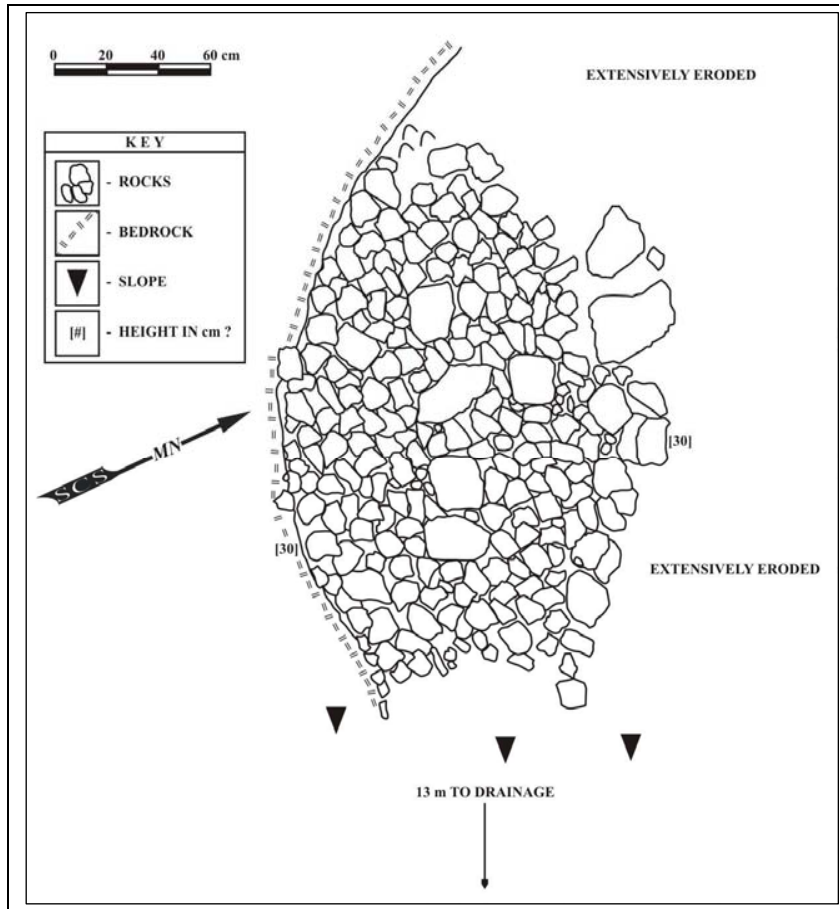


Figure 10: Plan View of Site 6390.

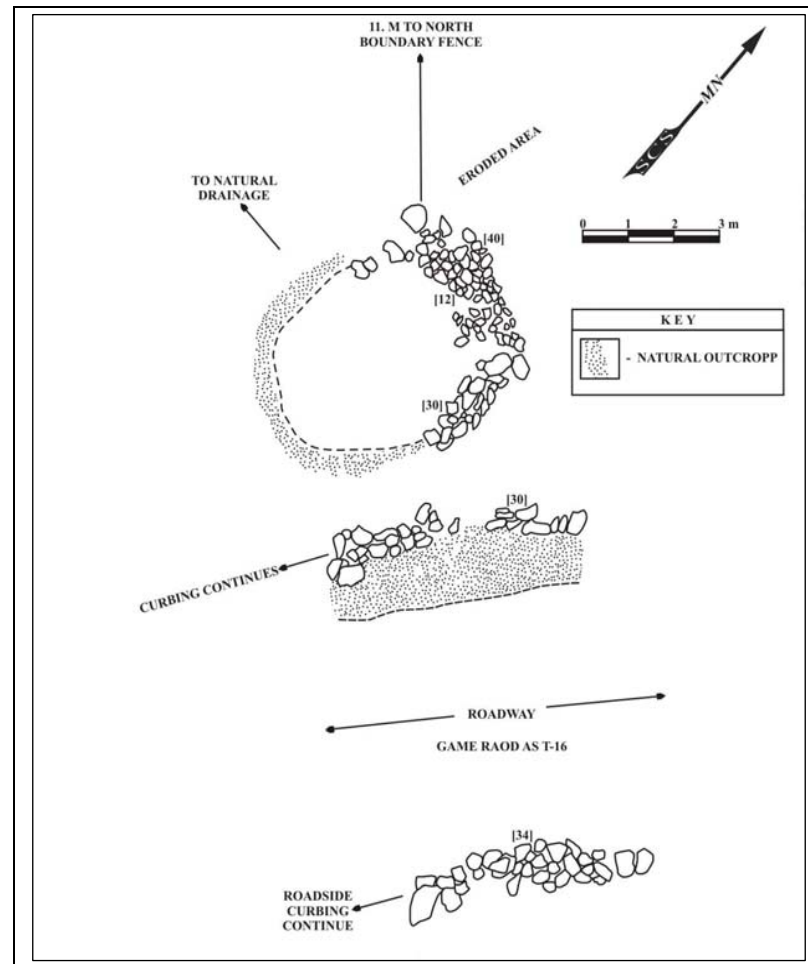


Figure 11: Plan View of Site 6391.

50-50-10-6392

Located approximately 50.0 m southeast of 6386, Site 6392 is a neatly stacked, oval-shaped rock mound that was likely built during the Historic Period using heavy equipment (Figure 12). Similar to 6386, the area around Site 6392 has been grubbed and bedrock is exposed in numerous places around the site. The site is constructed with angular, broken up cobbles and small boulders, though these are neatly stacked so that the top of the feature is relatively flat. The mound measures 1.7 by 1.3 m. Site 6392 is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawai`i.



Figure 12: Photographic Overview of Site 6392.

50-50-10-6393

Site 6393 consists of three features, all of which are rock mounds that were likely constructed during bulldozer activities on the lot, due to the angular, broken up condition of stones in the features and the presence of a bulldozed area (possibly an old road) just north of Feature 3 (Figure 13). The site is situated along the southern border of the project area, approximately 250.0 m east of 6392. There is a linear area of exposed bedrock just north of Feature 1. The feature dimensions are as follows: Feature 1 measures 2.6 by 1.6 m and 0.55 m



Figure 13: Photographic Overview of Site 6393.

high; Feature 2 measures 3.5 by 2.0 m and up to 0.8 m high; and Feature 3 measures 2.3 by 2.0 m and 0.46 high. These features are similar in construction style. Each is built with similarly angular and broken up basalt boulders and cobbles piled haphazardly onto the mounds. The exception is some evidence of facing on the southwest side of Feature 2, where coursing appears to be up to four levels high. This is significant under criterion D for its potential to yield information important to the history of Maui and the state of Hawai`i.

50-50-10-6394

Site 6394 is a single-feature site, located approximately 100.0 m northeast of 6393, consisting of a somewhat scattered boulder terrace or C-shaped structure (Figure 14). This feature has been heavily disturbed by grubbing activities to its north, south, east and west, with exposed bedrock immediately to the south and west sides of the feature. This site is constructed of small- to large-sized basalt boulders piled in a semi-circle or half-moon shape, measuring approximately four meters long on its long axis (northwest-southeast). Although this feature is heavily disturbed, its morphology relates it to military C-shapes on the project area. This site is

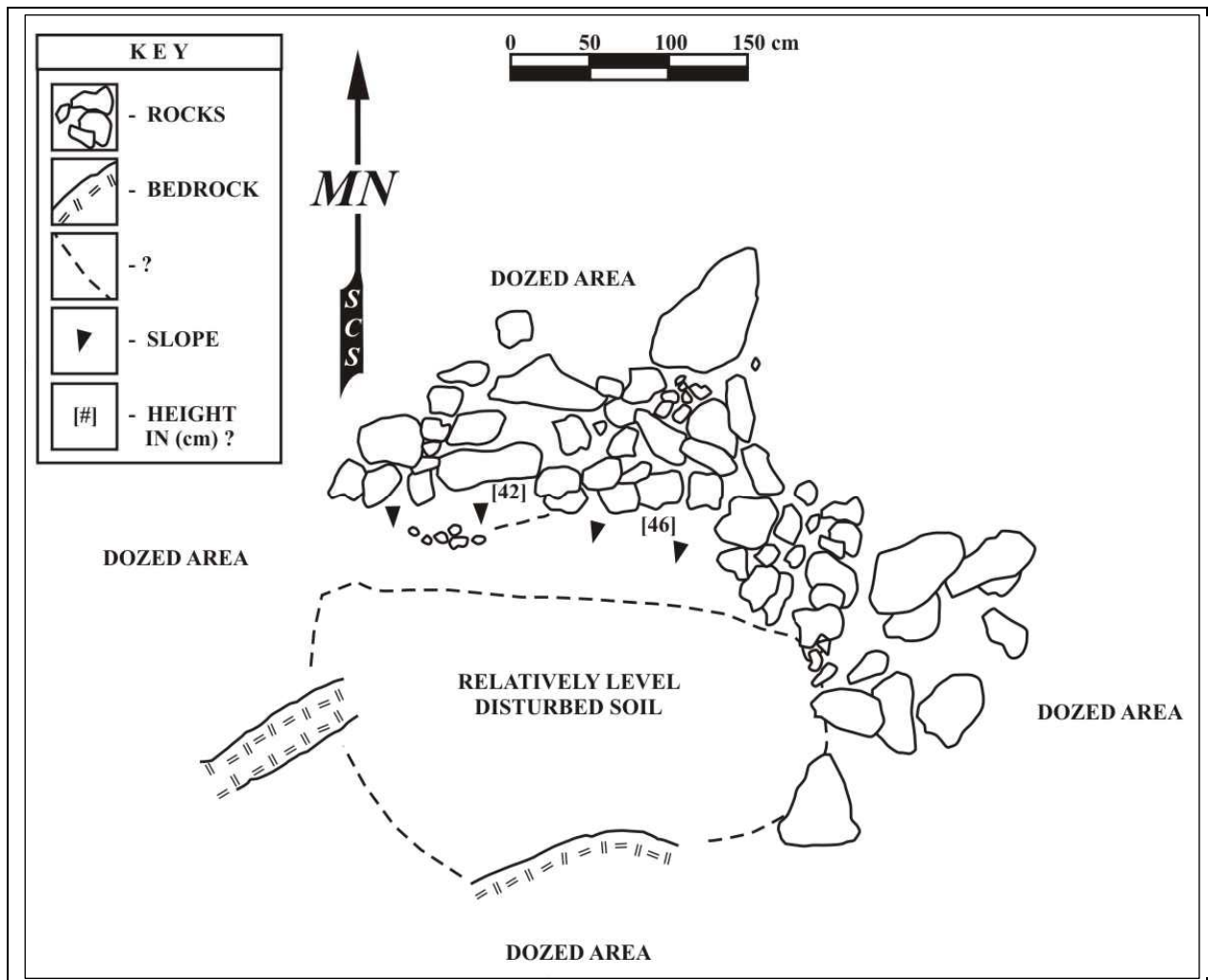


Figure 14: Plan View of Site 6394.

significant under criterion D for its potential to yield information important to the history of Maui and the state of Hawai'i.

50-50-10-6395

Site 6395 is a unique, single-feature site that lies on a steep escarpment along the south edge of an existing road in the south-central portion of the project area). This feature is a Historic terrace that measured 11.0 by 1.4 m and stood 0.67 to 1.47 m in height, but it comprises several components, including a stacked and faced basalt wall of three to four courses, a segment of soil and gravel fill, and a segment of cement fill (Figure 15, Figure 16). The stacked wall stands approximately 1.5 m tall, incorporating small basalt boulders in the exterior facing with cement mortar, and crushed (quarried) basalt cobble and soil fill on the western half of the terrace fill. The eastern half, conversely, is a cement paddock that is level with the top of the

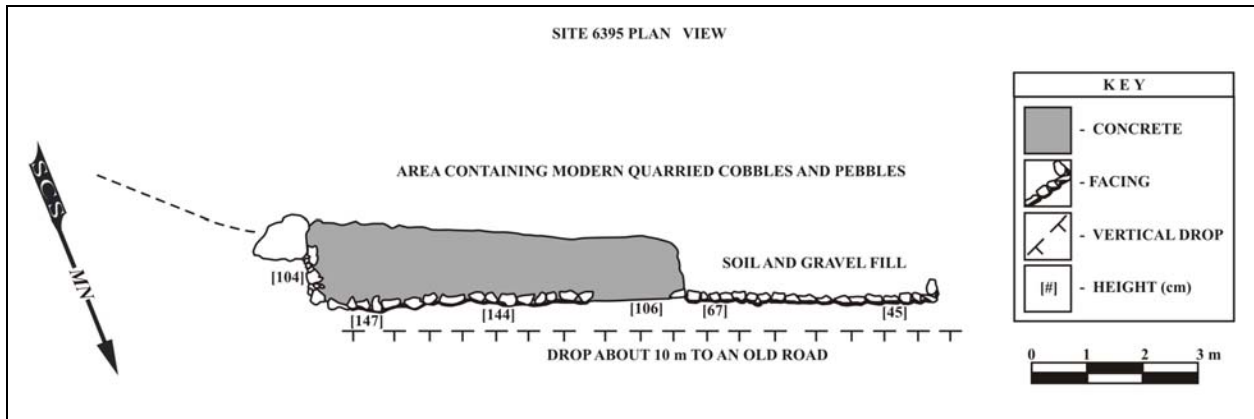


Figure 15: Plan View of Site 6395.

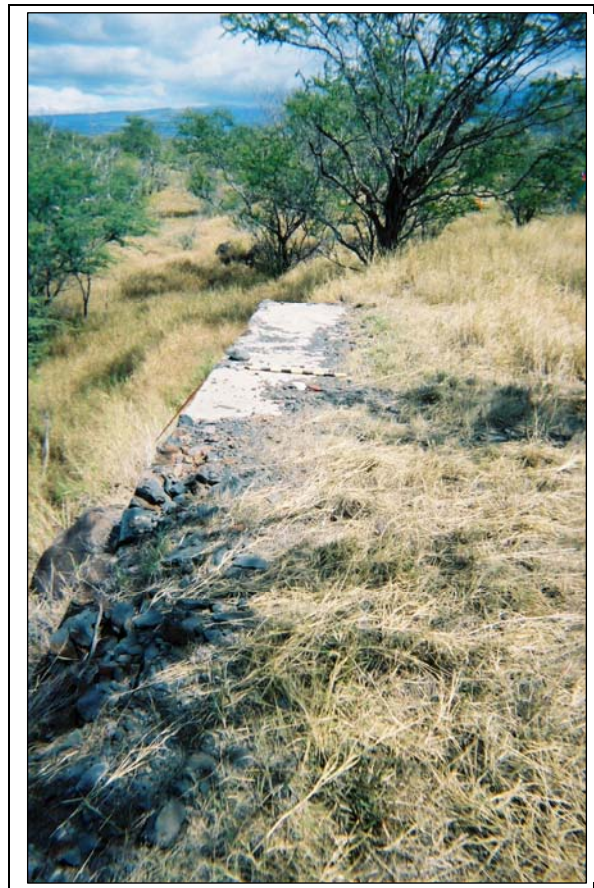


Figure 16: Photographic Overview of Site 6395.

terrace wall. This structure may have been the platform for a tank or a staging/storage area during the ranching or military periods of occupation. The site is significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

50-50-10-6396

Located near the center of the subject parcel, Site 6396 is a U-shaped terrace constructed of large, angular basalt boulders and cobbles, and measured 1.69 by 1.54 m (Figure 17). The site consists of a single course of stones that are loosely aligned (some stacking in the south corner) in a rectangular shape with a level soil area in the center. The morphology of this single-feature site suggests military use, rather than Traditional. The site is significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

50-50-10-6397

Site 6397, a low rock terrace, lies approximately 200.0 m north of Site 6396 (Figure 18). This single-feature site consists of a loosely stacked, angular basalt boulders and cobbles. The feature is semi-circular in shape, measuring approximately 2.2 m along its long axis (northeast-southwest) with walls ranging in thickness from 0.4 to 0.6 m and in height from 0.16 to 0.3 m. The interior of the feature is slightly depressed, with a lot of loose stones on the surface. This terrace is associated with military training activities and thus considered significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

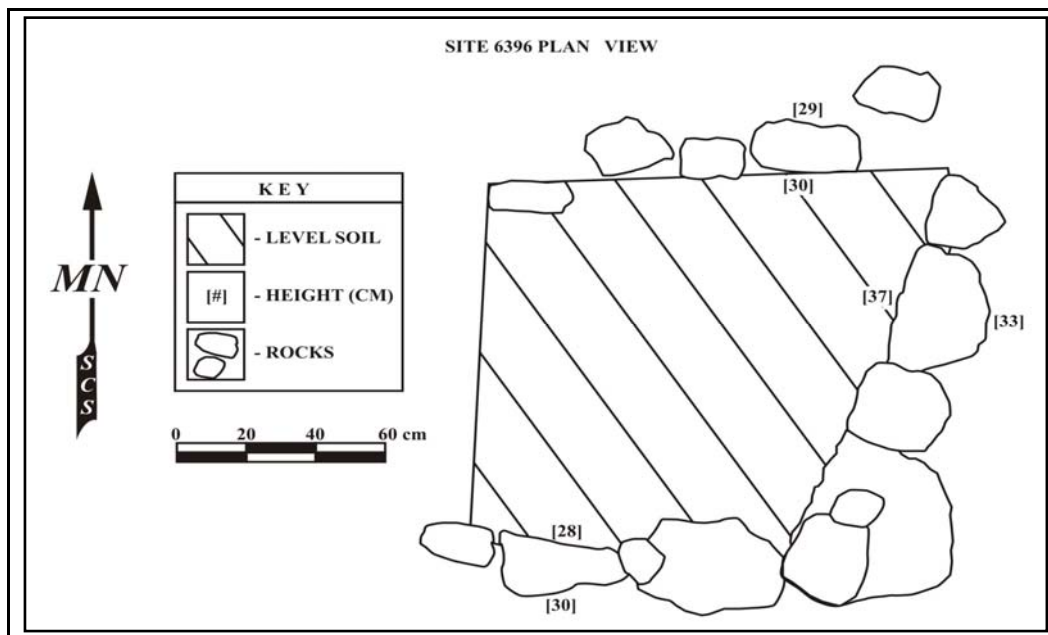


Figure 17: Plan View of Site 6396.

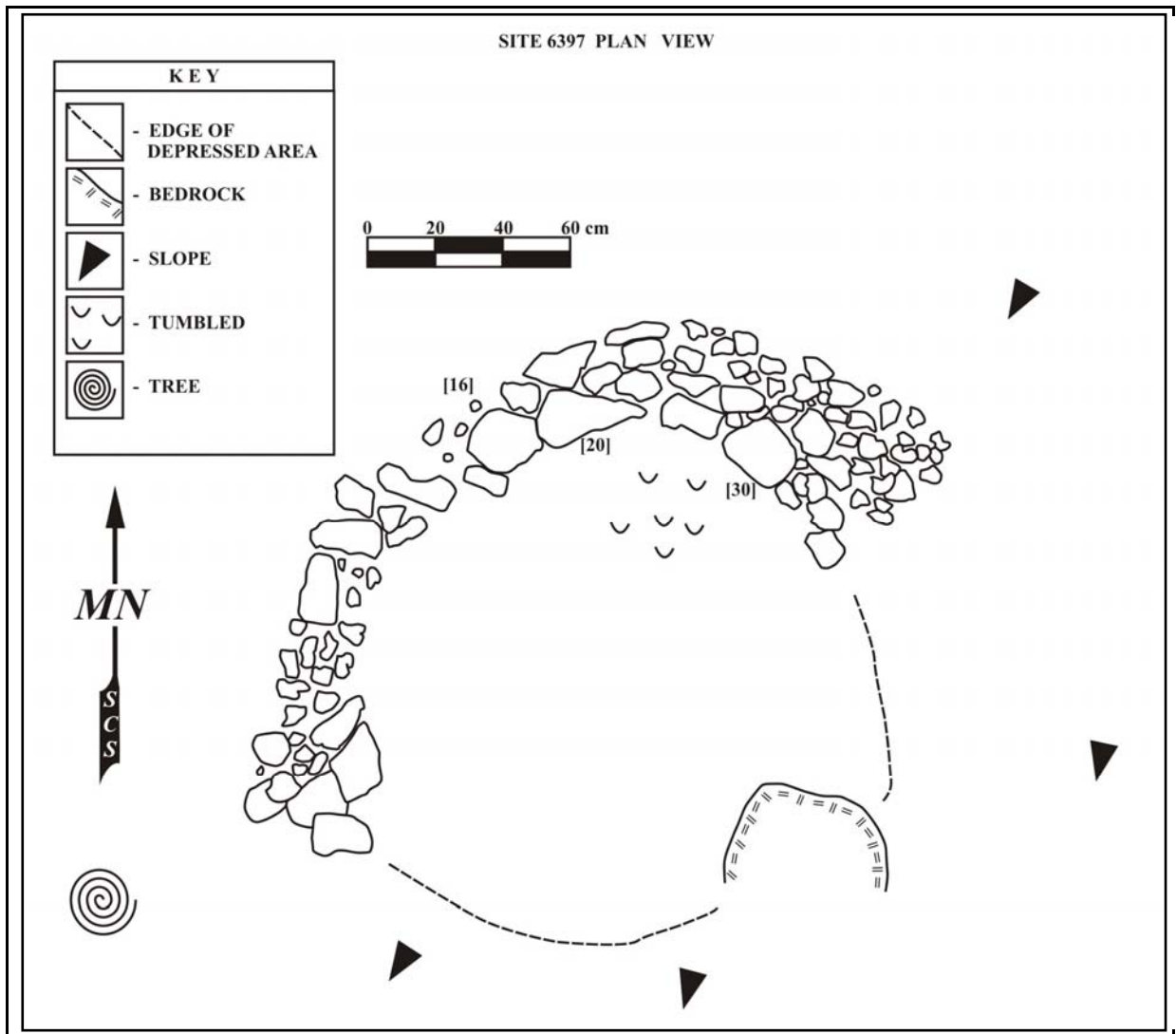


Figure 18: Plan View of Site 6397.

50-50-10-6398

Uniquely, site 6398 appears to be a modern pet burial. The single-feature site, a rectangular rock mound measuring 2.0 by 1.6m, is located in the center of the project area, approximately 300 m west of Site 6397. There is a small depression in the center of the feature, indicating a pit that has recently sunken in (as would be expected when a corpse collapses from decay) and an engraved marker made of treated wood at the southeast end of the feature. The word engraved on this marker is indiscernible. Due to the size and shape of the feature, the size of the depression and the modern grave marker, the site is most likely a modern pet burial. The site is considered significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

50-50-10-6399

Site 6399, a single-feature site located approximately 150.0 m northeast of Site 6394, is a linear mound consisting of angular, broken up basalt boulders and cobbles piled indiscriminately in a rectangular shape measuring 2.9 by 0.56 m and up to 0.32 m high (Figure 19). Angular broken rocks are included in the construction of this site, indicating that this mound is Historic in age, though its specific function is indeterminate. This site is significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.



Figure 19: Photographic Overview of Site 6399.

50-50-10-6400

Site 6400 is a single-feature site consisting of a U-shaped alignment, similar in construction style to 6396; site dimensions measured 2.3 by 2.1 m (see Figure 17). The site is located just northeast of Site 6389 on the northern edge of Kulanihakoi Gulch. The feature is constructed with small- and medium-sized subrounded, basalt boulders stacked up to three courses high, with a deep excavated depression in the center of the feature, reaching 0.3 m below the base of the architecture. The feature, morphologically similar to 6396, is associated with military activities on the parcel. The site is significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

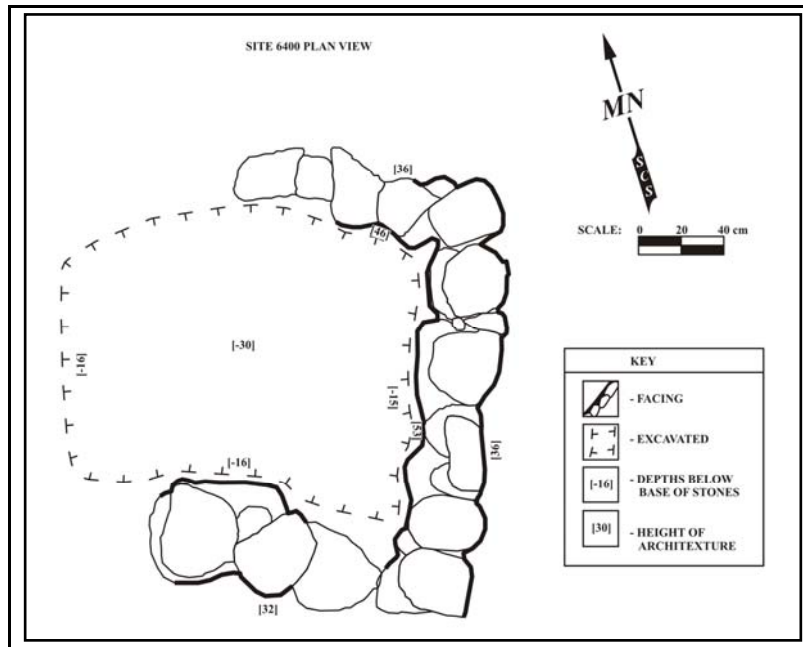


Figure 20: Plan View of Site 6400.

50-50-10-6401

Site 6401 is a road flanked on both sides by basalt boulder and cobble alignments and piles (Figure 21). These basalt rock “curbs” extend continuously along the road on both sides for its entire length as it bears northeast-southwest through the project area. Figure 4 shows the location of the GPS point for this road. The age and function of this site are undetermined. The length of the road is undetermined, though this it does extend at least as far as Site 6391, some 600.0 m northeast of the GPS location for this site. Erosion has heavily impacted this site; thus boundaries and exact dimensions were indiscernible in some areas. The mapped portion of 6401 shows a deposit of gravel and small cobbles that may represent the original road surface. The site is significant under criterion D.

50-50-10-6402

Site 6402 consists of a single, low, crude wall that extends along the northern rim of Kulanihakoi Gulch for approximately 20.0 m; site dimensions were measured at 20.2 by 0.2 by 0.8 m (Figure 22). The wall is constructed of subangular and subrounded cobbles and boulders. The feature is in poor condition, with entire sections of the wall missing, likely due to erosion. The construction of this wall is very rough and is likely related to military training activities. Unlike ranch walls, which are thick and sturdily constructed, this wall is primarily piled and stacked, with some portions being merely boulder alignments. This site is significant under

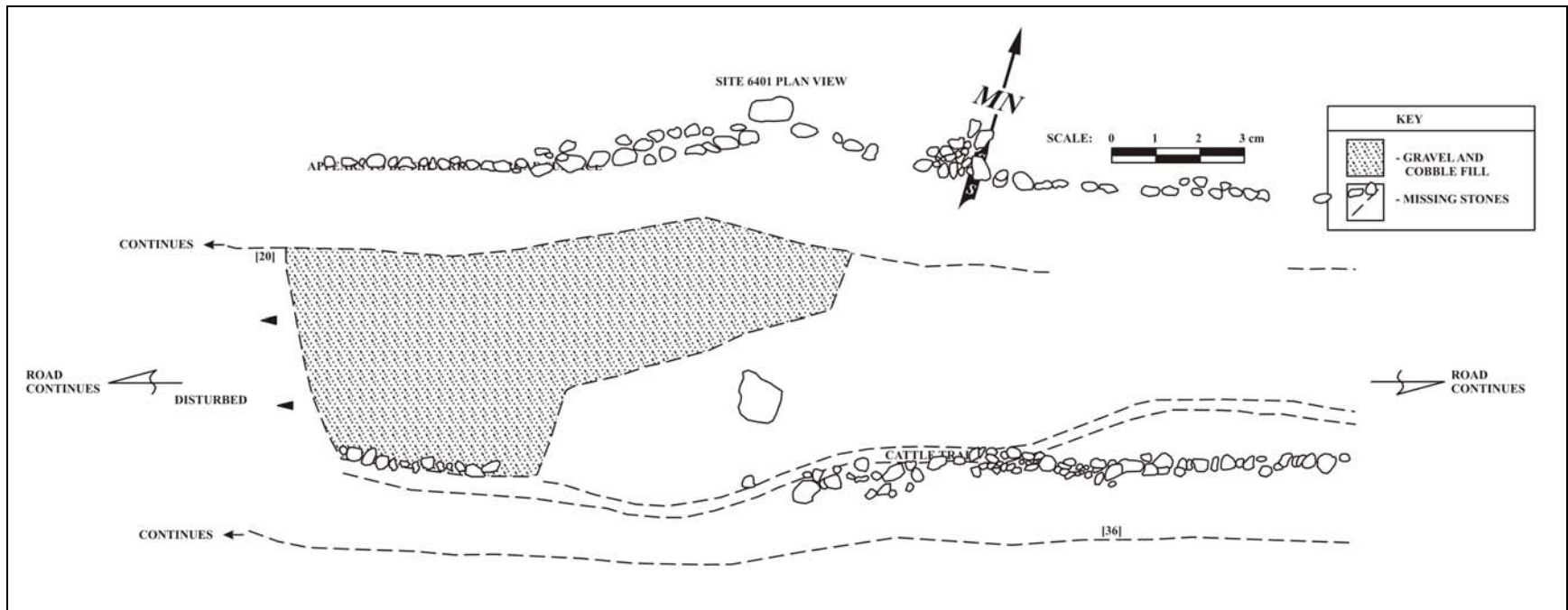


Figure 21: Plan View of Site 6401.



Figure 22: Photographic Overview of Site 6402.

criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

50-50-10-6403

Site 6403 consists of four features: three C-shapes and a linear mound (Figure 23). These features are interpreted as being related to military activities in the area, as evidenced by the informal architectural construction. Each feature consists of piled basalt boulders and cobbles, though some areas show evidence of stacking. The terrain around these features exhibits extensive exposure of basalt bedrock, and each feature lies on a bedrock outcrop. Some scattered basalt flakes were observed on the ground surface between these features, implying that this site may predate military use, having been modified during the military period; the site is significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

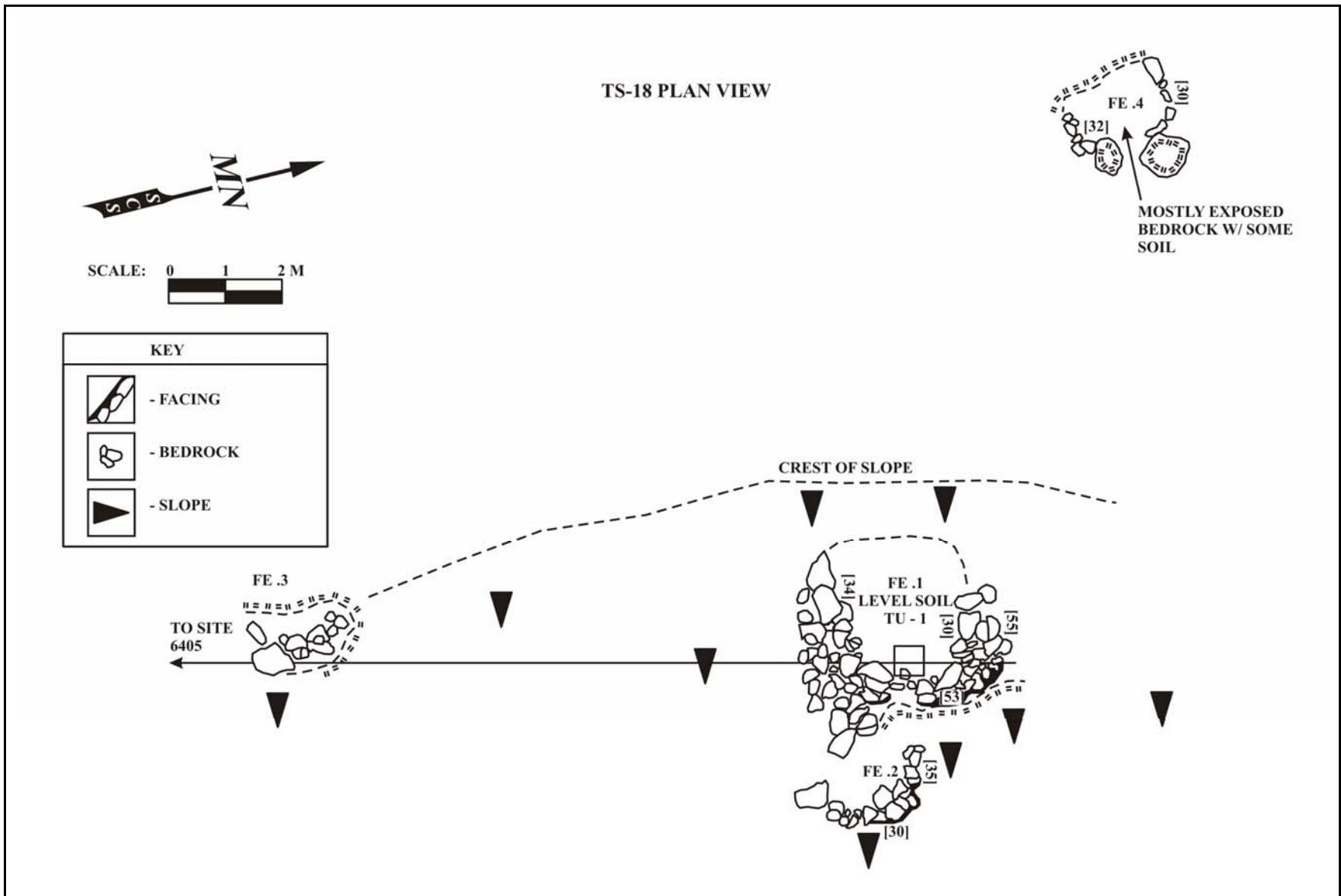


Figure 23: Plan View of Site 6403.

Feature 1, the largest of the three C-shapes, measures 3.8 by 3.2 m on the exterior, and 2.0 by 2.4 m on the interior; the wall stands up to 0.55 m high. This feature displays some stacking on its north (downslope) side, up to four courses high. This feature received the first excavation of the project

TU-1 was a 0.5 by 0.5 m unit excavated against the central interior architecture of Feature 1. The datum for this unit was set at 5 cm above ground level in the southeast corner of the unit. The unit yielded three stratigraphic layers (Figure 24). Layer I (5–19 cmbd) consisted of hard-packed, brown (10 YR 3/4 to 4/4) silt. Layer II (17–36 cmbd) was made up of loose, dark brown (10 YR 3/3 to 3/4) silt. Layer III (22–42 cmbd) consisted of grayish brown (10 YR 5/2) compacted silt. No cultural materials were observed in this unit.

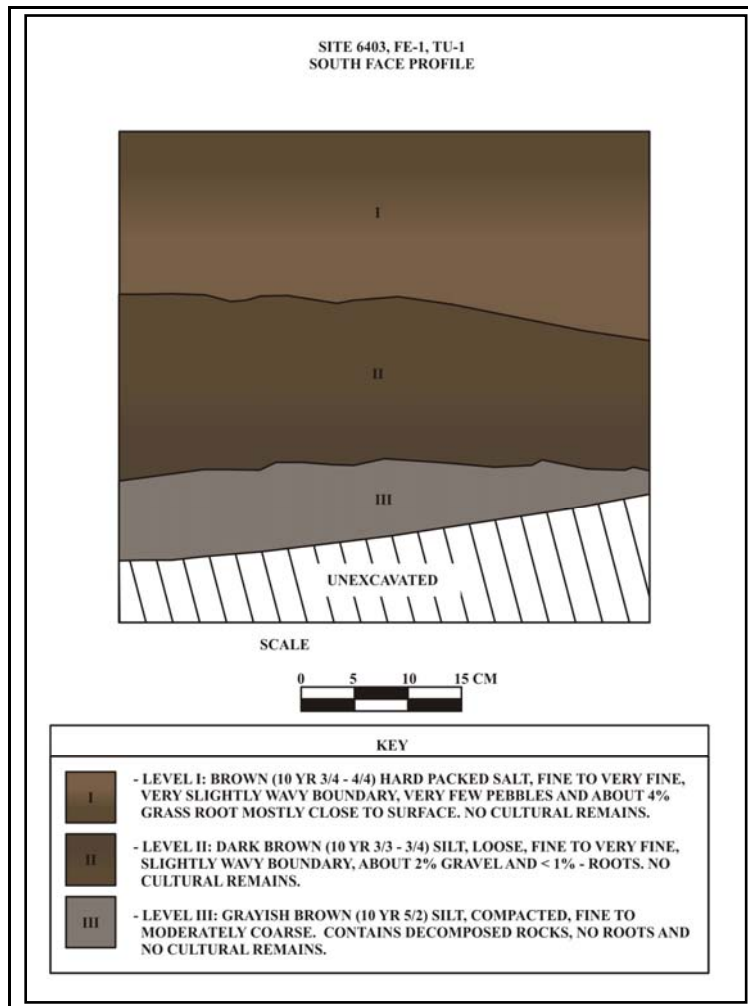


Figure 24: South Profile of Site 6403, TU-1.

Feature 2, lying immediately north of Feature 1, is a second, smaller C-shape, measuring 1.8 by 1.8 m on the exterior, 1.3 by 1.3 m on the interior, with the wall height measuring up to 0.35 m. The feature, though smaller, is constructed similarly to Feature 1.

Feature 3 is a linear mound measuring 1.6 by 0.8 m and up to 0.34 m high. This feature, resting atop a bedrock outcrop, lies approximately 16.0 m to the east of Feature 1.

Feature 4, located 12.0 m southwest of Feature 1, consists of several bedrock outcrops modified with basalt cobbles forming the third, and final C-shape of this site. The feature measures 2.0 by 1.4 m on the exterior, and 1.5 by 1.2 m on the interior, with a wall height of up to 0.3 m.

50-50-10-6405

Site 6405, which lies directly east of and adjacent to Site 6403 on the northern edge of the Kulanihakoi Gulch, displays characteristics of pre-Contact and military occupation. Features in this site may have been constructed during the pre-Contact Period and modified during military occupation in the Historic Period. The site consists of four features including a C-shape, two enclosures and a severely eroded wall (Figure 25). This site, with its temporal duality, is significant under criterion D due to its potential to yield information pertinent to the history and prehistory of Maui and the state of Hawaii. Excavation at this site consisted of two 0.5 by 0.5 m test units excavated within Features 2 and 3.

Feature 1 is a C-shaped structure located on the eastern extremity of the site. This feature is constructed of large, subangular and subrounded basalt boulders and cobbles crudely piled around a large boulder forming an informal curved wall. The feature measures 3.5 m long by 3.0 m wide and up to 0.25 m in height. This feature is interpreted as relating to military activities, due to its proximity to other Historic military features, and its similarity in construction to other, crudely constructed features. A large area to the northwest of the feature may have been modified in stone pavement. This modification, if cultural, was highly informal (unlike traditional Hawaiian pavements) and is likely related to military activities as well.

Feature 2 is a large boulder and cobble enclosure in the shape of an irregular rectangle. This enclosure, measuring 4.3 by 3.5 m with walls up to 0.3 m high, is located approximately 11.0 m west of Feature 1 along the northern edge of Kulanihakoi Gulch. While stacking is not evident in this feature, the alignment of boulders and cobbles, surrounded by displaced rocks of a

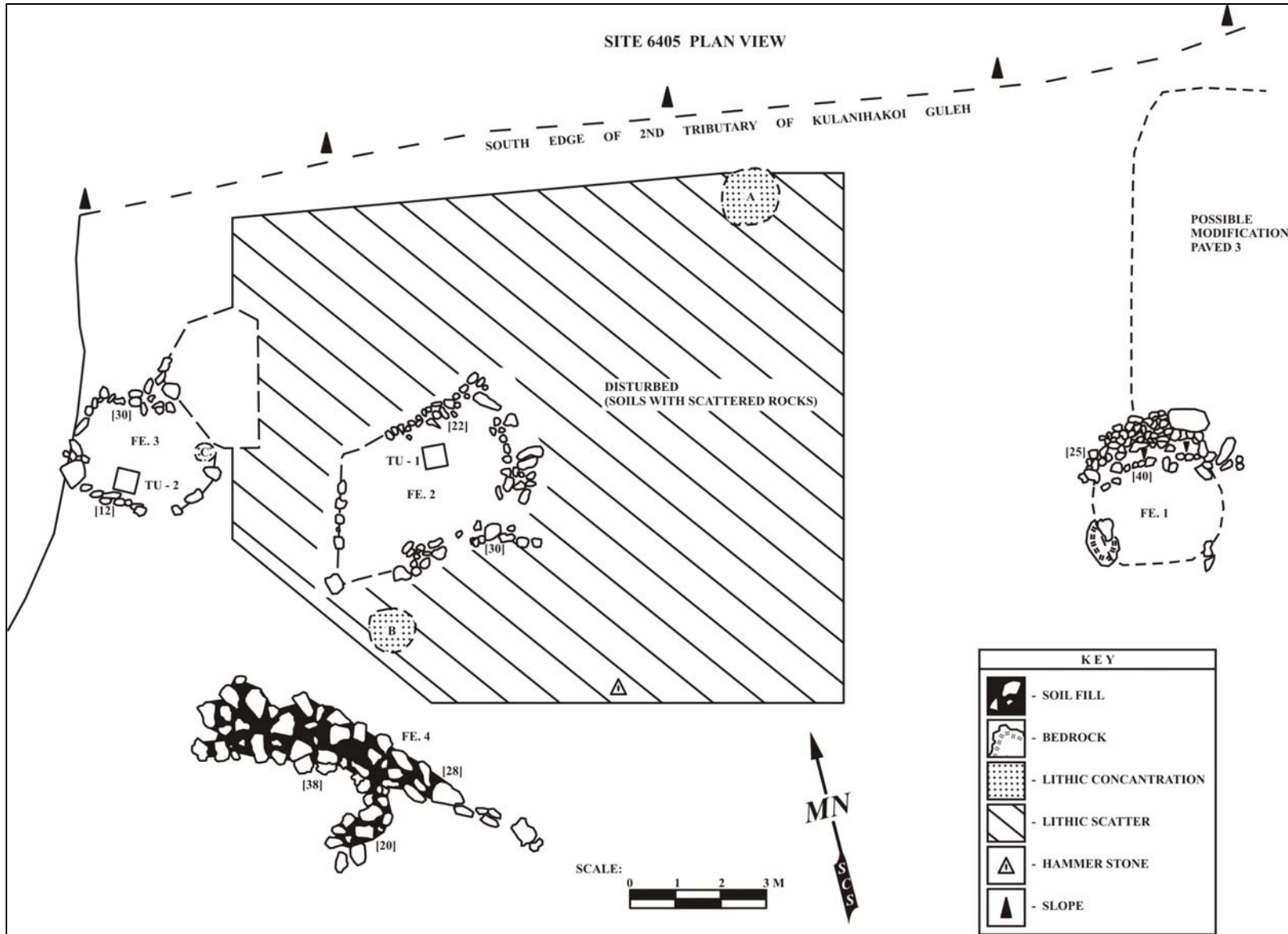


Figure 25: Plan View of Site 6405.

similar size and shape, suggest that this feature was once more heavily constructed, and that it has been severely impacted by time, erosion, animal and military activity. Artifactual evidence

TU-1, a single, 0.5 by 0.5 m test unit, was excavated within Feature 2 in order to determine whether the feature is associated functionally and chronologically with the lithic scatter in which it sits. The unit was placed on the northern central interior of Feature 2, adjacent to, but not abutting, the northern interior wall. The unit yielded two stratigraphic layers (Figure 26). Layer I (0–6 cmbs) consisted of dark brown (7.5 YR 3/4) silt. Some basalt debitage was observed in this layer. While it was evident that erosion has washed away much of the soil in the area, the presence of lithic materials in the subsurface matrix indicates that this feature is temporally and functionally associated with the lithic scatter in which it rests. Layer II (6–8 cmbs) consisted of brown (7.5 YR 4/4) silt loam. This layer contained no cultural material and terminated on bedrock.

Feature 3 is a circular enclosure, similar in construction style to Feature 2. Based on the shape and close proximity to Feature 2, Feature 3 is also probably related to pre-Contact times. Feature 3, measuring 3.5 by 3.0 m on the exterior, consists of aligned and piled basalt boulders and cobbles showing severe damage due to time, erosion and animal activity. It lies on the western extremity of the site, approximately 3.0 m west of Feature 2.

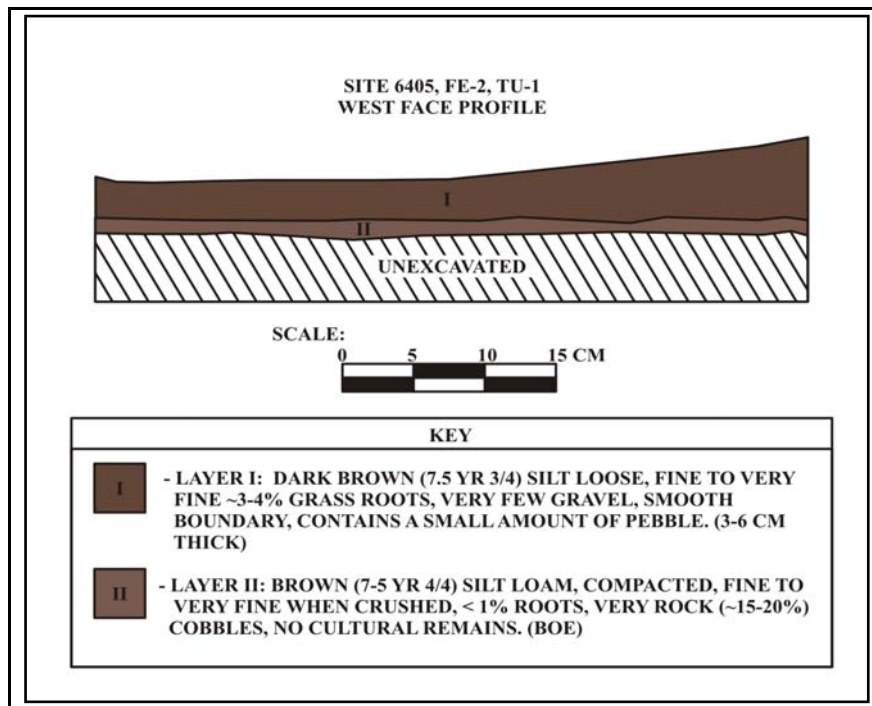


Figure 26: West Profile, Site 6405, TU-1.

TU-2 is a single, 0.5 by 0.5 m test unit that was excavated on the southern interior side of Feature 3, abutting the enclosure wall. The purpose of this unit was to recover cultural materials useful in identifying the feature's function and age. The unit yielded four stratigraphic layers (Figure 27). Layer I (0–3 cmbs) consisted of brown (10 YR 4/3) silt. Layer II (3–8 cmbs) was strong brown (7.5 YR 4/6) silt. Layer III (8–25 cmbs) was made up of loose, brown (7.5 YR 5/4) silt. Layer IV (25–32 cmbs) consisted of brown (7.5 YR 4/4) silt loam similar to that found at the bottom of TU-1. No cultural material was covered from this excavation. As shown in Figure 27, the soil deposit was much deeper in TU-2 than that of TU-1, indicating that erosion has not been as active in this area as in the area of Feature 2.

The fourth and final feature of Site 6405 is an irregular basalt boulder and cobble wall that, at an earlier time, may have been part of a larger, more complex feature. Feature 4 stands at the site's southwestern corner, approximately 2.0 m south of Feature 2. The wall is extensively disturbed, with dimensions of 7.4 by 3.0 m and standing up to 0.38 m high and collapse evident throughout. A short section of wall extends to the south from the main construction, forming what may be a second wall of a more complex feature. However, the original shape of this feature is difficult to ascertain due to the nature of disturbance at this site. Feature 4 may be related to pre-Contact habitation activities.

50-50-10-6406

Site 6406 consists of two features located less than 100 m east of 6395. These features are both rock mounds relating to Historic Period agriculture. These features are constructed of machine-fractured basalt boulders and cobbles piled loosely in two amorphous mounds located on the south side of an unnamed drainage. Feature 1, which is located closest to the unnamed drainage, measures approximately 5.5 by 2.5 m and up to 0.7 m in height. Feature 2, located just south of Feature 1, measures 1.5 by 2.0 m and up to 0.5 m in height. The site is considered significant under criterion D due to its potential to yield information pertinent to the history of Maui and the state of Hawaii.

50-50-10-6407

Site 6407 consists of a single, historic, linear rock mound constructed with subangular cobbles and small- to medium-sized boulders (Figure 28). This single-feature site is associated with military activities in the area. No stacking is evident in this site. The site measures 9.0 by 0.3 to 0.8 m and up to 0.5 m in height. The eastern half of this feature is on top of bedrock. Land alterations are apparent throughout the area adjacent to the site. The site is located approximately 75.0 m southeast of Site 6405. The site is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawaii.

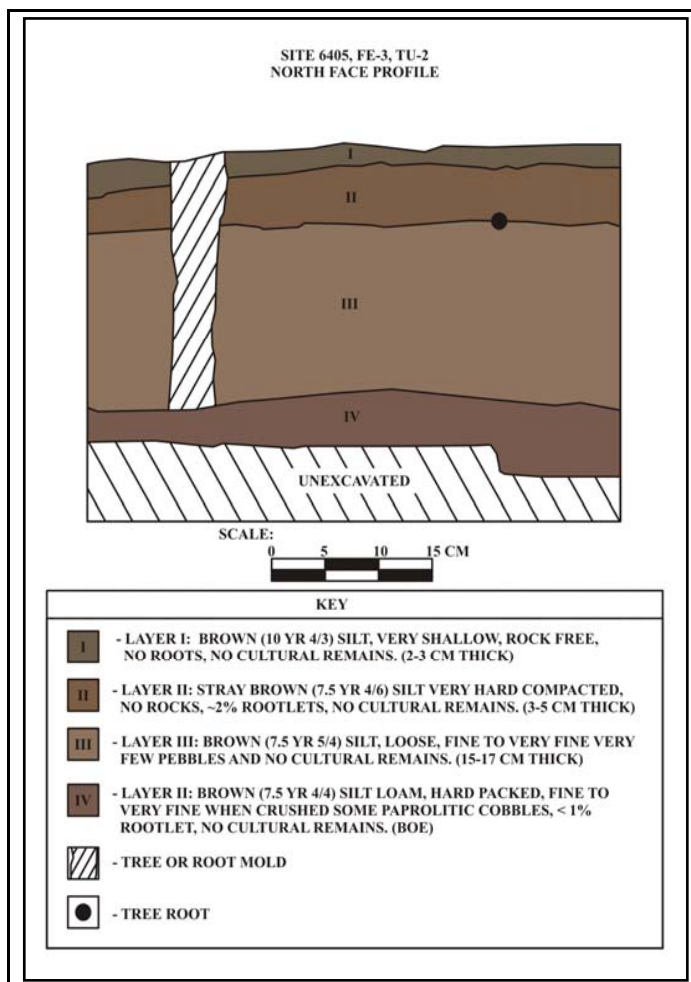


Figure 27: North Profile, Site 6405, TU-2.

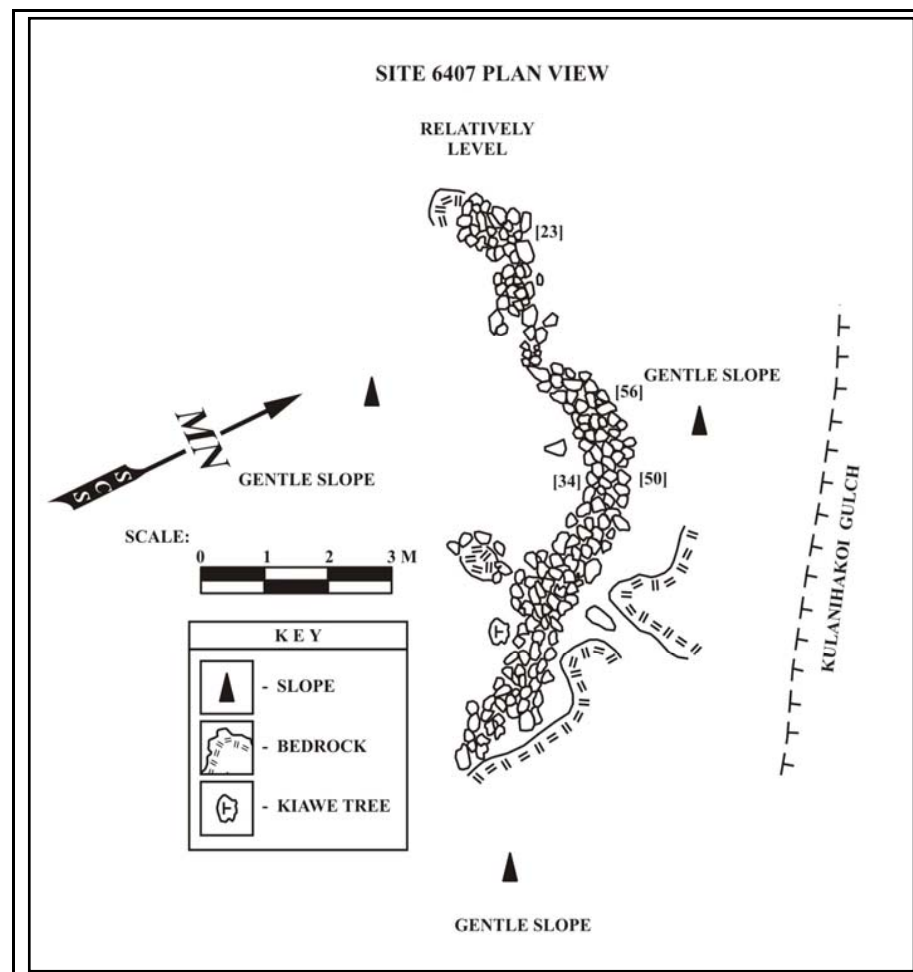


Figure 28: Plan View of Site 6407.

50-50-10-6408

Site 6408 consists of five features relating to military activity in the Historic Period (Figure 29). The site is located approximately 100.0 m west of 6395, in the south-central portion of the project area. Excavation at this site was limited to a single 0.5 by 0.5 m test unit in Feature 1. The site is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawaii.

Feature 1 is a small enclosure, measuring 3.0 by 3.0 m and up to 0.3 m high. The feature walls show some stacking on the northeast and southeast sides (up to 3 courses high), but the majority of the feature is constructed of crudely piled basalt boulders and cobbles. The crude construction of the feature indicates that it was built for military purposes.

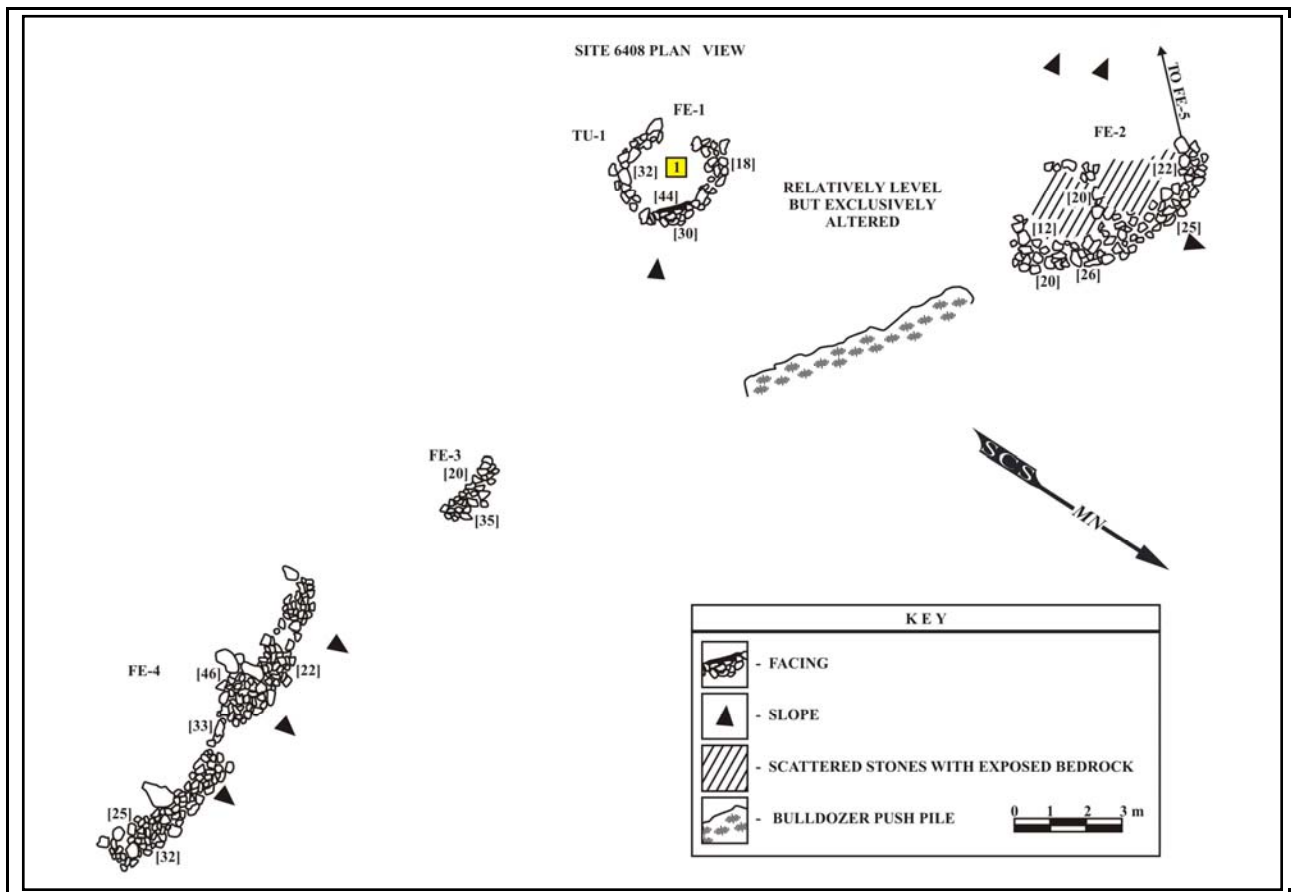


Figure 29: Plan View of Site 6408.

TU-1 was excavated in the center of Feature 1. This unit, measuring 0.5 by 0.5 m, was excavated to bedrock, at a total depth of 18 cmbs. The unit yielded two stratigraphic layers (Figure 30). Layer I (0–12 cmbs) consisted of dark brown (7.5 YR 3/4) silt. Layer II (12–18 cmbs) was made up of slightly compacted, brown (7.5 YR 4/4) silt. No cultural material was observed or collected from this unit.

Feature 2 is a unique feature consisting of two adjoining C-shaped structures. The feature, located approximately 8.0 m to the northwest of Feature 1, measures 6.0 m long by 3.2 m wide on the exterior. The interior of each C-shape is approximately 1.5 m long. This is unique to the project area and is related to military activity on the lot, due to the construction style, which consists of subangular and subrounded basalt boulders and cobbles crudely piled to form walls, rather than neatly stacked.

Feature 3 is a small linear mound located approximately 7.0 m northeast of Feature 1. The feature is constructed of piled boulders and cobbles, measuring 2.0 m long by 0.6 m wide and up to 0.35 m high. This feature has been interpreted as relating to Historic military activity due to its geographical association with other military features in the site and general area.

Feature 4 is a second, larger mound located approximately 4.0 m northeast of Feature 3. This feature measures 9.5 by 1.6 m and up to 0.46 m in height. This feature has been interpreted as relating to Historic military activity due to its geographical association with other military features in the site and general area.

Feature 5 is a C-shaped structure that is located on the gentle slope just west of Feature 1 (Feature not shown in Figure 29). The feature consists of neatly piled, subrounded basalt boulders and cobbles forming a C-shape that measures 3.6 by 2.6 m on the exterior, with wall thickness at approximately 1.0 m, standing approximately 0.3 m in height.

50-50-10-6409

Site 6409 is an L-shaped alignment with a rectangular depression extending northeast from the alignment (Figure 31). The location of this site was recorded as being south of site 6406. The feature is constructed of large basalt cobbles and small boulders, with more piling on the eastern end. This single-feature site measures approximately 1.6 by 1.8 m and up to 27 cm in height. The depression is approximately 0.15 m below the base of construction of the alignment. This type of feature is typologically similar to 6396 and 6400. Such features are associated with

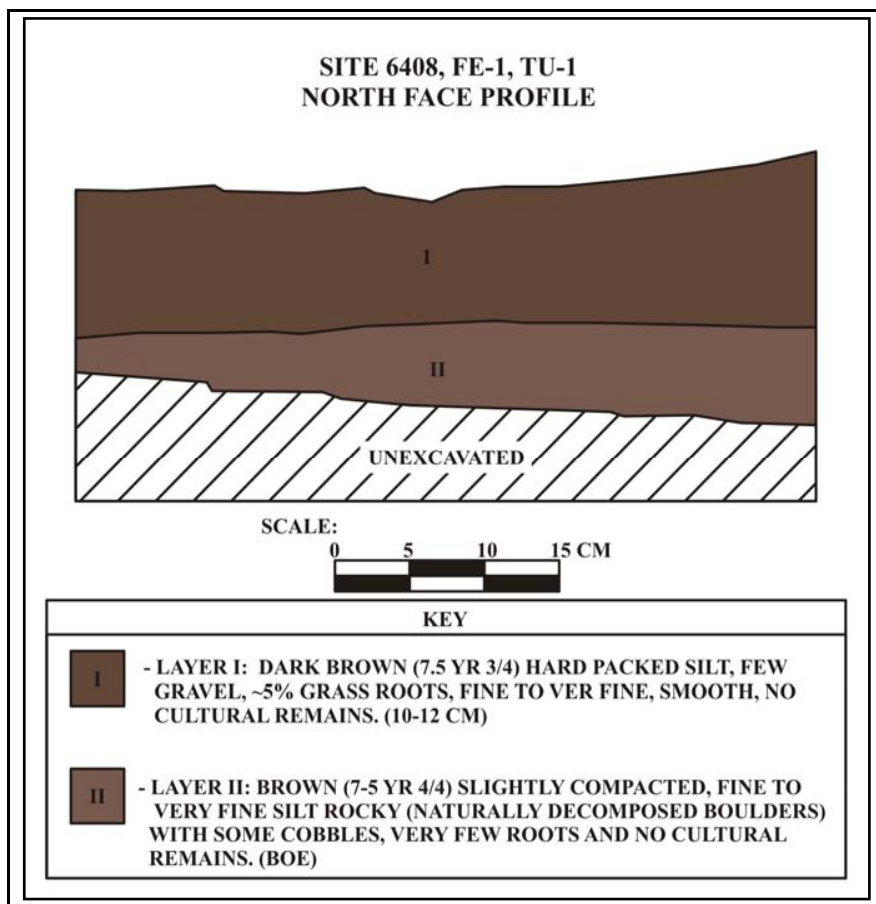


Figure 30: North Profile, Site 6408, TU-1.

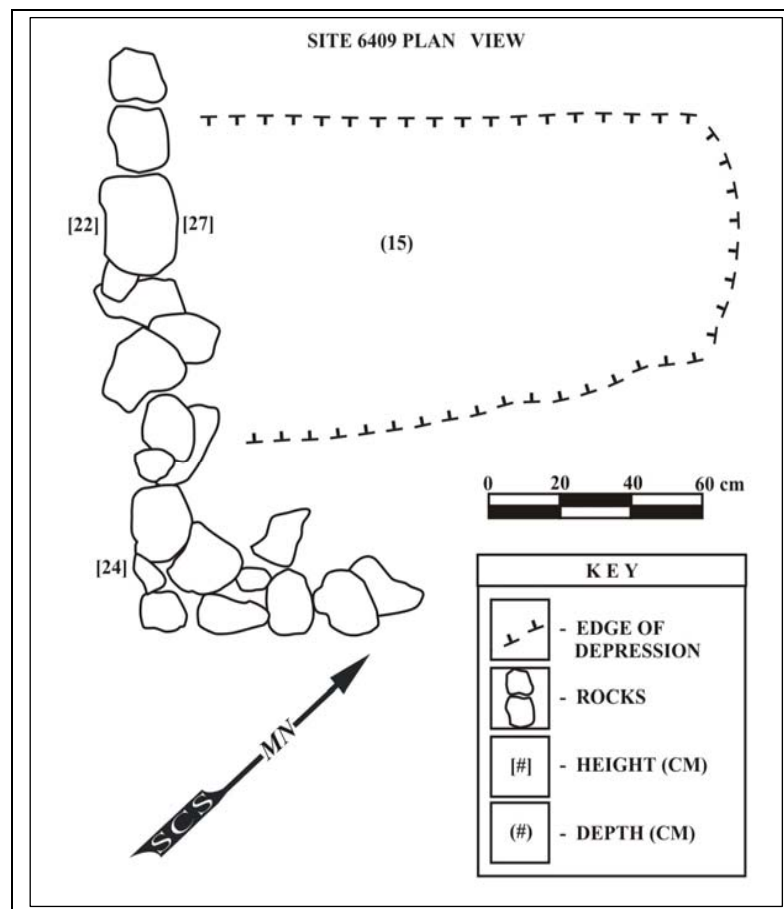


Figure 31: Plan View of Site 6409.

military training activities. The site is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawai'i.

50-50-10-6410

Site 6410, which is located approximately 75.0 m southeast of Site 6407, consists of two basalt cobble and boulder C-shaped structure related to military activities (Figure 32). Features 1 and 2 are located in a mechanically altered area where the ground is nearly level and bedrock is exposed in most of the surrounding area. Both features are constructed with angular and subangular basalt cobbles and boulders that are neatly piled forming low, C-shaped structures. Feature 1 measures 3.8 m long, up to 2.0 m wide and 0.24 m high on the exterior. The interior of this feature, a relatively smooth, level area, measures approximately 2.0 by 1.0 m. Feature 2 measures 4.0 m long, up to 2.6 m wide and 0.3 m high. The interior measures approximately 2.1 by 1.6 m and consists primarily of exposed bedrock, producing a very rough, rugged surface. The site is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawaii.

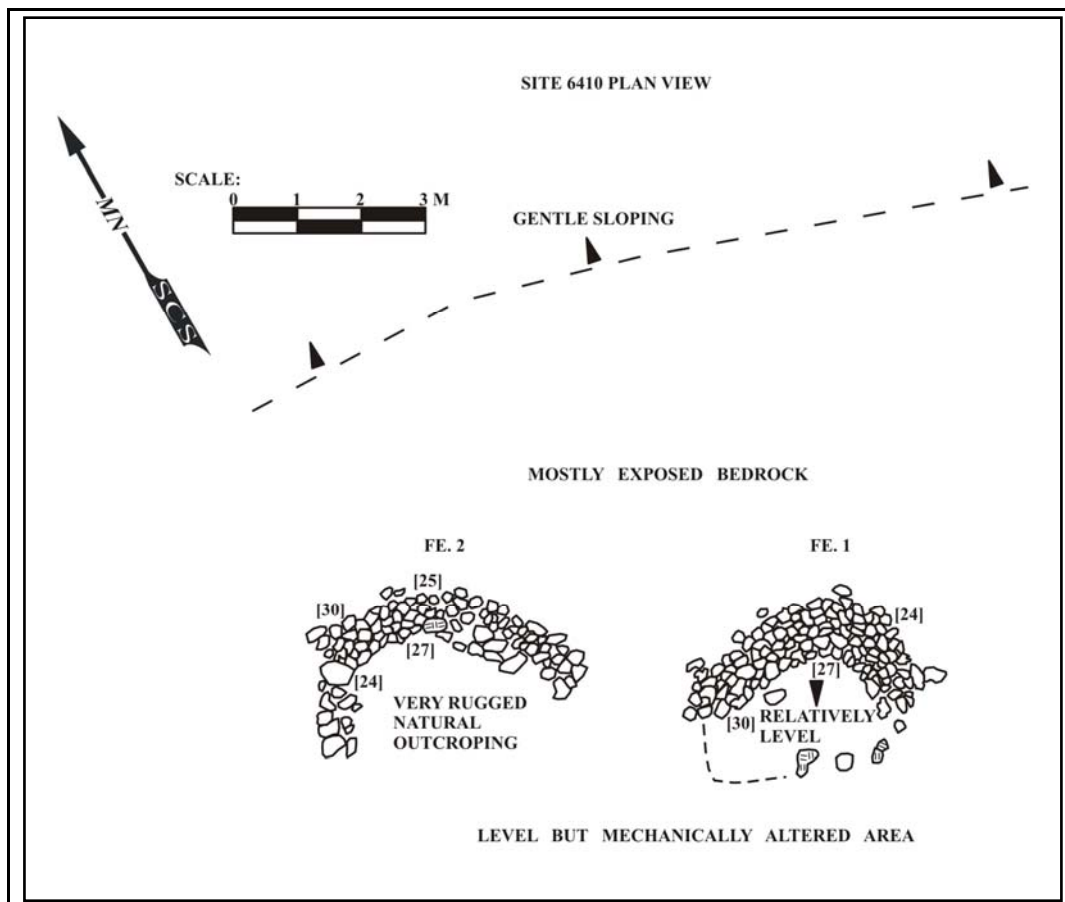


Figure 32: Plan View of Site 6410.

50-50-10-6411

Located on the northern ridge of Kulanihakoi Gulch toward the center of the project area, Site 6411 consists of two features that date to the Historic Period (Figure 33). These features, a mound and a wall, are located on the south ridge of Kulanihakoi Gulch. The site is significant under criterion D for its potential to yield information important to the history and prehistory of Maui and the state of Hawai'i.

Feature 1 is an indiscriminately piled mound of subangular to subrounded cobbles and medium-sized boulders that sits on the top of a west-facing crest, between the existing waterway in Kulanihakoi Gulch and the second tributary to the south. This feature measures 2.1 by 2.0 m and up to 0.34 m in height. While the similarity of this structure to others found on the parcel imply that it is Historic in age, a more precise temporal affiliation is impossible to determine with a dearth of artifactual evidence.

Feature 2 is a wall that extends from the same ridge (approximately 20.0 m east of Feature 1), northward, down the gulch slope for a distance of 35.0 m. Feature 2 measured 35.0 by 0.2 by 0.58 m and is constructed of subangular and subrounded basalt boulders and cobbles. This wall is roughly stacked and piled, with very little evidence of facing. Portions of the wall resemble nothing more than an alignment of boulders; intermittently, there are entire sections of the wall missing. Due to its morphological similarity to Site 6402, the wall has been interpreted as related to military activity.

50-50-10-6412

Site 6412 is a multi-feature site located on a gentle slope on the north side of Kulanihakoi Gulch, approximately 150.0 m south of the northern boundary of the project area. The site consists of seven features in total: 3 C-shapes, 2 L-shapes, an alignment, and an enclosure (Figure 34). These features are spread over an area of approximately 1,000 square meters. A lack of artifactual evidence coupled with similarity between features here and at other sites, suggests that this site is related to military use during the Historic Period. However, Feature 7 is most likely related to the pre-Contact period, later being re-used by military personnel in the Historic period. Two test units were excavated in this site: TU-1 at Feature 5 and TU-2 at Feature 7. This site, with its several components and dual nature in time and function, is significant under criterion D for its potential to yield information important to the history and prehistory of Maui and the state of Hawai'i.

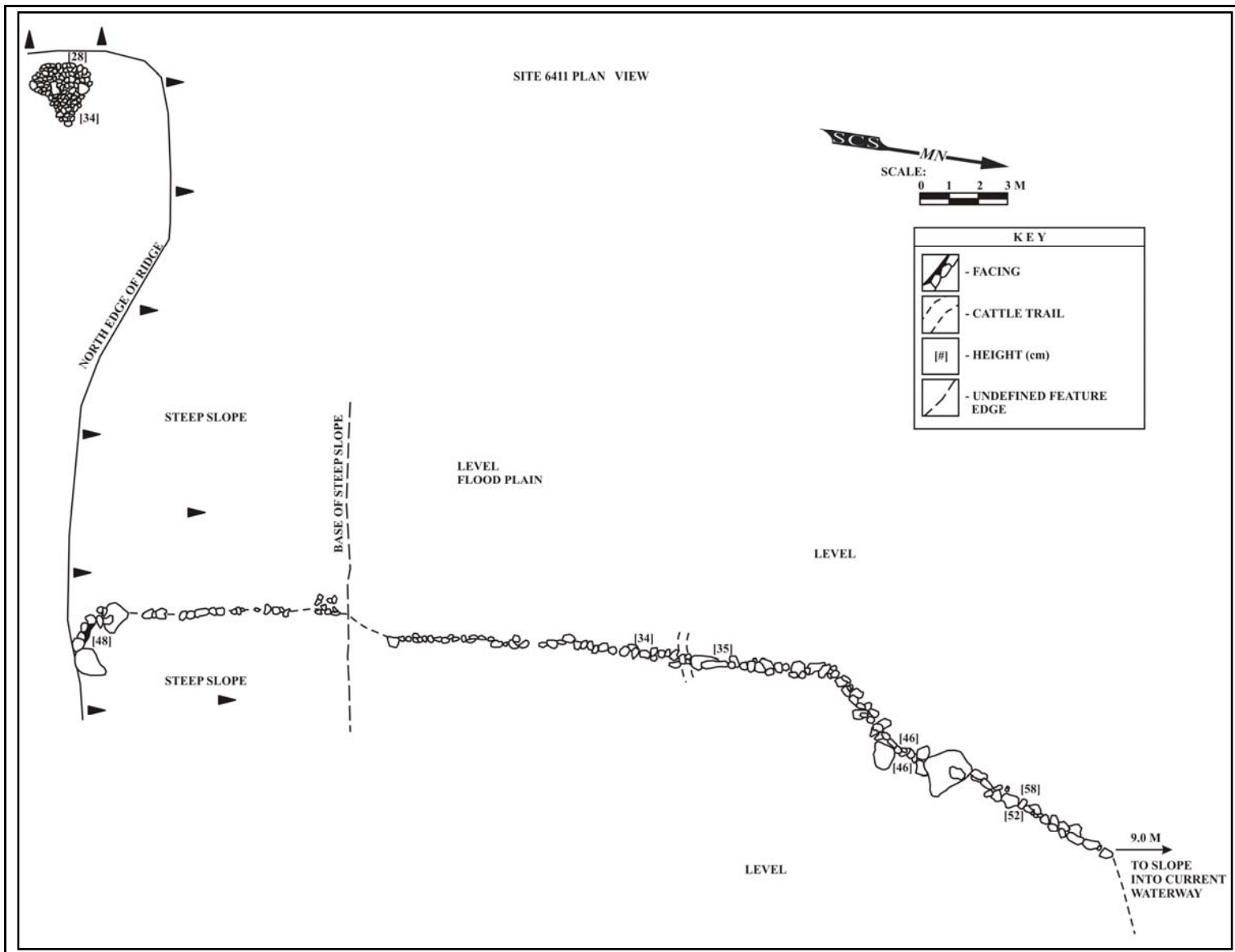


Figure 33: Plan View of Site 6411.

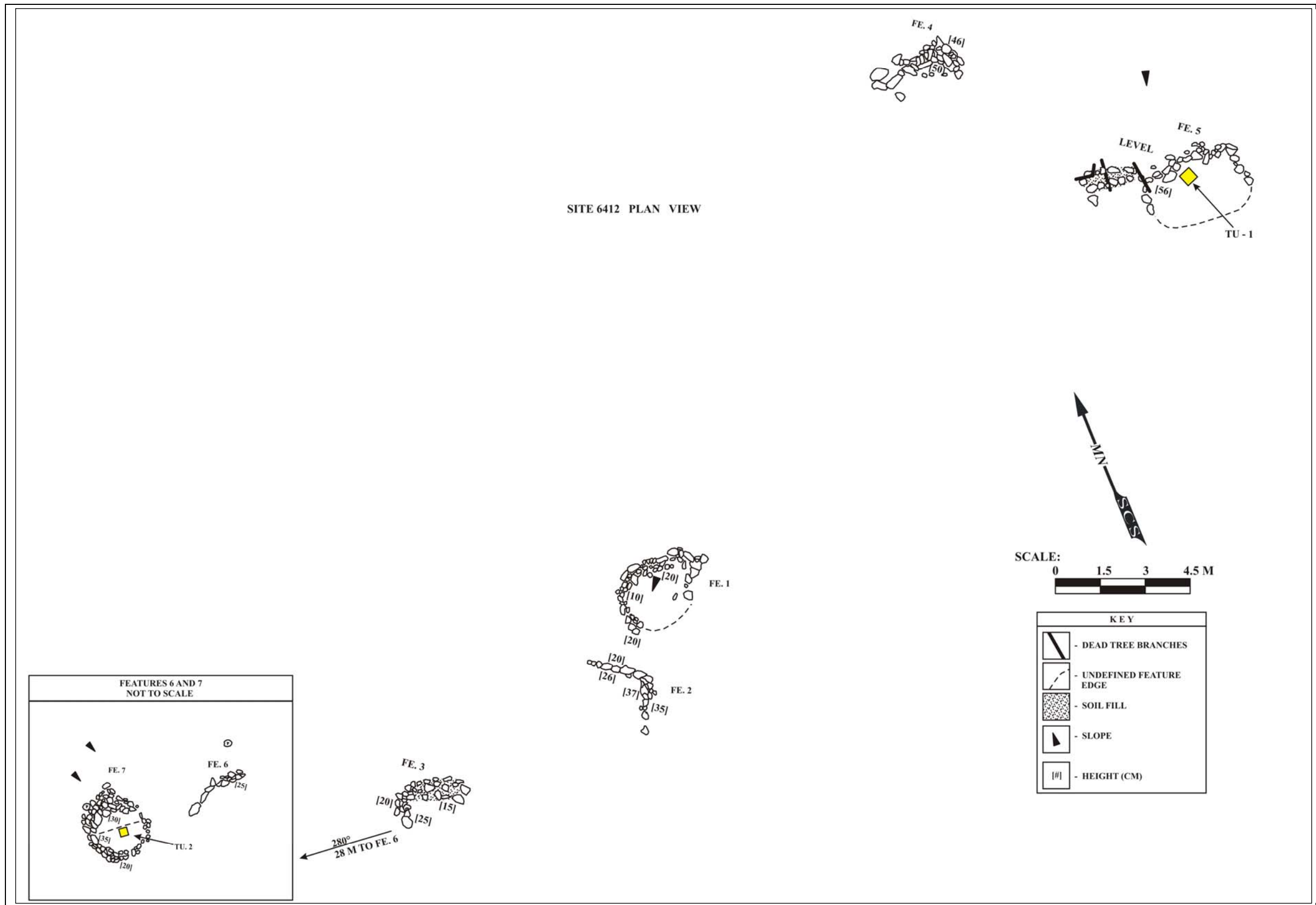


Figure 34: Plan View of Site 6412.

Feature 1 is a C-shape measuring 3.7 by 3.0 m on the exterior, with the wall measuring 0.5 to 1.0 m thick and up to 0.2 m in height. The feature is constructed of small to medium basalt boulders and cobbles aligned, but not stacked, in a semi-circular pattern.

Located just southwest of Feature 1, Feature 2 is an L-shaped structure measuring 3.2 by 2.3 m with walls 0.26 to 0.37 m thick and up to 0.2 m in height. Similar to Feature 1, the subrounded boulders used to form this feature are aligned, not stacked, on the ground to form an L-shape. Soil around this feature is severely eroded, exposing the vertical axis of the feature, making it unclear whether or not the feature had buried architecture.

Feature 3, the second of three C-shapes in this site, measures 3.0 by 1.7 m on the exterior, with walls standing up to 0.2 m in height. It is located approximately 6.0 m west of Feature 2. This feature is similar in construction style and condition to Feature 1, with small- to medium-sized basalt boulders and cobbles piled to form the feature shape. The interior of the feature is severely eroded.

Feature 4 is the second of two L-shaped structures. This feature, located approximately 20.0 m northwest of Feature 1, is a heavily constructed feature that consists of piled subrounded basalt cobbles and small boulders. Feature 4 measures 3.5 by 1.5 m and has a maximum height of 0.5 m. The interior of the feature is relatively level, but there is some exposed bedrock on the surface, suggesting a strong impact of erosion at this site.

Feature 5 measured 6.5 by 3.0 by 0.56 m and consists of subangular small and medium basalt boulders piled to form a linear structure that extends approximately east-west for 6.5 m. From this central component, three arms of aligned boulders extend southward creating two adjoining C-shapes. The interior of this double-C-shape is relatively level; however, erosion and extensive disturbance is evident, especially due to the presence of several fallen tree branches in the site that may have obscured the feature.

TU-1, a single, 0.5 by 0.5 m test unit, was excavated in the center of the eastern-most C-shape in Feature 5. This unit yielded two stratigraphic layers (Figure 35). Layer I (0–26 cmbs) consisted of brown (10 YR 4/3) silty loam. Layer II (26–36 cmbs) was brown (7.5 YR 4/4) compacted silt. No cultural materials were, observed or collected, in this unit.

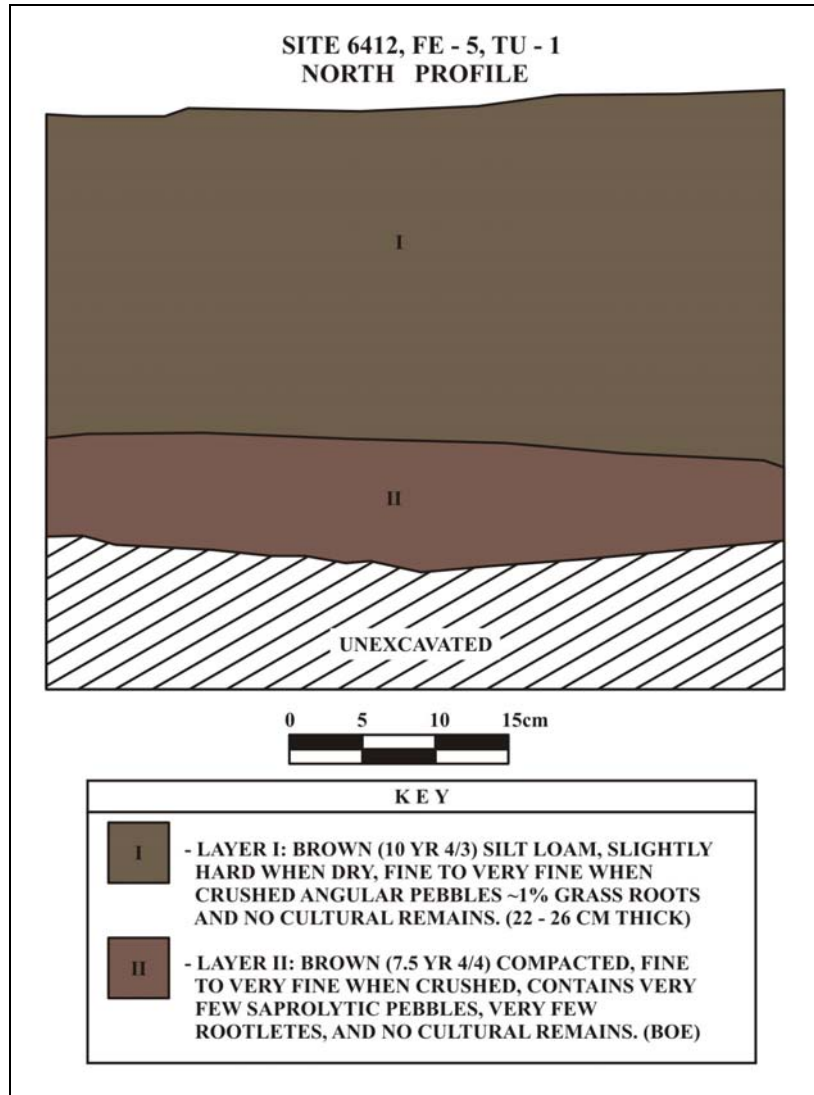


Figure 35: North Profile, 6412, TU-1.

Feature 6 is a boulder alignment located 28.0 m west of Feature 3. This crudely constructed feature measures 4.0 m long and up to 0.25 m high. The function of this feature is undetermined

Feature 7 is a small, circular enclosure lying 3.0 m west of feature 6. This feature measures 2.5 by 3.7 m, with walls ranging from 0.5 to 1.2 m in thickness and up to 0.2 m in height. This feature is slightly more formal in construction than the previous features described in this site, implying that it may have been a structure that predated military occupation at the site and has been modified in the historic period. Feature 7 is constructed of subangular basalt boulders and cobbles piled on the north and west sides, with double-alignments (two stones

wide) on the south and east sides of the feature. Feature 7 is severely collapsed, especially on its north side, suggesting that the walls of this feature were once quite tall.

Tu-2 was excavated at the center of feature 7. This 0.5 by 0.5 m unit yielded three stratigraphic layers (figure 36). Layer i (0–11 cmbs) consisted of dark brown (7.5 yr 3/4) silt loam. Layer II (11–20 cmbs) consisted of brown (7.5 yr 4/4) silt. Layer iii (20–26 cmbs) consisted of moderately compacted, fine brown (7.5 yr 4/4) loam. The unit yielded some basalt flakes in layer ii, supporting the idea that this feature predates the historic period.50-50-10-6413

50-50-10-6413

A pre-Contact rock shelter with four petroglyphs on a cliff face at the bottom of Kulanihakoi Gulch comprises Site -6413(Figure 37). The site is located approximately 100.0 m west of Site 6414, on the south side of the Kulanihakoi drainage, abutting a high basalt escarpment. This site is considered significant under criterion D.

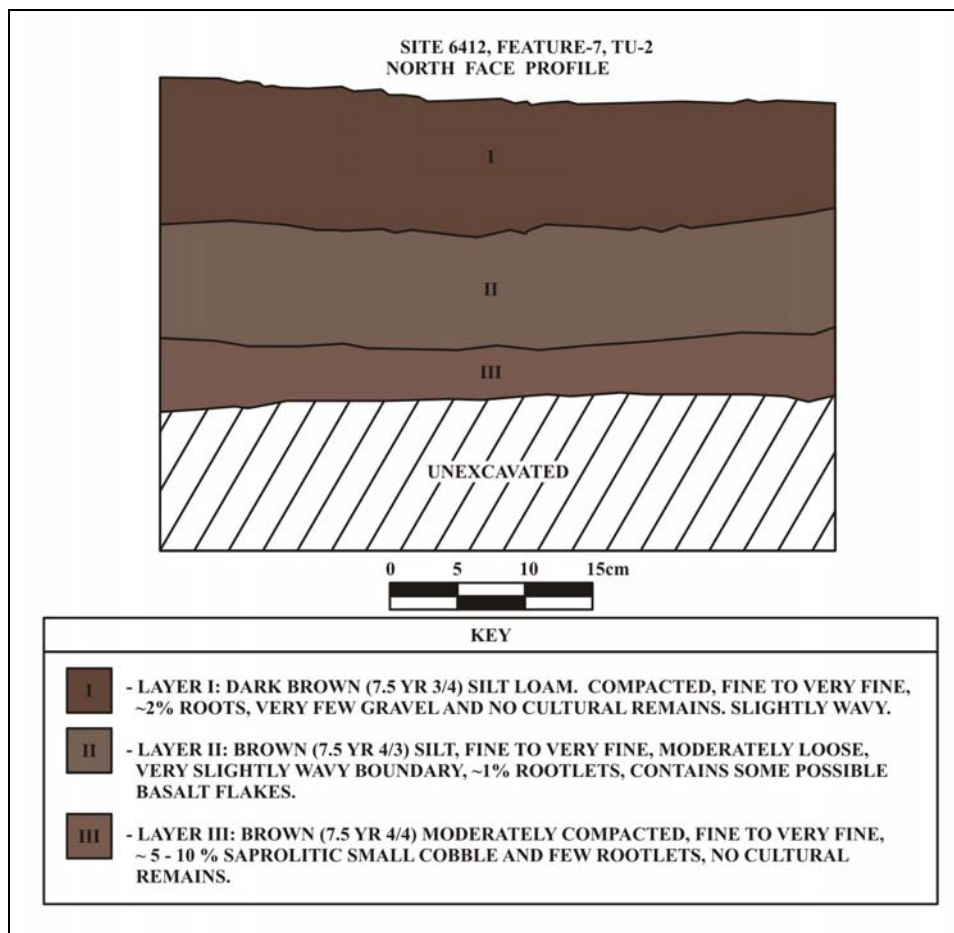


Figure 36: North Profile, 6412, TU-2.

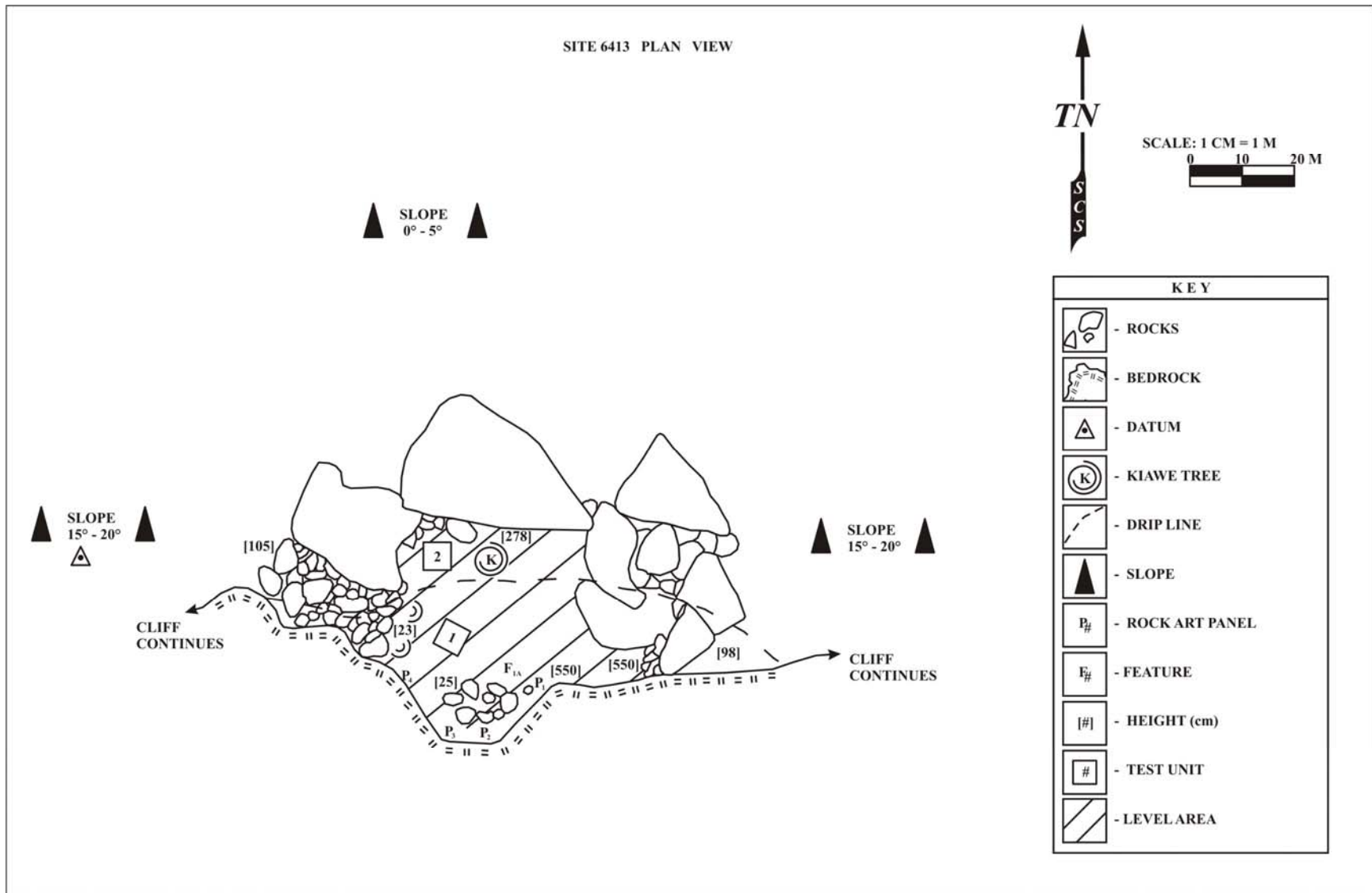


Figure 37: Plan View of Site 6413.

Feature 1 is a rock shelter measuring approximately 9.0 m long by 4.0 m wide, with the interior height up to 0.98 m. At the center of this rock shelter, just under the drip-line, Feature 1a is a ring of boulders resembling a hearth; however there was no sign of charring on the ground surface within the feature. Two 0.5 by 0.5 m test units were excavated on the interior of this rock shelter.

TU-1 was excavated in the central-western portion of the rock shelter, adjacent to Feature 1. The excavation yielded two stratigraphic layers (Figure 38). Layer I (0–15 cmbs) consisted of very dark brown (7.5 YR 2.5/3) loosely compacted silt with a high concentration of gravel throughout. A small amount of charcoal flecking was recovered from this layer. Layer II (4–17 cmbs) consisted of saphrolytic, reddish yellow (5 YR 6/8) silt. No cultural material was recovered from this layer.

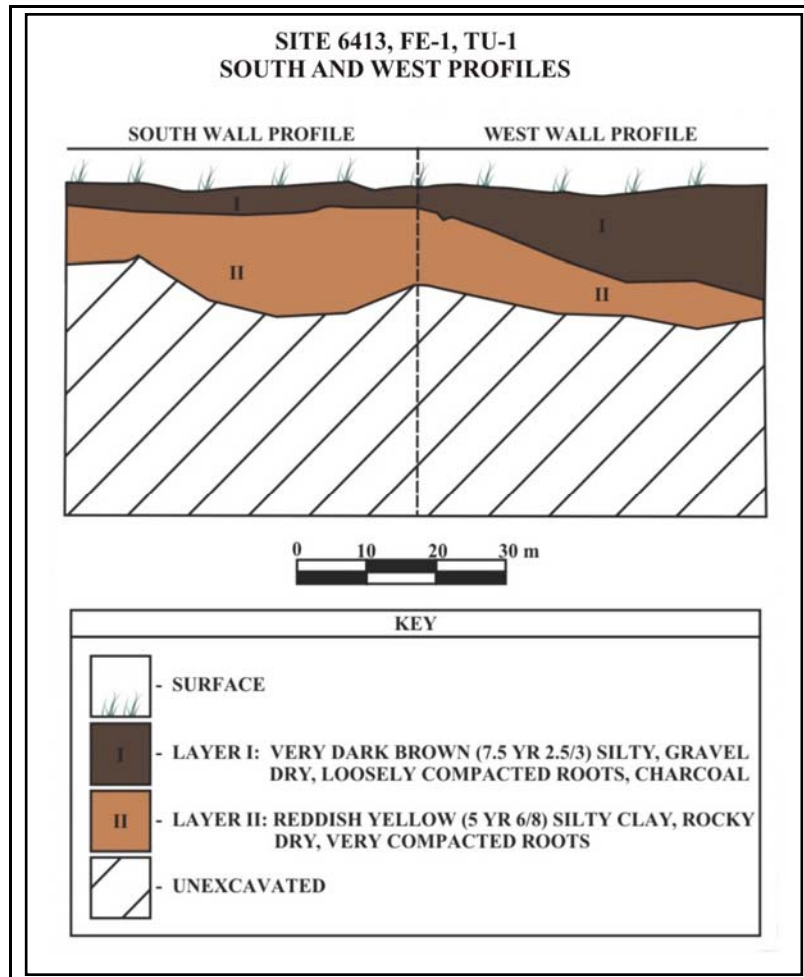


Figure 38: South and West Profiles, 6413, TU-1.

TU-2 was excavated in the northwest corner of the rock shelter. Excavation of this unit yielded a single stratigraphic layer consisting of loose, moist, very dark brown (10 YR 2/2) silt and a high concentration of basalt boulders and cobbles (Figure 39). Upon termination of this unit, it became apparent that the boulders in this unit were stacked in between two, much larger boulders, as to fill the gap and create a level floor within the rock shelter. A small amount of charcoal was collected *in situ* at 35 cmbd. This charcoal sample was radiocarbon tested, yielding a conventional radiocarbon age of 280±40 years before present (see Appendix A).

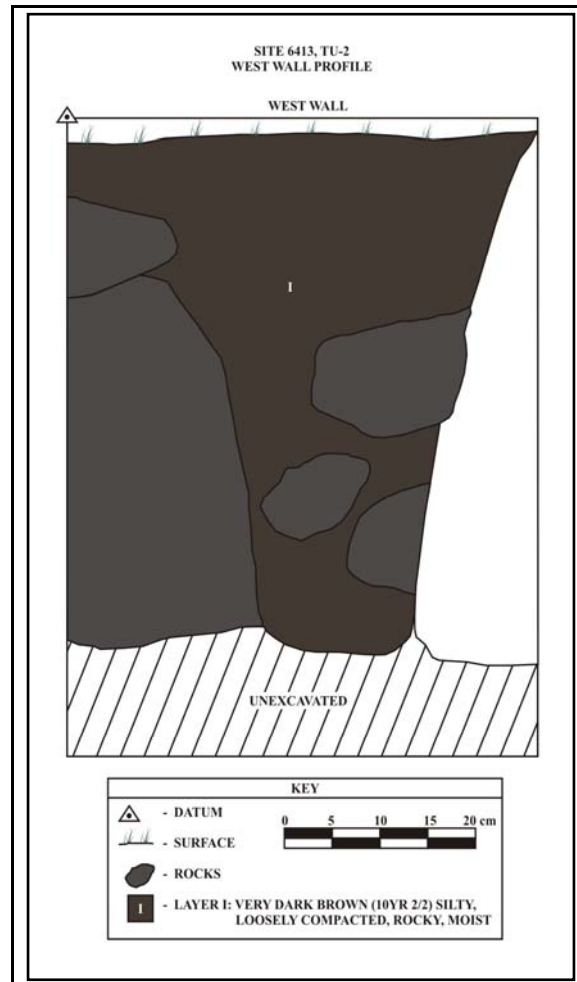


Figure 39: West Profile, 6413, TU-2.

Four panels of anthropomorphic petroglyphs have been consolidated under Feature 2. These panels (sample shown in Figure 40) consist of ten distinct anthropomorphic figures, as well as several additional non-diagnostic images, peckings and scratches. The anthropomorphic figures range in height from 15 to 30 cm and consist of both pecked and scratched components.

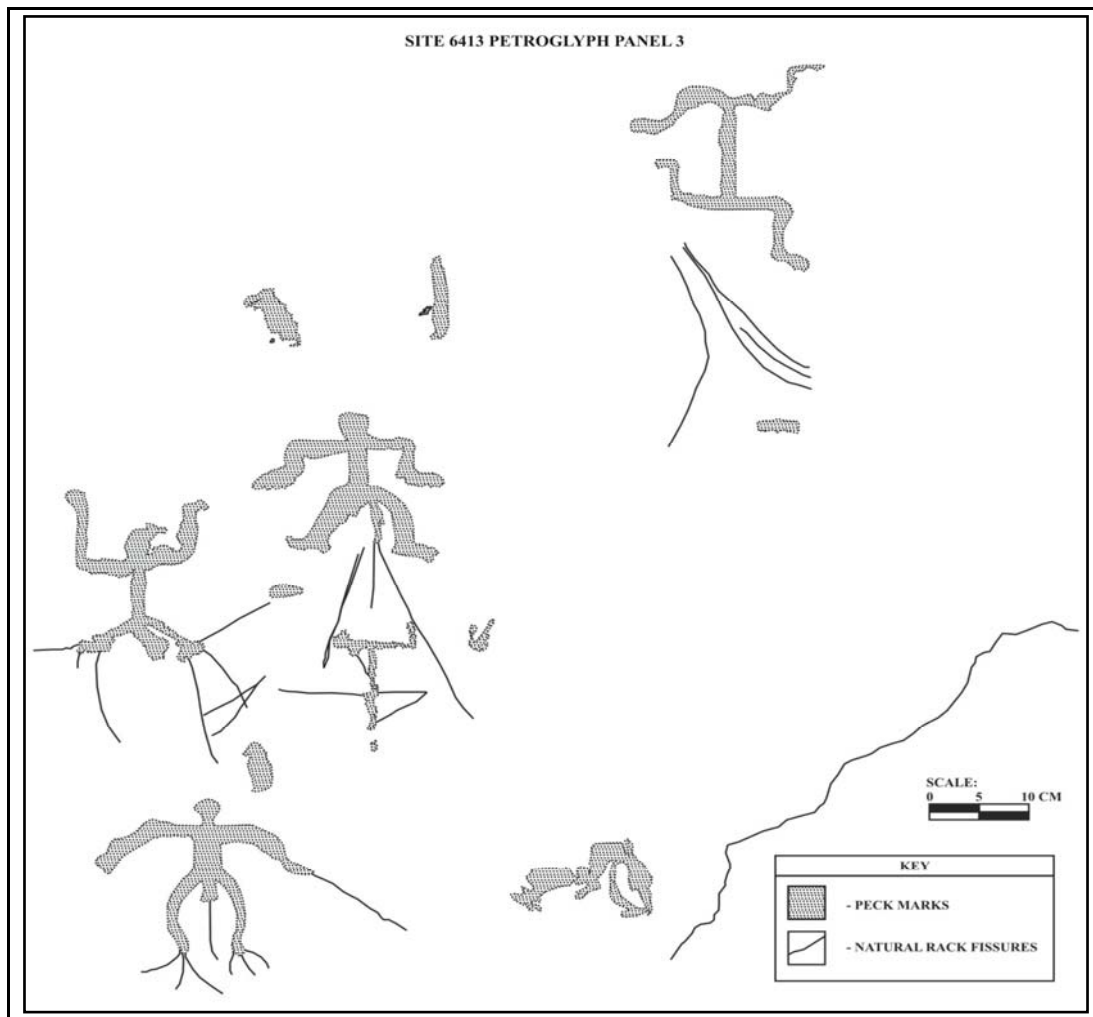


Figure 40: Site 6413, Feature 2, Petroglyph Panel 3.

50-50-10-6414

Located in the bottom of Kulanihakoi Gulch in the northeast corner of the project area is Site 6414, a rock shelter (Feature 1) with two petroglyphs (Feature 2). The rock shelter measured approximately 9 m wide by 16 m long. As there was no surface cultural material, no subsurface excavation was conducted in this feature. Two petroglyphs were consolidated under Feature 2. These are anthropomorphic figures positioned on the eastern and western extremes of a rock shelter at the base of the escarpment of Kulanihakoi Gulch (Figure 41). These figures measure 0.2 and 0.25 m high, respectively and both are pecked, rather than scratched, into the smooth basalt surfaces (Figure 42 and 43). The site typology indicates that it dates to the pre-Contact Period, and, being that no surface artifacts or midden were observed, it was likely a temporary use site. The site is significant under criterion D for its potential to yield information pertinent to the prehistory and history of Maui and the State of Hawai'i.

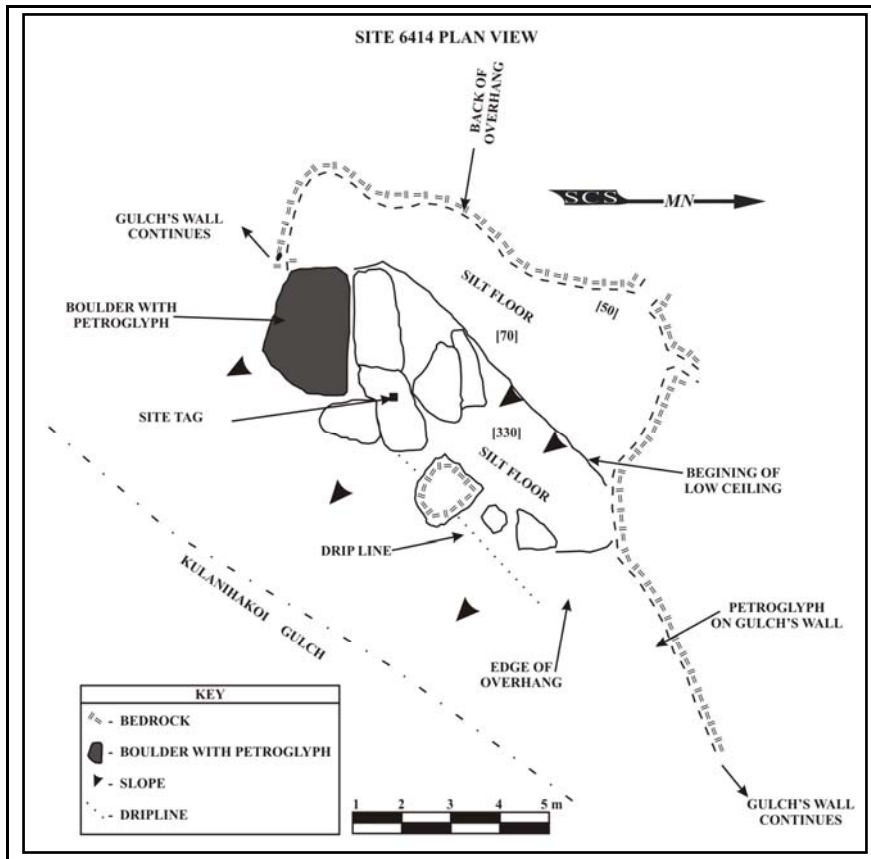


Figure 41: Plan View of Site 6414

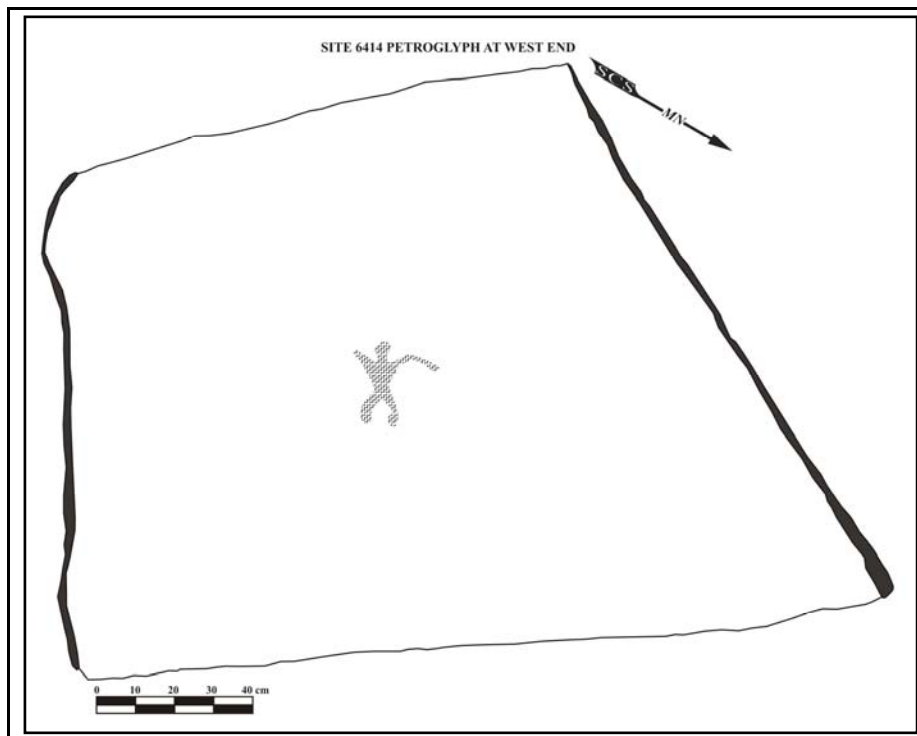


Figure 42: Petroglyph at the West End of 6414 (Feature 1).

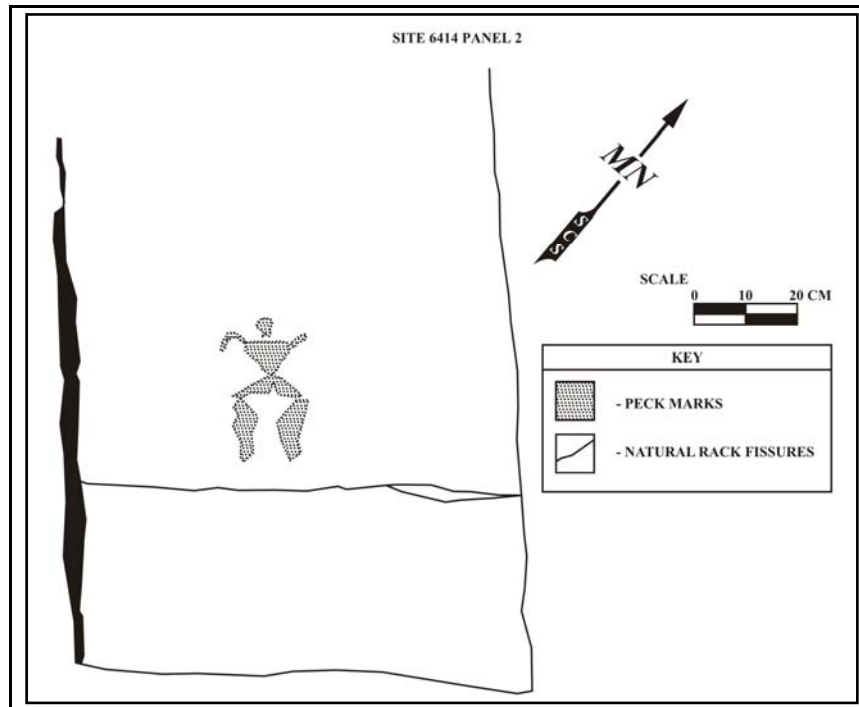


Figure 43: Petroglyph at the East End of 6414 (Feature 2)

50-50-10-6415

Approximately 100.0 m north of 6414 is Site 6415; a low stone wall that likely dates to the pre-Contact period (Figure 44). This single-feature site measures approximately 42.0 m long, 0.5–1.0 m wide and up to 0.2 m high. The wall meanders on an east-west bearing, showing signs of having been severely damaged by erosion and cattle disturbances. This wall terminates abruptly on the east end, where it has likely been wiped out by erosive and animal activities. Site 6415 is morphologically traditional, with a very short, but stout stacked and faced construction. This type of wall differs from a ranch wall in that it is not core-cobble-filled, but built using medium-sized boulders and large-sized cobbles throughout the wall. Its shape, meandering rather than straight, also indicates that this wall did not relate to ranching activities, and it's apparently heavy-duty (though very short) construction separates it from the roughly-constructed walls associated with military activities in the parcel. The site is significant under criterion D for its potential to yield information pertinent to the prehistory and history of Maui and the State of Hawai'i as a whole.

50-50-10-6416

Site 6416, on the northern edge of Kulanihakoi Gulch in the northeast quadrant of the project area, is a low, circular, basalt rock platform that is interpreted as dating to the pre-Contact Period (Figure 45). The platform, measuring 3.1 by 3.3 m and up to 0.5 m in height, is roughly



Figure 44: Photographic Overview of Site 6415.

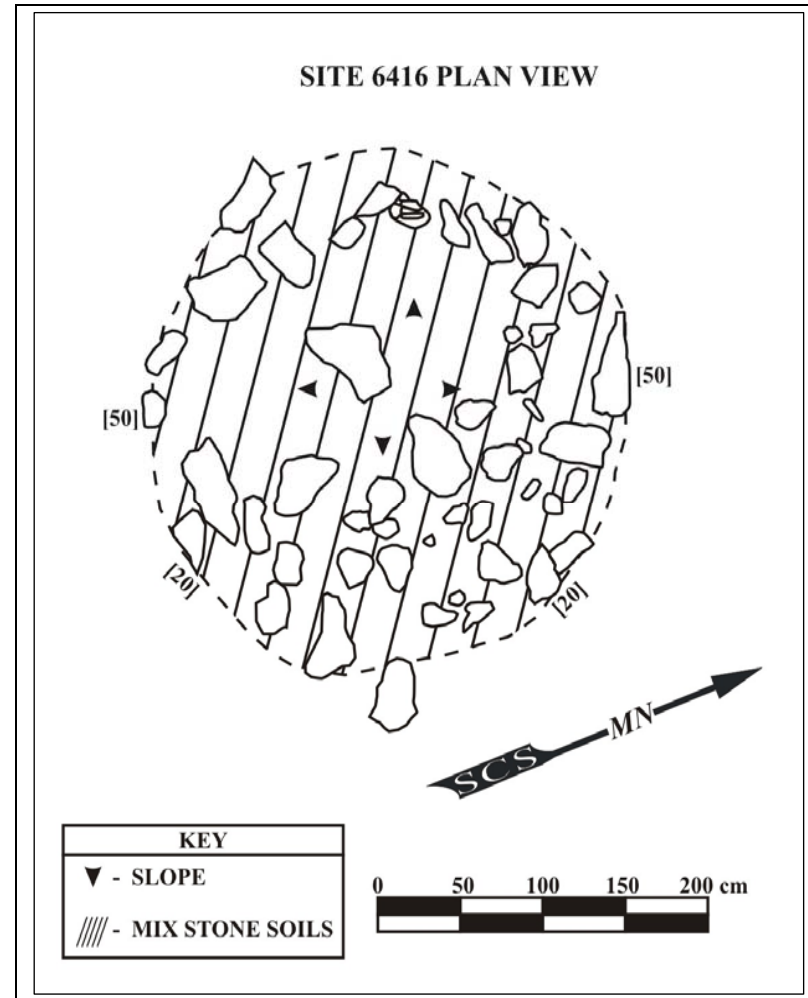


Figure 45: Plan View of Site6416

constructed of subangular cobbles and boulders. It has been heavily impacted by erosion and animal activity. It is further obscured by an accumulation of soil and grasses, indicating the site's antiquity. The heavily damaged condition of this feature renders it impossible to ascertain the function without conducting subsurface excavation. The site is significant under criterion D for its potential to yield information important to the history and prehistory of the island of Maui and the state of Hawai'i.

50-50-10-6417

Site 6417 is a single-feature site consisting of a low, L-shaped rock wall (Figure 46). The site, which is located on the northern edge of Kulanihakoi Gulch, approximately 100.0 m south of 6416, may have functioned as a garden enclosure. The wall measured 17.1 by 7.2 m and is constructed of small, subangular and subrounded basalt boulders with intermittent large boulders included in the construction. The interior is made up of level silt with few rocks. It has been severely affected by erosion and animal activities, as evidenced by the intermittent breaks and collapsed sections of the wall. With no artifactual evidence to support a temporal affiliation, the feature's age is undetermined. The site is considered significant under criterion D.

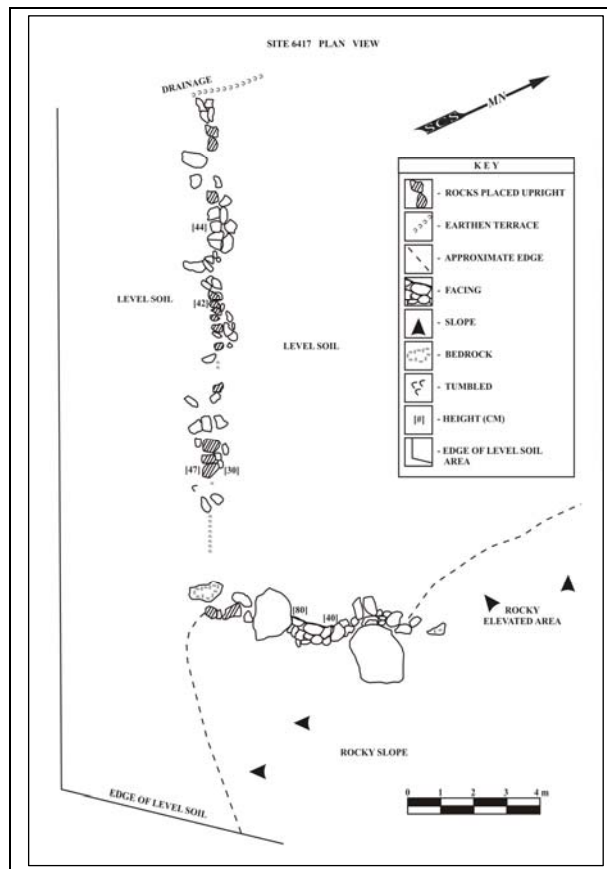


Figure 46: Plan View of Site 6417.

50-50-10-6418

Approximately 125.0 m west of 6417 lies Site 6418, a multi-feature site that is, like 6417, associated with agricultural activities (Figure 47). Site 6418 consists of two features. Feature 1 is a low wall, partially faced, with portions consisting of single, small and medium boulders that have been placed upright. This feature measures approximately 56.0 m long with walls standing up to 0.5 m high and 0.8 m thick. It bears northwest-southeast along the northern edge of Kulanihakoi Gulch. The function of this feature is unknown, but it may have been a garden wall. The area upslope of the wall is very rocky and appears to have been significantly altered, both mechanically and by erosion. The site is significant under criterion D for its potential to yield information pertinent to the history or prehistory of Maui and the state of Hawai'i.

Feature 2 is a terrace in a narrow drainage that functions for water flow control. It measures 2.2 m long, approximately 0.2 m wide and up to 0.64 m in height.



Figure 47: Photographic Overview of Site 6419.

50-50-10-6419

Site 6419 is a pre-Contact rock shelter in a large basalt outcrop on the northern edge of Kulanihakoi Gulch, adjacent to 6418 (Figure 48). This rock shelter functioned as a temporary habitation, as evidenced by scattered charcoal throughout the surface of the cave floor. This rock

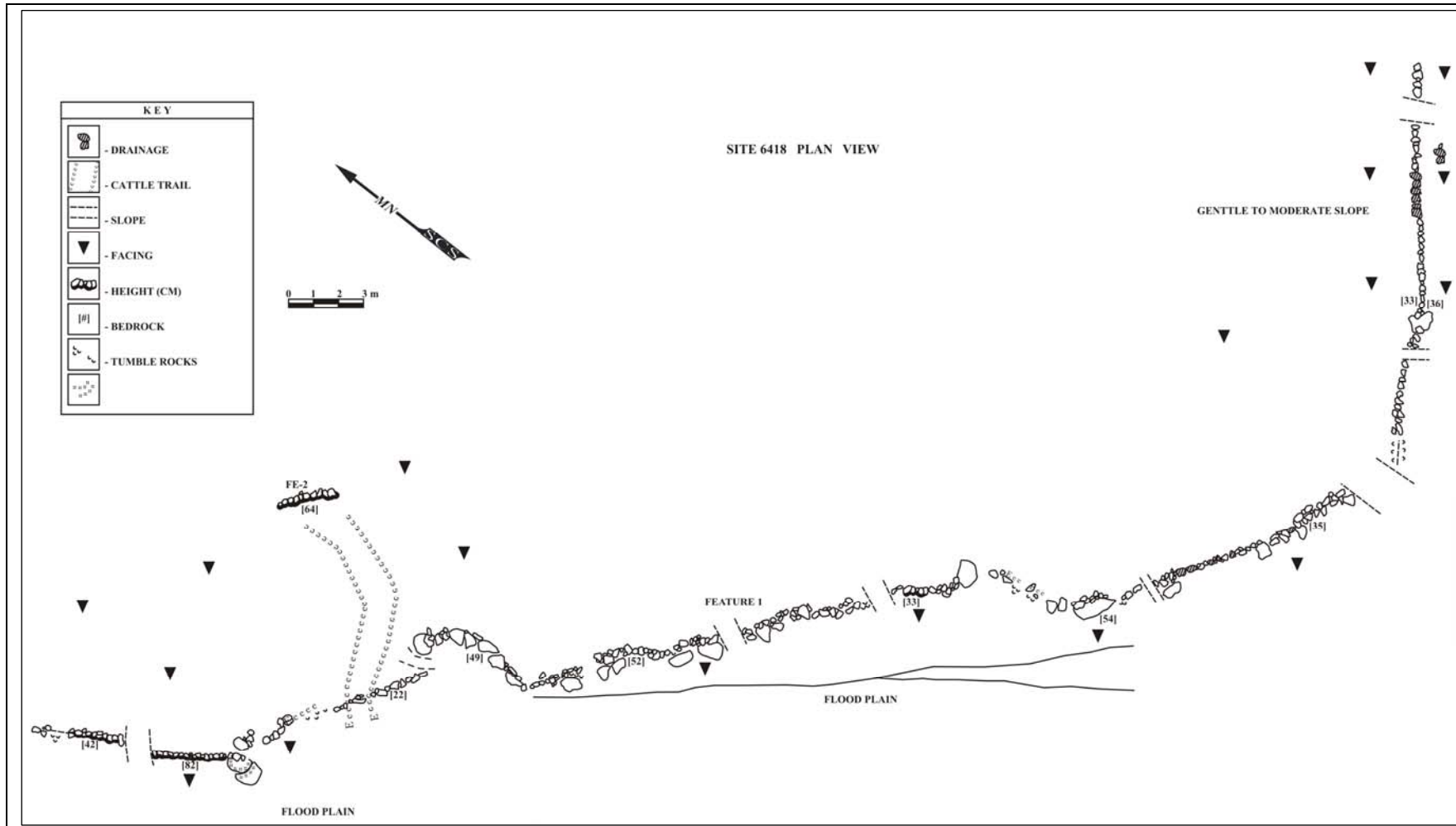


Figure 48: Plan View of Site 6418.

shelter measures approximately 3.0 m long, 5.0 m deep and up to 0.6 m high on the interior. Extensive recording was not conducted at this site due to a heavy infestation of bees. This site is significant under criterion D for its potential to yield information important to the prehistory and history of the island of Maui and the state of Hawai`i as a whole

50-50-10-6420

Site 6420 is a pre-Contact rock shelter located on the northern interior edge of Kulanihakoi Gulch, just south of 6416 (Figure 49). The site consists of a rock shelter (Feature 1) with a modified outcrop (Feature 2) and a petroglyph panel (Feature 3). Site is assessed as

significant under criterion D for its potential to yield information important to the prehistory and history of the island of Maui and the state of Hawai`i as a whole.

Feature 1, a rock shelter, measures approximately 11 m long and up to 6 m high on the interior.

Feature 2, an additional component of the rock shelter, is a modified outcrop located on the west end of the rock shelter. This feature consists of small- and medium-sized basalt boulders, aligned and stacked along an outcrop measuring 1.4 m long by 0.4 m wide. Stacking is up to three courses high. The feature bears generally northwest-southeast. The interior side of Feature 2 is filled in with silt and stones that have fallen from the rock shelter roof. This feature is the location of TU-1.

Feature 3 consists of two anthropomorphic petroglyphs that were scratched and pecked into the escarpment at the eastern extremity of the rock shelter. These images measure 7 by 3 cm and 9 by 7 cm, respectively.

TU-1 is a 0.5 by 0.5 m test unit placed on the interior side of Feature 2. The purpose of this excavation was to determine the presence or absence of cultural material and to assess the function and approximate age of the feature. The unit yielded two sterile, stratigraphic layers (Figure 50). Layer I (0–5 cmbs) consisted of dry, lightly compacted dark reddish brown (5 YR 3/3) silt. Layer II (5–34 cmbs) was made up of brown (10 YR 4/3) silt of a similar texture and compaction to Layer I. No cultural material was observed, or collected, from this unit.

50-50-10-6421

Site 6421 consists of a single, historic wall just south of Site 6417 in the bottom of Kulanihakoi Gulch (Figure 51). This single-feature site measures approximately 7.0 m long

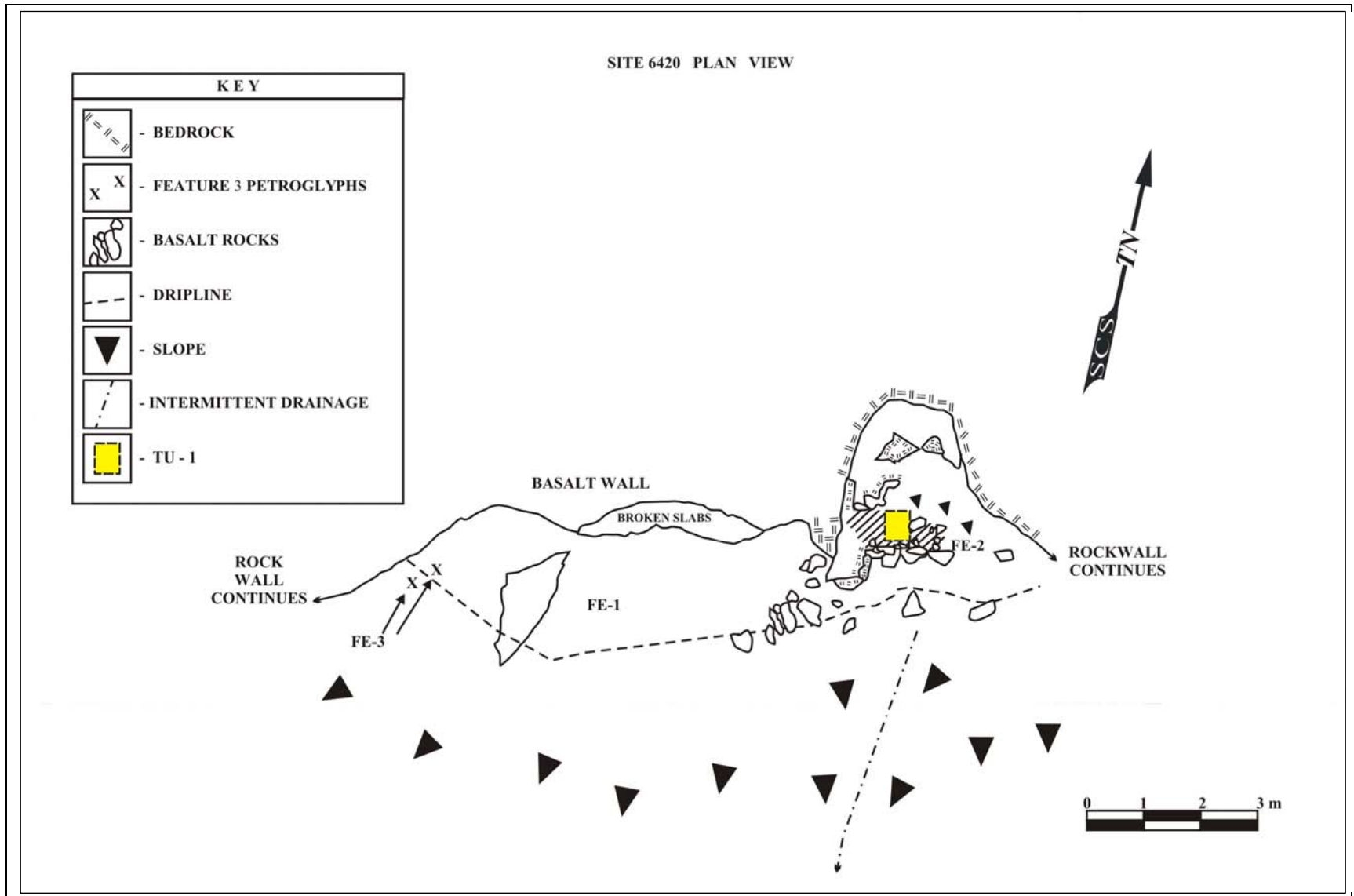


Figure 49: Plan View of Site 6420.

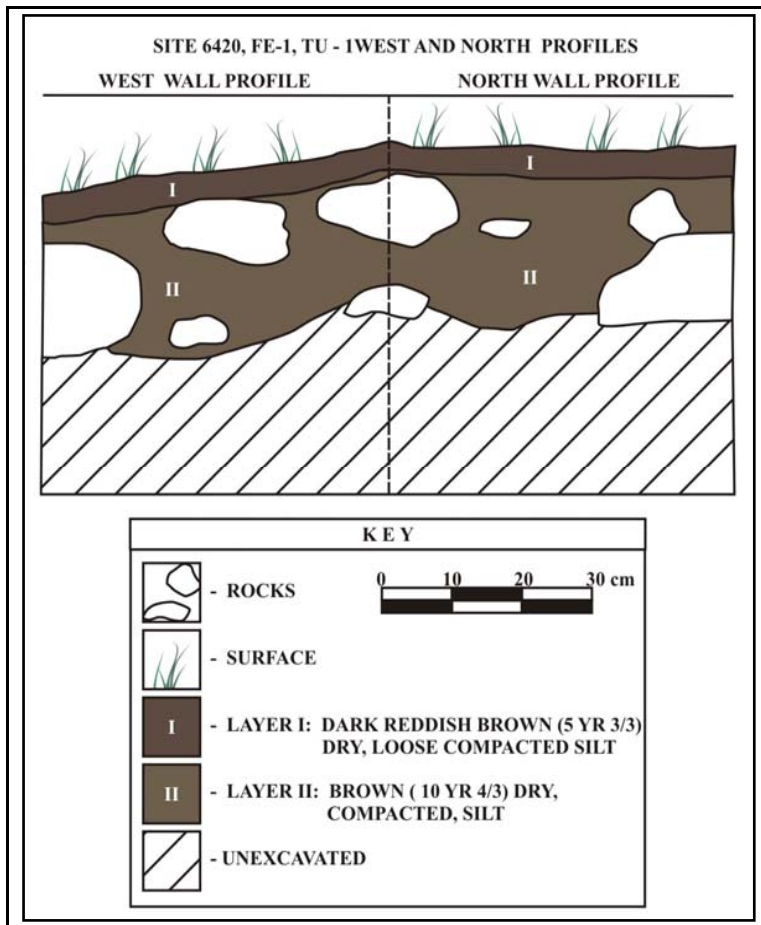


Figure 50: Plan View of Site 6421.

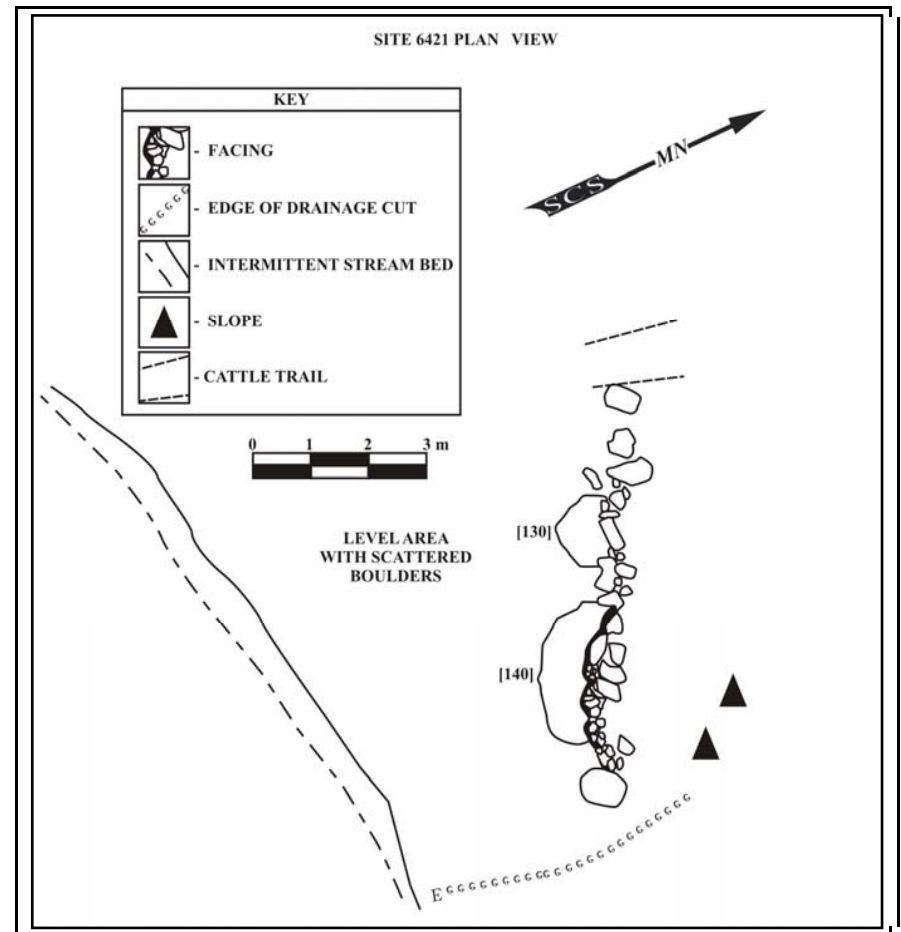


Figure 51: North and West Profiles, 6420, TU-1.

bearing northwest-southeast adjacent to a natural waterway. The feature has been severely damaged by water erosion and animal activity. The wall consists of medium- and large-sized basalt boulders stacked and faced up to four courses high, incorporating very large boulders into the construction. The feature is likely associated with military activity. An old road crosses the gulch just to the northeast of the site. The site is significant under criterion D for its potential to yield information pertinent to the history and/or prehistory of Maui and the state of Hawai'i.

50-50-10-6422

Site 6422 consists of five mounds located on land that has been extensively altered by mechanical activity (Figure 52). As such, each feature is interpreted to be associated with the most recent land clearing activities on the lot. These features are situated in a 625.0 square meter area on the southern flank of lower Kulanihako'i Gulch. As these mounds are amorphous and similar to other mound features described previously for this project area, Site 6422 was not mapped. Feature 1 is a circular mound measuring 1.2 m in diameter and approximately 0.4 m high. Feature 2 measures 1.8 by 1.1 m and 0.37 m high. Feature 3 measures 1.3 by 0.9 m and 0.4 m in height. Feature 4 measures 1.1 by 0.7 m and 0.26 m high. Feature 5 measures 1.7 by 0.8 m and 0.3 m high. The site is significant under criterion D for its potential to yield information important to the history and/or prehistory of Maui and the state of Hawai'i.



Figure 52: Photographic Overview of Site 6422.

50-50-10-6423

Site 6423 consists of three Historic mounds located between the southern entry road and the southern boundary of the project area (Figure 53). Each of these features is comprised of mechanically scarred boulders, implying late Historic or Modern agricultural activity. The features were not mapped, as they are morphologically similar to other, more extensively recorded features throughout the project area. Feature 1 measured 2.6 by 1.4 m and 0.4 m high. Feature 2 measures 2.0 by 1.3 m and 0.24 m high. Finally, Feature 3 measures 2.26 by 0.9 m and 0.3 m high. The site is significant under criterion D for its potential to yield information pertinent to the history of Maui and the state of Hawai'i.



Figure 53: Photographic Overview of Site 6423.

50-50-10-6424

Site 6424 is a single, Historic, linear mound located approximately 4.0 m northwest of Site 6423 (Figure 54). This single-feature site consists of broken up, angular basalt boulders and cobbles mounded mechanically, as evidenced by bulldozer scars on several stones in the feature. The site measures 1.8 by 1.0 and 0.4 m high. Site 6424 was not mapped due to its morphological similarity to other sites in the area. The site's morphology and geographic proximity to 6423 call



Figure 54: Photographic Overview of Site 6424.

for a similar temporal and functional interpretation. The site is significant under criterion D or its potential to yield information important to the history of Maui and the state of Hawai'i.

50-50-10-6425

Site 6425 consists of two low rock mounds located about 70.0 m north of the existing access road (Figure 55). These features were constructed of large, subround and subangular basalt cobbles and small boulders loosely piled into low, disorderly mounds. They are interpreted to be agricultural clearing mounds dating to the Historic Period. Water channels around the features and the general area of Site 6425 indicate that the area has been extensively impacted by erosion. The site is significant under criterion D for its potential to yield information pertinent to the history and/or prehistory of Maui and the state of Hawai'i as a whole.

Feature 1 measured 1.8 by 1.2 m and 0.2 m in height. Feature 2 measures 1.7 by 1.4 m and 0.21 m high. The distance between Features 1 and 2 is approximately 9.5 m at a bearing of 142/322°.



Figure 55: Photographic Overview of Site 6425.

50-50-10-6426

Site 6426 consists of a single, Historic C-shaped structure relating to military activity in the area. This feature, measuring 2.6 by 2.5 m on the exterior, has a single-course width wall constructed of small, subangular basalt boulders, with some bedrock inclusions in the north end. The wall of this feature stands only 0.24 m in height. The interior of this feature measures 1.4 by 1.7 m. The opening, which faces southwest, is flanked by a boulder alignment and a small boulder pile. While the feature is in fair condition, it appears to have been affected by erosion and animal activity. The site is significant under criterion D due to its potential to yield information important to the history of Maui and the state of Hawai'i.

DISCUSSION

Archaeological Inventory Survey for this 516.32-acre lot yielded forty previously undocumented archaeological sites. These sites represent pre-Contact, historic agricultural and military features. Pre-Contact features predominantly consist of temporary use and habitation sites in the northeast corner of the project area, clustered in the upper reaches of Kulanihako'i Gulch. Military and historic agricultural sites are dispersed throughout the project area. These include roads, walls, military C-shapes (used in training exercises), and many rock mounds associated with clearing and/or military activities. The summary table (Table 1) illustrates both

the temporal nature and function of all identified sites and their constituent features as depicted in Figure 4 above.

Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These sites are: 6390, 6405, 6413, 6414, 6415, 6416, 6419, and 6420. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, enclosures, platforms, a mound and a wall. Sites 6413, 6414, and 6420 are interpreted as temporary habitation sites bearing anthropomorphic petroglyph features. When compared to findings from other archaeological research in the area (see Previous Archaeology), the results of this work are not inconsistent with the expectations for the site as a whole. However, these sites are geographically isolated from the barren zone, as it is formally described. As discussed, the barren zone has poor soils, nearly no fresh water, and extremely hot and exposed environs. With only two exceptions, all traditional habitations found here were located in the northeast corner of the project area, within the upper reaches of Kulanihakoi Gulch, where a perennial stream would have supported temporary habitation and allowed shady trees and shrubs, as well as needed cultigens to support habitation.

Two pre-Contact sites, 6390 and 6405, are positioned toward the center of the project area, where the banks of Kulanihakoi Gulch become shallower and perennial waterways more diffuse. This area, unlike the northeast corner, is more congruent with the barren zone as it is defined. These sites give evidence to pre-Contact activity outside of the shelter of the gulch. While Historic and Modern disturbances have damaged these sites (and probably obliterated others like them), there is a suggestion here that the barren zone supported traditional activities despite the extreme hostility of the landscape. In the case of 6405, historic activities (including military training) impacted the site by adding Historic component features (as with Feature 1) and extensively damaging pre-existing features (especially Feature 4)

It is generally agreed that pre-Contact sites within the barren zone relate to travel between upland and coastal villages. However, Site 6405 (Feature 2) is interpreted as a lithic workshop, as evidenced by the presence of basalt lithics on the surface and in subsurface contexts. Such a site implies that the barren zone was utilized culturally—if not continuously—at least intermittently over the course of time.

Table 1: Temporal Summary of Identified Sites and Associated Function.

Historic: Military Training Activities					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6386	1	Nearly circular shape, constructed of mostly angular small to medium sized boulders	Rock Mound	1.7 X 1.5 m, 0.45 m tall; west side is 2 courses high	Gun fire cover
6391	1	C-shape located 11 m from North boundary. Constructed of small to medium subangular to subrounded boulders, also has naturally deposited rock inclusions. Neatly piled to form architecture along N and E sides. W and S sides are open	C-shape	5.0 X 4.1 m	Gunner position; temp. habitation
6394	1	Small- to large-sized basalt boulders piled in a semi-circle or half-moon shape	Linear Mound	4.5 X 4.0 m	Gun fire cover
6396	1	Constructed with small to medium boulders. Single stone high; the interior is level soil	U-shape	1.69 X 1.54 m	Gunner position
6397	1	Construction materials range from small cobbles to small boulders. Interior is slightly depressed. A lot of exposed bedrock in the surrounding area	C-shape	2.4 X 1.8 m	Gunner position; temp. habitation
6399	1	A rather short linear mound resembles a short wall segment, but no facing. Broken cobbles from bulldozing are present at the northeast side of the feature. Angular broken rocks are included on the construction	Linear Mound	2.9 X 0.56 m; all stones are piled 1-2 stones high	Gunner position; temp. habitation
6400	1	A U-shaped feature constructed with subrounded small and medium sized boulders. Stacked along the east and portions of north and south, the west end is open. The interior is excavated to 30 cm below the base of the architectural stones. Similar to other sites; located to the northeast of T-4 on the north side of the first branch of Kulanihakoi Gulch	U-shape possible fox hole	2.3 X 2.1 m	Gunner position; temp. habitation
6402	1	Low crude wall extending along the south edge of the ridge for 19.0 m, constructed with subangular to subrounded cobbles and small boulders. Constructed very rough with most stones crudely piled and certain portions consisted of stone alignments.	Wall	20.2 X 0.2-0.8 m	Gunner position; gun fire protection

Historic: Military Training Activities					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6403	1	Mostly piled along the east and west. Some stacking along the north (downslope) side. The south end is open and the interior is level soil; constructed of subangular to subrounded small to medium sized basalt boulders.	C-shape	exterior 3.8 X 3.2 m height: 0.55 m ; interior: 2.0 X 2.4 m height: 0.34 m; stacked 2-4 courses high on downslope (north) portion	Gunner position; temp. habitation
6403	2	Alignment to 2 stones high constructed of subangular to subrounded basalt boulders	C-shape	exterior: 1.8 X 1.8 X 0.35 m; interior: 1.3 X 1.3 (stacked 2 courses high	Gunner position; temp. habitation
6403	3	Small to medium sized boulders piled to form a linear mound, pile is on top of exposed bedrock, constructed of subangular to subrounded basalt	Linear Mound	1.6 X 0.8 X 0.34; interior: 0.2 m	Gun fire cover
6403	4	Small boulders alignment with bedrock inclusions. Stones are arranged to form C-shape. The interior is mostly exposed bedrock with some soil, constructed of angular to subrounded small basalt boulders	C-shape	2.0 X 1.4 X 0.3 m; interior: 1.5 X 1.2 X 0.32 m	Gun placement/ Protection
6405	1	Piled large cobbles and small boulders with 1 large boulder inclusion near the northeastern corner of the feature; composed of subangular and subrounded basalt cobbles and boulders	C-shape	3.5 X 3.0 X 0.25; interior: 2.8 X 2.0 X 0.4 m	Gun placement/ Protection
6408		Located on west edge of very low ridge, approximately 100 m south of Kulanihakoi gulch	(See below)	22.5 X 17.0 m	-
6408	1	Constructed of small to medium size subangular and subrounded basalt boulders. some stacking along the northeast and southeast sides, the rest is mostly piled. Small opening on the west side	Enclosure	3.0 X 3.0 height: 0.18 - 0.30 interior: 0.32 - 0.44m diameter: 2.0 m; where stacking 2-3 courses high	Gunner position; temp. habitation
6408	2	Constructed of small to medium subangular and subrounded basalt boulders, all piled into concentration, most of the interior is exposed bedrock	C-shape	6.0 X 3.2 m; height: 0.2-0.26 m interior: 0.12 - 0.22 m	Gunner position; temp. habitation
6408	3	Constructed of subangular and subrounded small and medium basalt boulders piled	Linear Rock Mound	2.0 X 0.6 m; height: 0.2-0.35 m	Gun fire cover
6408	4	Constructed of subangular and subrounded, small to medium size basalt boulders piled to form linear concentration	Linear Rock Mound	9.5 X 1.6 m; height: 0.2-0.46 m	Gun fire cover

Historic: Military Training Activities					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6408	5	Constructed of small to medium subangular and subrounded basalt boulders. The interior contains scattered cobbles but otherwise relatively level. Stones are piled neatly to form a C-Shape structure and it is open to the southwest	C-shape	exterior: 3.6 X 2.3 X 0.1-0.3 m, interior: 2.3 X 1.7 m X 0.5-0.3 m	Gunner position; temp. habitation
6409	1	L-shape alignment with a rectangular depression extending northeasterly from the alignment. This feature is constructed with large cobbles and small boulders. An alignment at the west end with more piling towards the east. The depression is eastern	L-shape	1.6 X 1.8 m	Gunner position; gun fire cover; temp. habitation
6410	-	(See below)	(See below)	9.8 X 2.6 m	-
6410	1	Constructed of angular and subangular cobbles and small basalt boulder that are neatly piled to form a C-shape; south boundary is not defined therefore the interior dimensions are estimated based on the extent of the architecture	C-shape	3.8 X ~2.0 X 0.24 m; interior: ~2.0 X ~1.0 X 0.30 m	Gunner position; temp. habitation
6410	2	Constructed of angular to subrounded cobbles and small basalt boulders piled to form a C-shape. The interior is mostly exposed bedrock and is very rugged. South boundary is not defined therefore the interior dimensions are estimated based on the extent of the architecture	C-shape	exterior: 4.0 X 2.6 X 0.3 m; interior: ~2.1 X 1.6 X 0.24 m	Gunner position; temp. habitation
6411	2	Mostly alignment, portions of piled small boulders and also portions that are 2-3 stones high; this feature extends from the top of the north facing slope of the edge on which Fe-1 is located. It extends north along the flood plain between the ridge and Kulanihakoi gulch. It ends about 9 m south of the existing waterway of the gulch	Wall	35.0 X 0.2 - 0.6 m height: 0.58 m where coursing: 2-3 stones	Gunner position/ gun fire protection
6412	-	The area around Features 1-3 had been greatly affected by erosion. Grass cover in this area is rather sparse and contains lots of gravel	(See below)	(See below)	-
6412	1	Constructed of basalt subangular to subrounded cobbles and small to medium size boulders are piled to form a C-shape	C-shape	Exterior: 3.7 X 3.0 X 0.2 m; interior: 2.7 X 2.4 X 0.2 m	Gunner position; temp. habitation

Historic: Military Training Activities					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6412	2	Constructed of alignments of small subangular to subrounded basalt boulders; the interior of the feature had been extensively eroded. All sediments had been eroded out to a point where the vertical extent of the architecture is completely exposed, no cultural materials were associated with eroded portion	L-shape	exterior: 3.2 X 2.3 X 0.2 m; interior: undetermined; interior height: 0.26-0.37 m	Gunner position; gun fire cover; temp. habitation
6412	3	Composed of subangular and subrounded cobbles and small basalt boulders piled to form a C-shape; the interior has been eroded, culturally sterile	C-shape	3.0 X 1.7 X 0.2 m interior height: 0.15 m	Gunner position; temp. habitation
6412	4	Constructed of small to medium sized subangular to subrounded basalt boulders piled to form the architectural feature; the interior is relatively level, however, there are some exposed bedrock	L-shape	3.5 X 1.5 X 0.5 m	Gunner position; gun fire cover; temp. habitation
6412	5	Constructed of subangular to subrounded small to medium size basalt boulders piled to form a linear structure along the north with three boulder alignments extending south off of the main structure to form 2 adjoining c-shapes	C-shape	6.5 X 3.0 X 0.56 m	Gunner position; temp. habitation
6421	1	Constructed of subrounded cobbles and small boulders as well as large naturally deposited boulders. Abuts the south bank of an old natural waterway. An old road crosses the gulch just to the northeast of the site	Wall	7.0 X 1.5 m; ranges from 1 - 4 courses high	Gunner position/ gun fire protection
6426	1	Constructed of subangular and subrounded small boulders with some bedrock inclusion at the north end. The feature opens to the southwest which consisted of a boulder alignment and boulder pile (2 stones wide) along the east side. Interior is level soil with some exposed bedrock	C-shape	2.6 X 2.5 and 0.24 m high; interior: level soil	Gunner position; temp. habitation

Historic: Agriculture					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6392	1	Constructed with large cobbles to small boulders. Top of feature is relatively flat. Most stones had been broken up and are now mostly angular with some subrounded. Feature is oval shaped	Rock Mound	1.7 X 1.3 m	Clearing mound
6393		It appears an old road extends along the north side of Fe-3 and extends northwesterly between Fe-1 and Fe-2. A dried channel extends southwesterly about 5 meters north and west of Fe-1	Rock Mound	40 X 30 m	Clearing mound
6393	1	Angular (mechanically altered) basalt piled	Rock Mound	2.6 X 1.6 height: 0.55 m	Clearing mound
6393	2	Angular (mechanically altered) basalt mostly piled; but its faced at southwest side	Rock Mound	3.5 X 2.0 height: 0.55-0.8 m; 3-4 courses high	Clearing mound
6393	3	Angular (mechanically altered) basalt piled	Rock Mound	2.3 X 2.0 height: 0.46 m	Clearing mound
6406	1 & 2	All material used in the construction involve mechanically split stones	Rock Mounds	6.75 X 5.0 m	Clearing mound
6423		Consisted of 3 historic rock mounds located on a low ridge between the existing road and the south boundary fence. Comprised of mechanically altered small boulders. Purposefully piled mounds; but purpose is unknown	Rock Mounds	(See below)	Clearing mound
6423	1	"	Rock mound	2.6 X 1.4 m and 0.4 m high	Clearing mound
6423	2	"	Rock mound	2.0 X 1.3 m and 0.24 m high	Clearing mound
6423	3	"	Rock mound	2.26 X 0.9 m and 0.3 m high	Clearing mound
6424	1	Single historic linear mound located about 40 m northwest of site T-37 Both are on the same northwest ridge between the access road and the south boundary fence consists of broken up stones (angular)	Rock Mound	1.8 X 1.0 m and 0.4 m high	Clearing mound
6425	-	Consisted of two rock mounds located about 70 m north of the existing access road. Consisted of subrounded to subangular large cobbles and small boulders;	Rock Mounds	(See below)	Clearing mound

Historic: Agriculture					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6425	1	Piled, basalt subrounded to subangular cobbles and small boulders; the water channels probably started off as cattle trails	Rock mound	1.8 X 1.2 m and 0.24 m high	Clearing mound
6425	2	Piled basalt, subrounded to subangular cobbles and small boulders	Rock mound	1.7 X 1.4 m and 0.24 m high	Clearing mound
Historic: Undetermined					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6387	1	Road with retention terrace along the north edge fronting Kulanihakoi Gulch. Terrace consisted of nicely stacked small boulders with isolated naturally deposited boulder inclusions	Road	134 X 4 m; Stacking ranges from 3-8 stones high.	Transport
6388	1	Angular (mechanically broken up) rocks with discolored cortex suggest these rocks were buried prior to bulldozing of the area.	Rock Mound	1.5 X 1.1 m; stone piled 2-4 stones high	Clearing mound
6389	1	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	Rock Mound	5.0 X 1.6, height: 0.5 - 0.8 m	Clearing mound
6389	2	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	Rock Mound	3.0 X 2.0 m, height: 0.4-0.75 m	Clearing mound
6389	3	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	Rock Mound	3.0 X 2.0 m, height: 0.42-0.9 m	Clearing mound
6389	4	Part of road retention. Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	Rock Mound	6.9 X 1.3 m, height: 0.7-0.8 m	Soil retention
Pre-Contact: Historic Reuse					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6412	7	Constructed of subangular to subrounded cobbles to small basalt boulders piles along the north and west and alignments to 2 stones wide along the south and east; This feature might have an earlier component but later used during military training	Enclosure	exterior: 2.5 X 3.7 X 0.2 m; interior: 2.0 X 2.5 X 0.3 m	Habitation / Gunner position; temp. habitation

Pre-Contact					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6389	1	Feature located on top of bedrock. Constructed with altered cobbles and small boulders with sediments within, possibly a clearing mound however this cannot be determined due to absence of other features; oddity compared to other mounds on project area	Rock Mound	2.0 X 1.5 m	Possible clearing mound
6405	2	Original construction is not known, currently the architecture consisted of crude piling and alignments; constructed of subrounded to subangular basalt cobbles and small boulders	Enclosure	4.3 X 3.5 X 0.3 m; interior: 3.7 X 2.5 X 0.22 m	Habitation
6405	3	Mostly disturbed, alignment with some crude piling; constructed of basalt cobbles and small to medium size basalt boulders	Enclosure	3.5 X 3.0 m; interior: 3.0 X 2.0 m	Habitation
6405	4	Appears to be a remnant of a low wall forming the south boundary of the site; a linear small to medium boulder concentration, a short section extends southward from the mid-section of the primary concentration to form a C-shape; constructed of subangular to subrounded small to medium sized basalt boulders	Wall	7.4 X 3.0, thickness: 0.4-1.8 m, height: 0.2-0.38 m	Boundary
6413	-	Basalt boulders and cobbles have been stacked to connect the cliff face with boulders that have fallen, forming a simple enclosure. Including a possible hearth, there are four petroglyph panels on the cliff face.	Rock shelter and modified outcrop with 4 petroglyph panels	(See below)	(See below)
6413	1	Fe-1 is a small ring of small basalt boulders in the center of Fe-1 under the drip line. It looks similar to a hearth however there is no charring or any other signs of fire. Shelter and modified outcrop; construction method is stacked basalt boulders and cobbles (0.50 - 1.5 m) the stacking connects the bedrock cliff face with large boulders that have fallen from the cliff making an enclosure; basalt cobbles and boulders, angular to subangular in shape	Rock shelter	exterior: 9.5 X 4.0 m height: 0.15 - 0.98m; interior: 4.0 X 4.0 m height: 0.23 - 2.78 m; 5 courses high in the eastern portion of the feature	Habitation

Pre-Contact					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
6413	2	Consists of four panels of pre-historic rock art with petroglyphs (majority are pecked with some scratching) majority appear original, although some of the scratches (modifications) appear to have been added; pecked onto a north facing basalt wall	Possibly workshop, ceremonial, or communication	Panel 1: 1.20 X 2.0. Panel 2: 1.38 X 0.8 m, Panel 3: 1.95 X 2.0 m, Panel 4: 1.10 X 1.5 m	Ceremonial
6414		Overhang measures 9.5 X 5.7. The ceiling is low starting 2.5 m from the drip line. It measures 70 cm high towards the opening and about 50cm at the back. The area between the low ceiling and the drip line measures 3.3 m at the highest point. The interior is level silt in the back and slopes southeasterly where the ceiling is highest. Two petroglyphs are present. One on a boulder at the west end of the overhang and the other on the gulch's wall 3.3 m from the east edge of the overhang.	Rock shelter; Rock art	see feature description	Habitation
6414	1	Overhang measures. The ceiling is low starting 2.5 m from the drip line. It measures 70 cm high towards the opening and about 50cm at the back. The area between the low ceiling and the drip line measures 3.3 m at the highest point. The interior is level silt in the back and slopes southeasterly where the ceiling is highest. The slope continues for 4.0 m before dropping into the base of the gulch.	Overhang	9.5 X 5.7 X 0.50 - 0.70	Habitation
6414	2	Two petroglyphs are present, one is on a boulder at the west end of the overhang and the other is on the gulch's wall 3.3 m from the east edge of the overhang	Rock Art	Petroglyph 1: 0.28 X 0.22 m; Petroglyph 2: 0.28 X 0.16 m	Decorative; ceremonial
6415	1	Constructed of large cobbles to medium size boulders. The width ranges from two to several stones (3-5) depending on rock sizes. Several short segments are in good conditions	Trail	41.8 m long; 0.5-1.0 wide and 0.17-0.20 m high	Transport
6416	1	Mounded cobbles to small boulders. Most of the rocks covered with soils and plant remains; possibly a clearing	Rock Mound	3.3 X 3.1 m	Ag. Clearing
6419	1	Overhang with the entryway. Some charcoal scatter was observed on the surface, no detail recording due to	Overhang	Entryway: 3 m long, 0.60 m high and is about 5.0 m	Habitation

Pre-Contact					
Site No.	Fe	Feature Construction	Form	Area/Dimensions (m)	Function
		bee hives		deep	
6420		Fe-1 is a rockwall, Fe-2 petroglyphs; rock shelter part of basalt rock outcropping. The chamber also includes Fe-1 small basalt rock wall alignment built into the existing bedrock.	Rock shelter	Shelter: 11.0 X 6.0 and 4 m deep	Habitation
6420	1	Constructed of stacked rock along edge of existing natural bedrock, consisted of basalt small (less than 20 cm) to medium (20 - 40 cm) basalt boulders, several large (greater than 40 cm) basalt rocks	Alignment	1.41 X 0.90, thickness: 0.40 m; 3 courses high from existing rock wall for 1.3 m	Possible planting area
6420	2	2 petroglyphs were scratched and pecked on a basalt rock wall outcropping, angle of wall is generally east-facing.; Petroglyph 2 (stick figure) was pecked onto the rock panel and is not very deep or obvious without a close look, triangular figure scratched on rock with other small scratched lines nearby.	Rock Art	Petroglyph 1: 7 X 3 cm; petroglyph 2: 2-9cm X 7 cm	Decorative; ceremonial

For the most part, historic sites found during this work pertained to agriculture and military training activities. Overwhelmingly, the majority of Historic sites and features found during this work were rock mounds. Thirty-three features, distributed between 16 sites, were rock mounds. These mounds are typologically distinguished between agricultural mounds (i.e., field and pasture clearing) and military mounds. With few exceptions, agricultural mounds are distinguished by scars on boulders made by heavy equipment. In the absence of such markers, these mounds are also assumed agricultural due to their geographic proximity to other Historic agricultural features. Military mounds were interpreted based on their geographic proximity to other military features. For a complete list of mounds found during this work, refer to Appendix B.

Two mounds, Sites 6390 and 6416, were determined to relate to pre-Contact times. These sites were evaluated based on their form (in the case of 6390) and their proximity to other pre-Contact sites (in the case of 6416). Site 6390 was more formal than other mounds. Unlike rock mounds that are indiscriminately piled, the cobbles and boulders that make up Site 6390 were stacked and faced in some places. This single-feature site also lies atop a bedrock outcrop, rather than atop the ground surface. Such a distinction is unique among the mounds in this area.

This mound is further distinguished by aeolian soil deposits that have filled the open spaces between stones, indicating the site's antiquity. As this feature is so unique among the others identified on this lot, there is a high probability that this feature may yield significant Traditional deposits, including human remains. While Site 6416 is severely disturbed, its form is similar to 6390, and its potential for yielding similarly significant deposits is equally as high. Therefore, these sites are recommended for Data Recovery.

Sites 6387 and 6401 are historic roads that traverse the project area, moving generally *mauka-makai*. Site 6387 follows Kulanihakoi Gulch and gives access from Pi'ilani Highway to the upper reaches of the project area. Site 6401 is a unique single-feature site, with basalt stone alignments, or "curbs," running along both sides of the road. While the purpose of this unique component is not known, it is presumed to relate to military training exercises.

One unique Historic site deserving note was found in this lot. Site 6395 is a possible staging area, loading dock, or water tank platform. The form of this feature is unique, with a level floor constructed with gravel on one half and poured cement on the other half.

Features relating to military training activity are present throughout the project area. A total of 17 sites relate to military training on the parcel. Among these, 14 C-shaped structures, 1 enclosure, 5 mounds, 2 U-shaped structures, and 3 walls were identified. These features were loosely constructed and seem to have been built for one-time use. Unlike traditional structures, military features are structurally weak. Traditional-style C-shapes are neatly stacked and faced to several courses high, whereas the C-shapes and U-shapes documented here are usually a single course of stones arranged in a curved alignment. Several of these C-shapes and U-shapes display a depression in the center of the feature, where a training soldier might have lain armed with a weapon. Walls and enclosures associated with military use tend to be piled indiscriminately, rather than neatly stacked and faced. These features, like the C-shapes and U-shapes, were not built to withstand time and the elements, but rather for one time use in a training exercise.

The findings reported herein were generally congruent with expectations for the project area. While very few, if any, traditional sites were anticipated, eight traditional sites were newly documented within the project area. Six of these, however, are located within Kulanihakoi Gulch, where the environmental makeup is more hospitable to temporary habitation. A high density of military-related sites was documented here, which was not unexpected. Also, many historic agricultural features were documented, as anticipated.

SITE SIGNIFICANCE ASSESSMENTS AND RECOMMENDATIONS

These sites have been evaluated for significance according to the criteria established for the Hawai'i State Register of Historic Places. The five criteria are presented below:

- Criterion A: Site is associated with events that have made a significant contribution to the broad patterns of our history
- Criterion B: Site is associated with the lives of persons significant to our past
- Criterion C: Site is an excellent site type; embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual construction
- Criterion D: Site has yielded or has the potential to yield information important in prehistory or history
- Criterion E: Site has cultural significance to an ethnic group; examples include religious structures, burials, major traditional trails, and traditional cultural places

All of the sites identified during Inventory Survey are significant under Criterion D. Most of the sites (except for a few rock mounds and roads) have been thoroughly mapped and recorded.

Data Recovery is recommended for sites 6405 and 6412. These sites consist of mixed pre-Contact and military components, representing adaptive re-use of pre-existing sites in the area. While features within these sites have been interpreted as both military and pre-Contact, these mixed component sites necessitate further work in order to confirm their temporal interpretations as well as establish the extent of adaptive re-use.

Preservation is recommended for Sites 6390, 6413, 6414, 6415, 6416, 6419, and 6420. These sites represent Hawaiian traditional structures in the barren zone, where habitation is understood to have been limited and extremely temporary. These sites, therefore, are relatively uncommon and warrant Preservation, the degree of which shall be established in a Preservation Plan following this AIS, as per the guidelines of SHPD (§13-284-12 HAR). Furthermore, Sites 6413, 6414 and 6420 also contain petroglyphs, a feature type that typically calls for Preservation in any context and is certainly recommended here.

No further work is recommended for any agricultural mounds or miscellaneous Historic sites, including 6386, 6389, 6391 – 6403, 6406 – 6411, 6417, 6418 and 6421 as these have little potential for providing further data. The limited excavations that have occurred at military Sites 6403 and 6408 demonstrate the absence of cultural material in these subsurface deposits, a finding that is consistent with previous work in similar sites (especially McGerty *et al.* 2000). Therefore, no further work is recommended for military sites, with the exception of 6405 and 6412, as discussed above.

Due to the density of sites within the project area, and the archaeological data yielded—and the future potential for this land to yield additional data—Archeological Monitoring is recommended during any ground altering work planned for the parcel.

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APPENDIX A: RADIOCARBON RESULTS

Ms. Donna Shefcheck

Report Date: 7/20/2007

Scientific Consultant Services, Inc.

Material Received: 6/25/2007

Sample Data	Measured Radiocarbon Age	$^{13}\text{C}/^{12}\text{C}$ Ratio	Conventional Radiocarbon Age(*)
Beta - 232006 SAMPLE : SCSRC541 ANALYSIS : AMS-Standard delivery MATERIAL/PRETREATMENT : (charred material): acid/alkali/acid 2 SIGMA CALIBRATION : Cal AD 1490 to 1670 (Cal BP 460 to 280) AND Cal AD 1780 to 1790 (Cal BP 160 to 160)	270 +/- 40 BP	-24.5 o/oo	280 +/- 40 BP

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24.5:lab.mult=1)

Laboratory number: **Beta-232006**

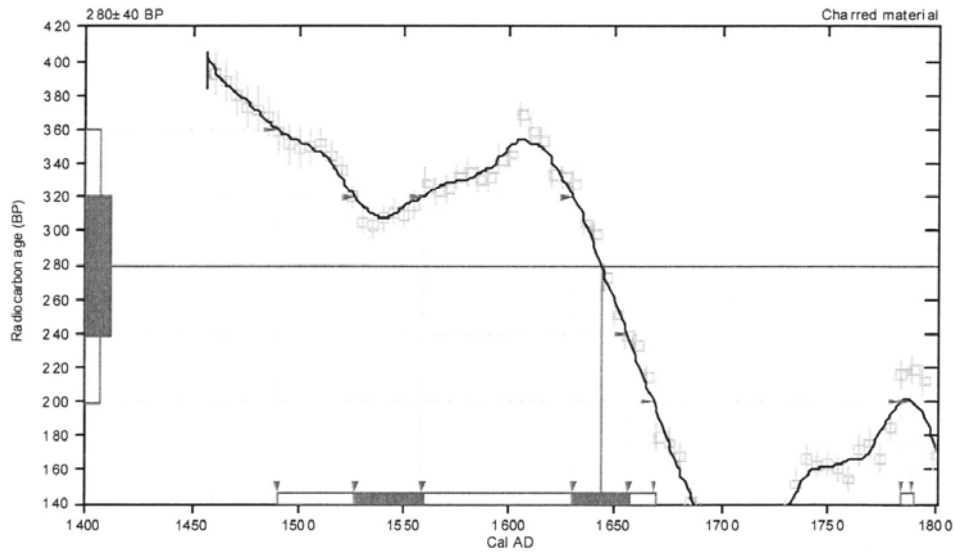
Conventional radiocarbon age: **280±40 BP**

2 Sigma calibrated results: Cal AD 1490 to 1670 (Cal BP 460 to 280) and
(95% probability) Cal AD 1780 to 1790 (Cal BP 160 to 160)

Intercept data

Intercept of radiocarbon age
with calibration curve: Cal AD 1640 (Cal BP 310)

1 Sigma calibrated results: Cal AD 1530 to 1560 (Cal BP 420 to 390) and
(68% probability) Cal AD 1630 to 1660 (Cal BP 320 to 290)



References:

- Database used*
INTCAL04
- Calibration Database*
INTCAL04 Radiocarbon Age Calibration
IntCal04: Calibration Issue of Radiocarbon (Volume 46, nr 3, 2004).
- Mathematics*
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35 (2), p317-322

Beta Analytic Radiocarbon Dating Laboratory

4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305) 667-5167 • Fax: (305) 663-0964 • E-Mail: beta@radiocarbon.com

APPENDIX B: SITE DATA

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6386	1	Military	Agricultural; possibly Military Related	Rock Mound	Historic	Nearly circular shape, constructed of mostly angular small to medium sized boulders	1.7 X 1.5 m, 0.45 m tall; west side is 2 courses high	No further work
6387	1	Historic Misc.	Transportation	Road	Historic	Road with retention terrace along the north edge fronting Kulanihakoi Gulch. Terrace consisted of nicely stacked small boulders with isolated naturally deposited boulder inclusions	134 X 4 m; Stacking ranges from 3-8 stones high.	No further work
6388	1	Historic Misc.	Undetermined	Rock Mound	Historic	Angular (mechanically broken up) rocks with discolored cortex suggests these rocks were buried prior to bulldozing of the area.	1.5 X 1.1 m; stone piled 2-4 stones high	No further work
6389	1	Historic Misc.	Undetermined	Rock Mound	Historic	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	5.0 X 1.6, height: 0.5 - 0.8 m	No further work
6389	2	Historic Misc.	Undetermined	Rock Mound	Historic	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	3.0 X 2.0 m, height: 0.4-0.75 m	No further work
6389	3	Historic Misc.	Undetermined	Rock Mound	Historic	Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	3.0 X 2.0 m, height: 0.42-0.9 m	No further work
6389	4	Historic Misc.	Undetermined	Rock Mound	Historic	Part of a road retention. Most rocks have been mechanically altered; mounds constructed with angular (split) cobble to medium boulders	6.9 X 1.3 m, height: 0.7-0.8 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6390	1	pre-Contact	Agricultural	Rock Mound	Possibly pre-Contact	Feature located on top of bedrock. Constructed with altered cobbles and small boulders with sediments within, possibly a clearing mound however this cannot be determined due to absence of other features; oddity compared to other mounds on project area	2.0 X 1.5 m	No further work
6391	1	Military	Military Training Related	C-shape	Historic	C-shape located 11 m from North boundary. Constructed of small to medium subangular to subrounded boulders, also has naturally deposited rock inclusions. Neatly piled to form architecture along N and E sides. W and S sides are open	5.0 X 4.1 m	No further work
6392	1	Historic Agriculture	Agricultural/Undetermined	Rock Mound	Historic	Constructed with large cobbles to small boulders. Top of feature is relatively flat. Most stones had been broken up and are now mostly angular with some subrounded. Feature is oval shaped	1.7 X 1.3 m	No further work
6393		Historic Agriculture	Agricultural/Undetermined	Rock Mound	Historic	It appears an old road extends along the north side of Fe-3 and extends northwesterly between Fe-1 and Fe-2. A dried channel extends southwesterly about 5 meters north and west of Fe-1	40 X 30 m	No further work
6393	1	Historic Agriculture	Agricultural/Undetermined	Rock Mound	Historic	Angular (mechanically altered) basalt piled	2.6 X 1.6 height: 0.55 m	"

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6393	2	Historic Agriculture	Agricultural/ Undetermined	Rock Mound	Historic	Angular (mechanically altered) basalt mostly piled; but its faced at southwest side	3.5 X 2.0 height: 0.55-0.8 m; 3-4 courses high	"
6393	3	Historic Agriculture	Agricultural/ Undetermined	Rock Mound	Historic	Angular (mechanically altered) basalt piled	2.3 X 2.0 height: 0.46 m	"
6394	1	Military	Possibly Military Related	Linear Mound	Historic	Roughly 30-40 m north of the existing dirt road	4.5 X 4.0 m	No further work
6395	1	Historic Misc.	Undetermined	Terrace/Retention Wall	Historic	Retention wall at east end is partially concrete paved. Terrace continues westerly, however, this portion is stacked and faced with small boulder, but no concrete is involved. Appears to be an area where gravel was stock piled.	11.0 X 1.4 m; height: 0.67-1.47 m; facing is 3-5 courses	No further work
6396	1	Military	Military Training Related	U-shape	Historic	Constructed with small to medium boulders. Single stone high; the interior is level soil	1.69 X 1.54 m	No further work
6397	1	Military	Military Training Related	C-shape	Historic	Construction materials range from small cobbles to small boulders. Interior is slightly depressed. A lot of exposed bedrock in the surrounding area	2.4 X 1.8 m	No further work
6398	1	Historic Misc.	Possible Pet Burial	Linear Mound with possible epitaph on wood marker	Historic	All stones are newly piled and the wooden marker is a piece treated wood; a small area measuring 80 X 50 cm is slightly depressed suggesting the presence of a pit; size suggestive of animal burial.	2.8 X 1.6	

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6399	1	Historic Misc.	Undetermined; Possibly Military Related	Linear short Mound	Historic	A rather short linear mound resembles a short wall segment, but no facing. Broken cobbles from bulldozing are present at the northeast side of the feature. Angular broken rocks are included on the construction	2.9 X 0.56 m; all stones area piled 1-2 stones high	No further work
6400	1	Military	Military Training Related	U-shape possible fox hole	Historic	A U-shaped feature constricted with subrounded small and medium sized boulders. Stacked along the east and portions of north and south, the west end is open. The interior is excavated to 30 cm below the base of the architectural stones. Similar to other sites; located to the northeast of T-4 on the north side of the first branch of Kulanihakoi Gulch	2.3 X 2.1 m	No further work
6401	1	Historic Misc.	Transportation	Road	Historic	An old road of undetermined length. Curbstone line both north and south sides. Curbstones include single small to large boulder alignments, but portion also consisted of piled small to large boulders. A small portion reveals some cobbles and gravel deposit, which probably represents the original road surface.	undetermined	No further work
6402	1	Military	Probably Associated with Military Training	Wall	Historic	Low crude wall extending along the south edge of the ridge for 19.0 m, constructed with subangular to subrounded cobbles and small boulders.	20.2 X 0.2-0.8 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						Constructed very rough with most stones crudely piled and certain portions consisted of stone alignments.		
6403		Military	Military Training Related	(See below)	Historic	(See below)	(See below)	(See below)
6403	1	Military	Military Training Related	C-shape	Historic	Mostly piled along the east and west. Some stacking along the north (downslope) side. The south end is open and the interior is level soil; constructed of subangular to subrounded small to medium sized basalt boulders.	exterior 3.8 X 3.2 m height: 0.55 m ; interior: 2.0 X 2.4 m height: 0.34 m; stacked 2-4 courses high on downslope (north) poriton	No further work
6403	2	Military	Military Training Related	C-shape	Historic	Alignment to 2 stones high constructed of subangular to subrounded basalt boulders	exterior: 1.8 X 1.8 X 0.35 m; interior: 1.3 X 1.3 (stacked 2 courses high	No further work
6403	3	Military	Military Training Related	Linear Mound	Historic	Small to medium sized boulders piled to form a linear mound, pile is on top of exposed bedrock, constructed of subangular to subrounded basalt	1.6 X 0.8 X 0.34; interior: 0.2 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6403	4	Military	Military Training Related	C-shape	Historic	Small boulders alignment with bedrock inclusions. Stones are arranged to form C-shape. The interior is mostly exposed bedrock with some soil, constructed of angular to subrounded small basalt boulders	2.0 X 1.4 X 0.3 m; interior: 1.5 X 1.2 X 0.32 m	No further work
6405	-	Historic Misc.	Habitational/ Military Training Related	(See below)	Pre-Contact/ Historic	Basalt flakes are scattered within poriton of the site; site consisted of 4 features as well as lithic scatter. Fe-1 is similar to a lot of features thought to be associated with military training	(See below)	(See below)
6405	1	Military	Military Training Related	C-shape	Historic	Piled large cobbles and small boulders with 1 large boulder inclusion near the northeastern corner of the feature; composed of subangular and subrounded basalt cobbles and boulders	3.5 X 3.0 X 0.25; interior: 2.8 X 2.0 X 0.4 m	No further work
6405	2	pre-Contact	Habitational	Enclosure	pre-Contact	Original construction is not known, currently the architecture consisted of crude piling and alignments; constructed of subrounded to subangular basalt cobbles and small boulders; Looks a lot earlier than possilby military Fe-1 and Features at T-18 just west of the site	4.3 X 3.5 X 0.3 m ; interior: 3.7 X 2.5 X 0.22 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6405	3	pre-Contact	Habitational	Enclosure	pre-Contact	Mostly disturbed, alignment with some crude piling; constructed of basalt cobbles and small to medium size basalt boulders	3.5 X 3.0; interior: 3.0 X 2.0 m	No further work
6405	4	pre-Contact	Habitational/ workshop	Wall	pre-Contact	appears to be a remnant of a low wall forming the south boundary of the site; a linear small to medium boulder concentraion, a short section extends southward from the mid-section of the primary concentration to form a C-shape. However the original shape is difficult to be certain due to extensive erosion; constructed of subangular to subrounded small to medium sized basalt boulders	7.4 X 3.0, thickness: 0.4-1.8 m, height: 0.2-0.38 m	No further work
6406	1 & 2	Historic Agriculture	Agricultural/ Clearing for the ranch	Rock Mounds	Historic	All material used in the construction invlove mechanically split stones	6.75 X 5.0 m	No further work
6407	1	Historic Misc.	Possibly Associated with Military	Rock Mound	Historic	Linear rock mound constructed with subangular cobbles and small to medium size boulders. No stacking, the eastern half of this feature is on top of bedrock.	9.0 X 0.3-0.8 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6408		Military	Possibly Associated with Military	(See below)	Historic	Located on west edge of very low ridge, approximately 100 m south of Kulanihakoi gulch	22.5 X 17.0 m	No further work
6408	1	Military	Undetermined; Possibly Military Related	Enclosure	Historic	Constructed of small to medium size subangular and subrounded basalt boulders. some stacking along the northeast and southeast sides, the rest is mostly piled. Small opening on the west side	3.0 X 3.0 height: 0.18 - 0.30 interior: 0.32 - 0.44m diameter: 2.0 m; where stacking 2-3 courses high	No further work
6408	2	Military	Military Training Related	C-shape	Historic	constructed of small to medium subangular and subrounded basalt boulders, all piled into concentration, most of the interior is exposed bedrock	6.0 X 3.2 m; height: 0.2-0.26 m interior: 0.12 - 0.22 m	No further work
6408	3	Military	Military Training Related	Linear Rock Mound	Historic	Constructed of subangular and subrounded small and medium basalt boulders piled	2.0 X 0.6 m; height: 0.2-0.35 m	No further work
6408	4	Military	Military Training Related	Linear Rock Mound	Historic	Constructed of subangular and subrounded, small to medium size basalt boulders piled to form linear concentration	9.5 X 1.6 m; height: 0.2-0.46 m	No further work
6408	5	Military	Military Training Related	C-shape	Historic	Constructed of small to medium subangular and subrounded basalt boulders. The interior contains scattered cobbles but otherwise relatively level. Stones are piled neatly to form a C-Shape	exterior: 3.6 X 2.3 X 0.1-0.3 m, interior: 2.3 X 1.7 m X 0.5-0.3 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						structrue and it is ope to the southwest		
6409	1	Military	Military Training Related	L-shape	Historic	L-hape alignment with a rectangular depression extending northeasterly from the alignment. This feature is constructed with large cobbles and small boulders. An alignment at the west end with more piling towards the east. The depression is eastern	1.6 X 1.8 m	No further work
6410		Military	Military Training Related	(See below)	Historic	(See below)	9.8 X 2.6 m	No further work
6410	1	Military	Military Training Related	C-shape	Historic	constructed of angular and subangular cobbles and small basalt boulder that are neatly piled to form a C-shape; south boundary is not defined therefore the interior dimensions are estimated based on the extent of the architecture	3.8 X ~2.0 X 0.24 m; interior: ~2.0 X ~1.0 X 0.30 m	No further work
6410	2	Military	Military Training Related	C-shape	Historic	constructed of angular to subrounded cobbles and small basalt boulders piled to form a C-shape. The interior is mostly exposed bedrock and is very rugged. South boundary is not defined therefore the interior	exterior: 4.0 X 2.6 X 0.3 m; interior: ~2.1 X 1.6 X 0.24 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						dimensions are estimated based on the extent of the architecture		
6411		Historic Misc.	(See below)	(See below)	(See below)	(See below)	(See below)	(See below)
6411	1	Historic Misc.	Possibly Agricultural	Rock Mound	Undetermined	Constructed of basalt subangular to subrounded cobbles to medium size boulders piled. No stacking or facing	2.1 X 2.0 height: 0.26 - 0.34 m	No further work
6411	2	Military	Possibly Associated with Military Training	Wall	Historic	Mostly alignment, portions of piled small boulders and also portions that are 2-3 stones high; this feature extends from the top of the north facing slope of the edge on which Fe-1 is located. It extends north along the flood plain between the ridge and Kulanihakoi gulch. It ends about 9 m south of the existing waterway of the gulch	35.0 X 0.2 - 0.6 m height: 0.58 m where coarsing: 2-3 stones	No further work
6412		Military	Possibly Associated with Military Training	(See below)	Historic	The area around Features 1-3 had been greatly affected by erosion. Grass cover in this area is rather sparse and contains lots of gravel	(See below)	(See below)

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6412	1	Military	Possibly Associated with Military Training	C-shape	Undetermined; possibly historic	Constructed of basalt subangular to subrounded cobbles and small to medium size boulders are piled to form a C-shape	Exterior: 3.7 X 3.0 X 0.2 m; interior: 2.7 X 2.4 X 0.2 m	No further work
6412	2	Military	Possibly Associated with Military Training	L-shape	Undetermined; possibly historic	Constructed of alignments of small subangular to subrounded basalt boulders; the interior of the feature had been extensively eroded. All sediments had been eroded out to a point where the verticle extent of the architecture is completely exposed, no cultural materials were associated with eroded portion	exterior: 3.2 X 2.3 X 0.2 m; interior: undetermined; interior height: 0.26-0.37 m	No further work
6412	3	Military	Possibly Associated with Military Training	C-shape	Undetermined; possibly historic	Composed of subangular and subrounded cobbles and small basalt boulders piled to form a C-shape; the interior has been eroded, culturally sterile	3.0 X 1.7 X 0.2 m interior height: 0.15 m	No further work
6412	4	Military	Possibly Associated with Military Training	L-shape	Undetermined; possibly historic	Constructed of small to medium sized subangular to subrounded basalt boulders piled to form the architectural feature; the interior is relatively level, however, there are some exposed bedrock	3.5 X 1.5 X 0.5 m	No further work
6412	5	Military	Possibly Associated with Military Training	C-shape	Undetermined; possibly historic	Constructed of subangular to subrounded small to medium size basalt boulders piled to form a linear structure along the north with three boulder alignments extending south off	6.5 X 3.0 X 0.56 m	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						of the main structure to form 2 adjoining c-shapes		
6412	6	Historic Misc.	Undetermined	Alignment	Undetermined; possibly historic	Constructed of medium to large, subangular to subrounded basalt boulder alignments	length: 4.0 m , height: 0.25 m	No further work
6412	7	pre-Contact and Historic	Undetermined	Enclosure	possibly pre-Contact and historic	Constructed of subangular to subrounded cobbles to small basalt boulders piles along the north and west and alignments to 2 stones wide along the south and east; This feature might have an earlier component but later used during military training	exterior: 2.5 X 3.7 X 0.2 m; interior: 2.0 X 2.5 X 0.3 m	No further work
6413		pre-Contact	Temporary shelter	rock shelter and modified outcrop with 4 petroglyph panels	Pre-Contact & Historic	Basalt boulders and cobbles have been stacked to connect the cliff face with boulders that hae fallen, forming a simple enclosure. In the middle of this is a small pile of rocks, resembling a hearth however there is no sign of fire, there are four petroglyph panels on the cliff face. Most of the petroglyphs are antropomorphs and have been pecked. There are a few unidentifiable figures and there is some scratching	(See below)	(See below)

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6413	1	pre-Contact	Temporary shelter	Rock Shelter	pre-Contact	Fe-1 is a small ring of small basalt boulders in the center of Fe-1 under the dripline. It looks similar to a hearth however there is no charring or any other signs of fire. Shelter and modified outcrop the construction method is stacked basalt boulders and cobbles (0.50 - 1.5 m) the stacking connects the bedrock cliff face with large boulders that have fallen from the cliff making an enclosure; basalt cobbles and boulders, angular to subangular in shape	exterior: 9.5 X 4.0 m height: 0.15 - 0.98m; interior: 4.0 X 4.0 m height: 0.23 - 2.78 m; 5 courses high in the eastern poriton of the feature	candidate for preservation
6413	2	pre-Contact	Rock Art	possibly workshop, ceremonial, or communication	Pre-Contact & Historic	Consists of four panels of pre-historic rock art with petroglyphs (majority are pecked with some scratching) majority appear original, although some of the scratches (modifications) appear to have been added; pecked onto a north facing basalt wall	Panel 1: 1.20 X 2.0. Panel 2: 1.38 X 0.8 m, Panel 3: 1.95 X 2.0 m, Panel 4: 1.10 X 1.5 m	candidate for preservation

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6414		pre-Contact	Temporary Habitational	temporary	pre-Contact	Overhang measures 9.5 X 5.7. The ceiling is low starting 2.5 m from the dripline. It measures 70 cm high towards the opening and about 50cm at the back. The area between the low ceiling and the dripline measures 3.3 m at the highest point. The interior is level silt in the back and slopes southeasterly where the ceiling is highest. The slope continues for 4.0 m before dropping into the base of the gulch. two petroglyphs are present. One is on a boulder at the west end of the overhang and the other is on the gulch's wall 3.3 m from the east edge of the overhang.	see feature description	
6414	1	pre-Contact	Temporary Habitational	Overhang	pre-Contact	Overhang measures 9.5 X 5.7. The ceiling is low starting 2.5 m from the dripline. It measures 70 cm high towards the opening and about 50cm at the back. The area between the low ceiling and the dripline measures 3.3 m at the highest point. The interior is level silt in the back and slopes southeasterly where the ceiling is highest. The slope continues for 4.0 m before dropping into the base of the gulch.	see feature description	

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6414	2	pre-Contact	Rock Art	Communication	pre-Contact	Two petroglyphs are present, one is on a boulder at the west end of the overhang and the other is on the gulch's wall 3.3 m from the east edge of the overhang	Petroglyph 1: 0.28 X 0.22 m; Petroglyph 2: 0.28 X 0.16 m	
6415	1	pre-Contact	Travel Path	Trail	pre-Contact	Constructed of large cobbles to medium size boulders. The width ranges from two to several stones (3-5) depending on rock sizes. Several short segments are in good conditions	41.8 m long; 0.5-1.0 wide and 0.17-0.20 m high	
6416	1	pre-Contact	Agricultural	Rock Mound	pre-Contact	Mounded cobbles to small boulders. Most of the rocks covered with soils and plant remains; possibly a clearing	3.3 X 3.1 m	
6417	1	Historic Misc.	Agricultural/ Possibly Military Related	Wall	Undetermined	The site is an L-Shaped low wall constructed with subrounded and subangular small boulders. There are also isolated large boulder inclusions. An area of level soils along the southwest appears to be an old road way, however, the impact of erosion makes it difficult to verify this possible use. Possibly remnants of a garden area or possibly	17.1 X 7.2 m	

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						associated with military activities given the number of surrounding sites		
6418		Historic Misc.	Agricultural	(See below)	Undetermined	Site is located at the southwest end of facing slope of Kalanihakoi gulch near the north east edge of the project. Fe-1 is a low wall partially faced and poritons consisted of single medium to small boulders that are placed in upright positions, fundtion is not known, but possibly used to demarcating a garden area. The area upslope of the wall is very rocky with much alterations. FE-2 is a terrace in a narrow drainage and was obviously placed there for water flow control	56.0 X 9.0 m	(See below)
6418	1	Historic Misc.	Agricultural	Wall	Undetermined	Constructed of partially stacked, faced, single stone high in places. Composed of basalt cobbles to large angular and subrounded boulder inclusions	56.0 X 0.2-0.8 m height: 0.2 - 0.5 m; 3-5 courses high	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6418	2	Historic Misc.	Agricultural	Terrace	Undetermined	Constructed of stacked and faced basalt medium subangular boulders	2.2 X 0.2 X 0.6 m 3-5 courses high	No further work
6419	1	pre-Contact	Temporary Habitation	Overhang	pre-Contact	Site is an overhang with the entryway. Some charcoal scatter was observed on the surface, no detail recording due to bee hives	Entryway: 3 m long, 0.60 m high and is about 5.0 m deep	
6420		pre-Contact	Temporary Habitation	(See below)	pre-Contact	Fe-1 is a rockwall, Fe-2 is petroglyphs; rock shelter is part of a basalt rock outcropping which faces generally south. The east end has a chamber with exposed bedrock at 4 m deep. The chamber also includes Fe-1 which is a small basalt rock wall alignment which appears to have built into the existing bedrock. Sediment has filled in from above at the western end, just beyond the overhand, there are 2 petroglyphs (Fe-2) First image is pecked stick figure. Second is a scratched figure with a triangular body, both are faint. No artifacts noted on the	Shelter: 11.0 X 6.0 and 4 m deep	Candidate for preservation

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						surface or in Test unit		
6420	1	pre-Contact	Undetermined	Alignment	pre-Contact	Constructed of stacked rock along edge of existing natural bedrock, consisted of basalt small (less than 20 cm) to medium (20 - 40 cm) basalt boulders, several large (greater than 40 cm) basalt rocks	1.41 X 0.90, thickness: 0.40 m; 3 courses high from existing rock wall for 1.3 m	Candidate for preservation
6420	2	pre-Contact	Communication	Rock Art	pre-Contact	2 petroglyphs were scratched and pecked on a basalt rock wall outcropping, angle of wall is generally east-facing. Pecking tool was not located; Petroglyph 2 (stick figure) was pecked onto the rock panel and is not very deep or obvious without a close look, triangular figure has been scratched on the rock with some other small scratched lines nearby it, it's hard to determine if these scratches are original	Petroglyph 1: 7 X 3 cm; petroglyph 2: 2-9cm X 7 cm	Candidate for preservation
6421	1	Military	Possibly Associated with Military	Wall	Historic	Constructed of subrounded cobbles and small boulders as well as large naturally deposited boulders. Abutts the south bank of an old natural waterway. An old road crosses the gulch just to the northeast	7.0 X 1.5 m; ranges from 1 - 4 courses high	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						of the site		
6422		Historic Misc.	Undetermined	Rock mounds	Historic	All features are of mechanically altered basalt (angular shape) they are similar to other sites (6387, 7, and 8) in the area. Purpose of mounds is not known except associated with the most recent land alteration activities in the area	25.3 m long	No further work
6422	1	Historic Misc.	Undetermined	Rock mound	Historic	"	1.2 in diameter and 4 m high	No further work
6422	2	Historic Misc.	Undetermined	Rock mound	Historic	"	1.8 X 1.1 m and 0.37 m high	No further work
6422	3	Historic Misc.	Undetermined	Rock mound	Historic	"	1.3 X 0.9 m and 0.4 m high	No further work
6422	4	Historic Misc.	Undetermined	Rock mound	Historic	"	1.1 X 0.7 m and 0.26 m high	No further work
6422	5	Historic Misc.	Undetermined	Rock mound	Historic	"	1.7 S 0.8 m and 0.3 m high	No further work
6423		Historic Agriculture	Possibly Clearing for Cattle	Rock Mounds	Historic	Consisted of 3 historic rock mounds located on a low ridge between the existing road and		No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
						the south boundary fence. Comprised of mechanically altered small boulders. Purposefully piled mounds; but purpose is unknown		
6423	1	Historic Agriculture	Possibly Clearing for Cattle	Rock mound	Historic	"	2.6 X 1.4 m and 0.4 m high	No further work
6423	2	Historic Agriculture	Possibly Clearing for Cattle	Rock mound	Historic	"	2.0 X 1.3 m and 0.24 m high	No further work
6423	3	Historic Agriculture	Possibly Clearing for Cattle	Rock mound	Historic	"	2.26 X 0.9 m and 0.3 m high	No further work
6424	1	Historic Agriculture	Related to ranching	Rock Mound	Historic	Single historic linear mound located about 40 m northwest of site T-37 Both are on the same northwest ridge between the access road and the south boundary fence consists of broken up stones (angular)	1.8 X 1.0 m and 0.4 m high	No further work
6425		Historic Agriculture	Clearing	Rock Mounds	Historic	consisted of two rock mounds located about 70 m north of the existing access road. Consisted of subrounded to subangular large cobbles and small boulders;	(See below)	(See below)
6425	1	Historic Agriculture	Clearing	Rock mound	Historic	Piled, basalt subrounded to subangular cobbles and small boulders; the water channels probably started off as cattle trails	1.8 X 1.2 m and 0.24 m high	No further work

Site No.	Fe	Feature Type	Feature Use	Feature Type	Possible Site Age	Feature Description	Feature Dimensions (m)	Recommendation
6425	2	Historic Agriculture	Clearing	Rock mound	Historic	Piled, basalt subrounded to subangular cobbles and small boulders	1.7 X 1.4 m and 0.24 m high	No further work
6426	1	Military	Military Training Related	C-shape	Historic	Constructed of subangular and subrounded small boulders with some bedrock inclusion at the north end. The feature opens to the southwest which consisted of a boulder alignment and boulder pile (2 stones wide) along the east side. Interior is level soil with some exposed bedrock.		



APPENDIX H

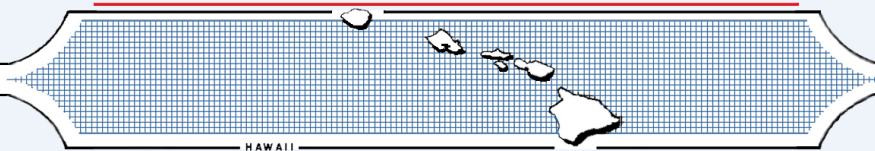
Archaeological Monitoring Plan

**AN ARCHAEOLOGICAL MONITORING PLAN FOR
THE KAONOULU MARKETPLACE PROJECT
LOCATED IN KĪHEI,
KA'ONO'ULU AHUPUA'A, MAKAWAO DISTRICT,
MAUI ISLAND, HAWAII
[TMK: 3-9-01:16 and (2) 2-2-002:015 por.]**

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INTRODUCTION

At the request of Mr. Charlie Jencks of Pacific Rim Land, Scientific Consultant Services, Inc. (SCS) prepared this Archaeological Monitoring Plan in advance of grading and construction on an 88-acre parcel of land (Pi`ilani Promenade South, LLC., majority landowner) located in Kīhei, Ka`ono`ulu Ahupua`a, Wailuku and Makawao Districts, Maui Island, Hawai`i [TMK: 3-9-01:16 and 2-2-02: 015 por.] (Figures 1 through 5). Proposed development on this lot consists of a master planned project district with an integrated concept, whereby land use will be organized around a commercial and mixed-use village center to serve these planned neighborhoods. A combination of commercial, light industrial, residential, recreational and public/quasi-public uses is anticipated as part of the project area's land use.

The subject parcel has undergone Inventory Survey in the past by Fredericksen *et al.* (1994). A portion of the project area was studied by Shefcheck *et al.* (2008). Archaeological Monitoring was recommended by the State Historic Preservation Division (SHPD) in a letter dated March 7, 2011 (Log No.:2011.0536; Doc No.:1103MD05). This AMP will be in effect for all ground altering activities and planned construction related activities for the marketplace project.

Archaeological Monitoring “shall entail the archaeological observation of, and possibly intervention with, on-going activities which may adversely affect historic properties” (§13-279-4, HAR). Monitoring will ensure that significant cultural resources, if identified on the property, are documented through profiles and plan view maps, possibly sampled through excavation of exposed features, and evaluated for their historical significance. This Monitoring Plan will also ensure that if human remains are identified during subsurface work, appropriate and lawful protocol concerning the Inadvertant Discovery of Human Remains (pursuant to §13-300-40a, b, c, HAR) is followed. As will be made aware to the construction team, the archaeological Monitor has the authority to halt any ground disturbing activities during this project in the immediate area of a find in order to appropriately carry out the provisions of this plan.

This AMP will require the approval of the State Historic Preservation Division (SHPD) prior to any land altering activities on the parcel. The following text provides more detailed information on the reasons for monitoring, potential site types to be encountered during excavation, monitoring conventions and methodology for both field and laboratory work, and discusses curation and reporting of cultural material recovered.

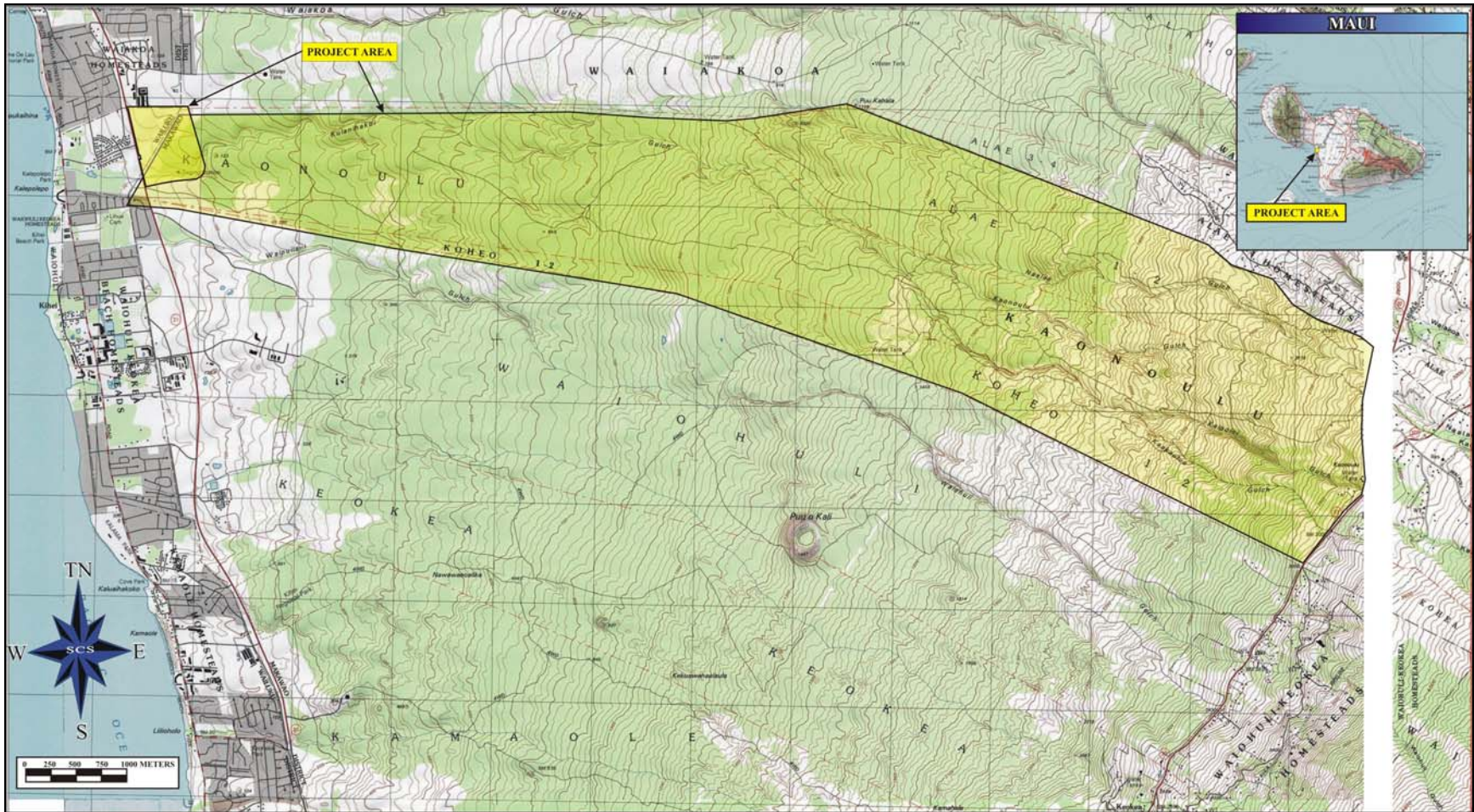


Figure 1: USGS Pu'u O Kali Quadrangle Showing the Project Area.

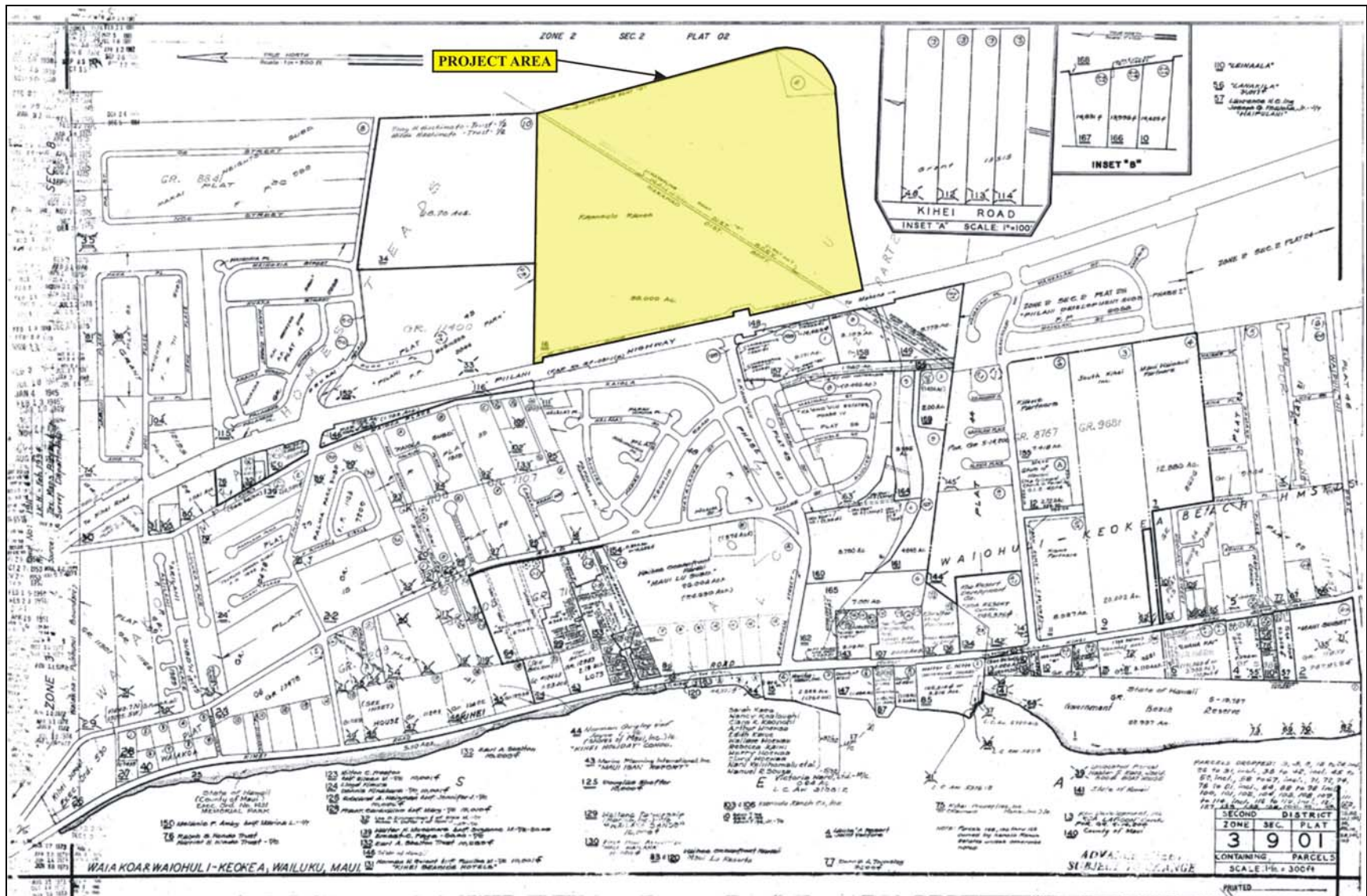


Figure 2: Tax Map Key [TMK] Showing the Project Area as a Portion of Lot 15.

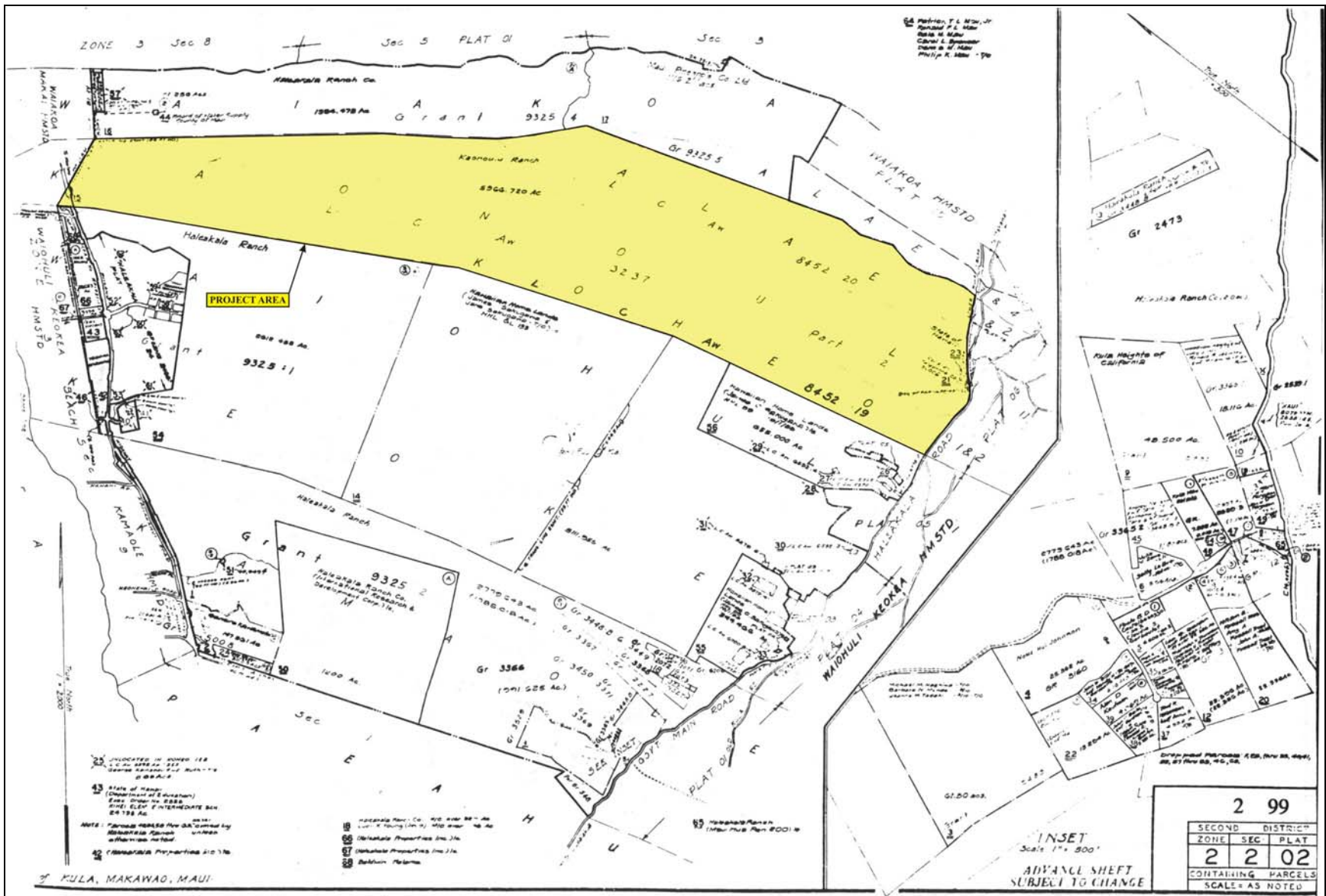


Figure 3: Tax Map Key [TMK] Showing the Project Area not Included in Figure 2

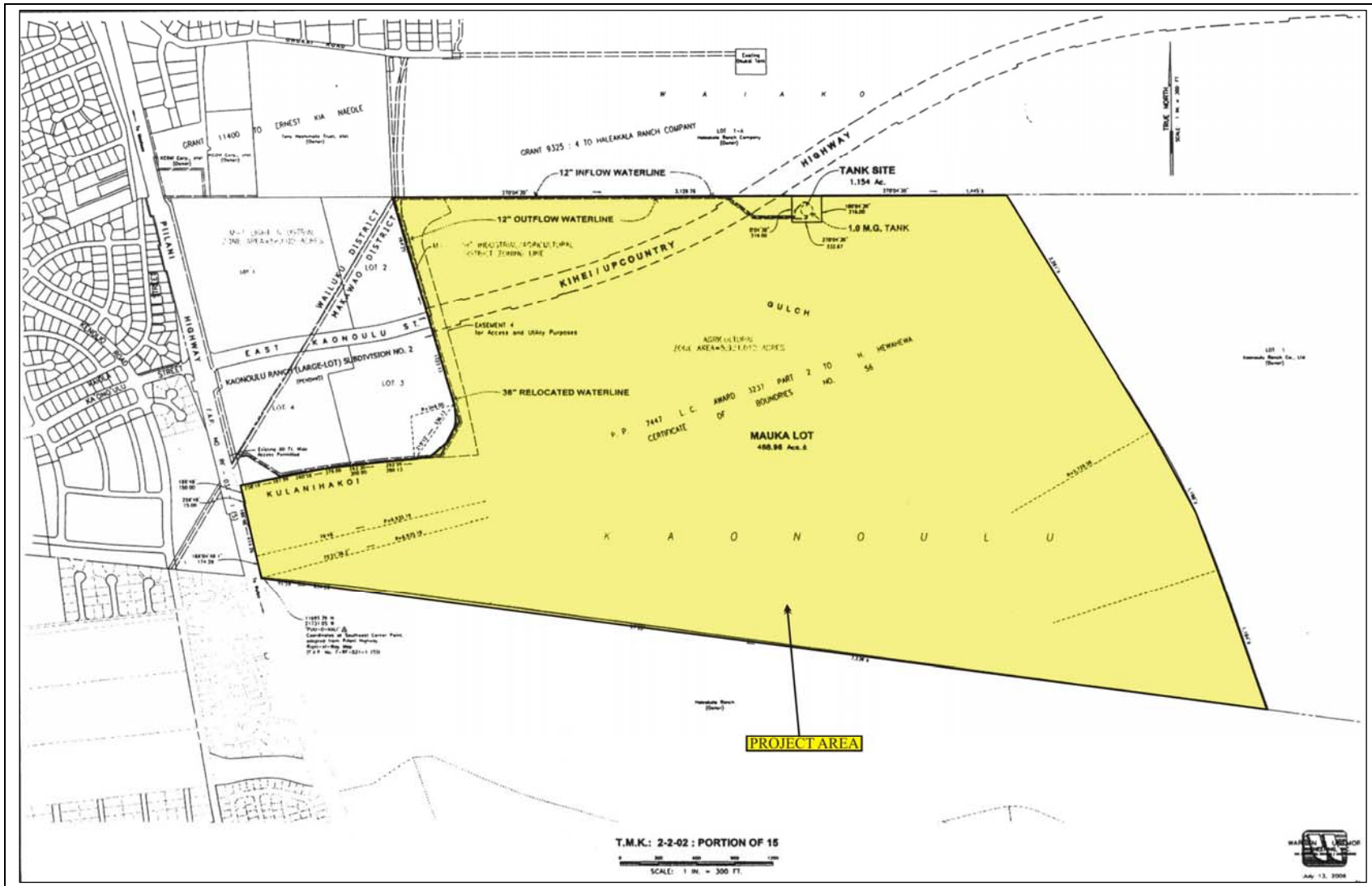


Figure 4: Tax Map Key [TMK] Showing the Lower Project Area in Detail.

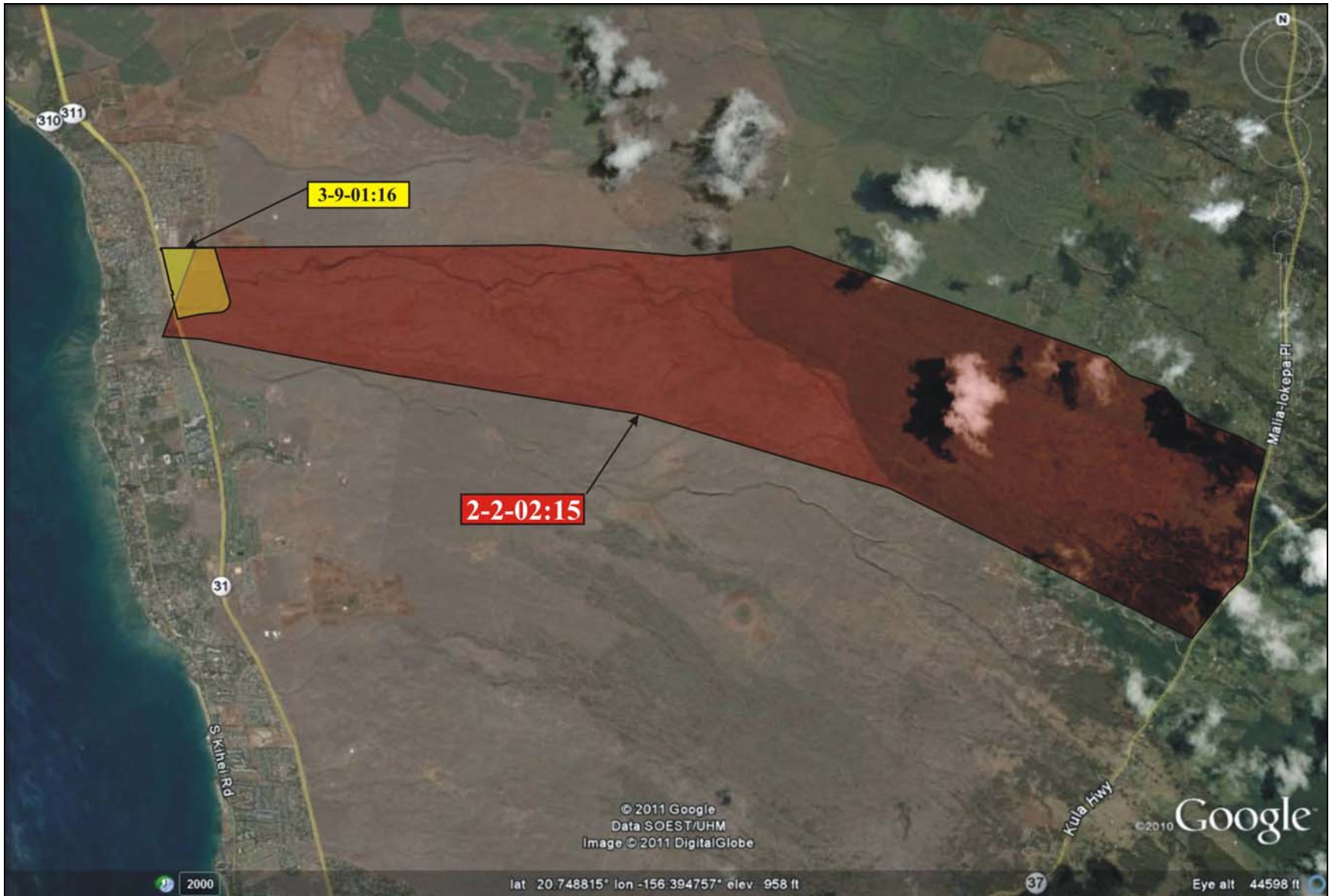


Figure 5: Google Maps Showing Project Area.

Monitoring will be conducted on a full-time basis during all ground-altering activities, with one archaeological monitor per piece of excavating equipment, in order to document any historic properties which may be encountered during the proposed undertaking and to provide its significant assessments and recommended mitigation measures, in consultation with the State Historic Preservation Division (SHPD). This Monitoring program will ensure that if human remains are identified during subsurface work, appropriate and lawful protocol concerning the Inadvertent Discovery of Human Remains (pursuant to 13-300-40a, b, c, HAR) is followed. Archaeological Monitoring will also ensure that significant cultural resources, if identified, are sampled, adequately documented, and evaluated for their historical significance in accordance with SHPD recommendations. Cultural resources, as is described in more detail below, could consist of remnant cultural layers, artifacts, or midden associated with traditional Native Hawaiian or early historic times.

PROJECT AREA DESCRIPTION

The project area is located in Ka'ono'ulu Ahupua`a, east of the Wailuku-Makawao boundary that cuts across the *ahupua`a*. It is bordered on the north by Waiakoa Ahupua`a and to the south by Kōheo Ahupua`a. The southwestern boundary abuts Pi'ilani Highway for some distance and then jogs inland ending with its northwest corner on the Wailuku-Makawao boundary (see Figure 2). The entire parcel was part of the Kaonoulu Ranch lands and spans from a half mile to approximately two miles inland of the coastline within an area archaeologically known as the "barren zone".

The project area soils are dominated by Waiakoa Extremely Stony Silty Clay Loam (WID2). This soil type is generally associated with highly eroded landscapes with shallow, 3 to 25 percent slopes and low precipitation (Foote *et al.* 1972: 126). Kīhei gets less than ten inches of rainfall per year (Armstrong 1983). Elevation ranges from 40 to 600 feet above mean sea level (amsl). The northeastern flank of the project area is marked with a steep natural gulch, called Kulanihakoi. While there is a general absence of perennial streams throughout the project area environs, Kulanihakoi Gulch does support a perennial stream during seasons of particularly heavy rainfall.

BARREN ZONE

In geographical and physiographical terms, the barren zone is an intermediary zone between direct coastline and back beach areas to upland forests and more montane environments. The barren zone is a medial zone that appears to have been almost exclusively transitory, or at best, intermittently occupied through time. Intermittent habitation loci, as defined by surface midden scatters or small architectural features (*i.e.*, C-shapes, alignments) dominate the few

documented traditional-period site types (pre-Contact) in the area through time. Post-Contact features are generally limited to walls and small alignments, respectively associated with ranching and military training in the area.

The barren zone was an intermediary region between verdant upland regions and the coastline. Apparently, agricultural endeavors were practically non-existent in the barren zone and tool procurement materials (basalt, wood) were selected from other locales as well. Sediment regimes in the area are shallow, most often overlying bedrock, and perennial water sources are virtually non-existent.

Cordy (1977) divided the Kīhei (inclusive of Kaonoulu) area into three environmental zones (or subzones when one considers the entire *ahupua`a*): coastal, transitional/barren, and inland. The current project location occurs in the transitional or barren zone: the slopes back of the coast with less than 30 inches of rainfall annually (Cordy 1977:4).

This barren zone is perceived as dry and antagonistic to permanent habitation. Use of the area would primarily have been intermittent or transitory, particularly as the zone could have contained coastal-inland trails and would have marked an intermediary point between the two more profitable ecozones. The region remains hostile to permanent habitation, only having been “conquered” in recent times through much modern adaptation (i.e., air conditioning, water feed systems, etc.).

Based on general archaeological and historic research, the barren zone was not subject to permanent or expansive population until recent times. This intimates that population pressure along the coast was minimal or non-existent in the Kīhei coastal area through time. As such, architectural structures associated with permanent habitation sites and/or ceremonial sites are not often identified in the area. The prevailing model that temporary habitation-temporary use sites predominate in the barren zone has been authenticated further by recent research.

CULTURAL HISTORICAL CONTEXT

The island of Maui ranks second in size of the eight main islands in the Hawaiian Archipelago. The island was formed by two volcanoes, Mount Kukui in the west and Haleakalā in the east. The younger of the two volcanoes, Haleakalā, soars 2,727 m (10,023 feet) above sea level and embodies the largest section of the island. Unlike the amphitheater valleys of West Maui, the flanks of Haleakalā are distinguished by gentle slopes. Although it receives more rain than its counterpart in the east, the permeable lava flows of the Honomanū and Kula Volcanic

Series prevent the formation of rain-fed perennial streams. The few perennial streams found on the windward side of Haleakalā originate from springs located at low elevations. Valleys and gulches were formed by intermittent water run-off. The environment factors and resource availability heavily influenced pre-Contact settlement patterns. Although an extensive population was found occupying the uplands above the 30-inch rainfall line where crops could easily be grown, coastal settlement was also common (Kolb *et al.* 1997). The existence of three fishponds at Kalepolepo, north of the project area, and at least two *heiau* (shrine, temple, place of worship) identified near the shore confirm the presence of a stable population relying mainly on coastal and marine resources.

Agriculture may have been practiced behind the dune berms in low-lying marshland or in the vicinity of Keālia pond. It is suggested that permanent habitation and their associated activities occurred from A.D. 1200 to the present in both the uplands and coastal region (*Ibid.*).

PAST POLITICAL BOUNDARIES

Traditionally, the division of Maui's lands into districts (*moku*) and sub-districts was performed by a *kahuna* (priest, expert) named Kalaiha`ōhia, during the time of the *ali`i* Kaka`alaneo (Beckwith 1979:383; Fornander places Kaka`alaneo at the end of the fifteenth century or the beginning of the sixteenth century [Fornander 1919-20, Vol. 6:248]). Land was considered the property of the king or *ali`i`ai moku* (the *ali`i* who eats the island/district), which he held in trust for the gods. The title of *ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted; his higher chiefs received large parcels from him and, in turn, distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land.

In general, several terms were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*), which customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili`āina* or *`ili* were smaller land divisions next to importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (*ibid*:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa`āina* residing in an *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the *ahupua`a* of Ka`ono`ulu, which translated means literally "the desire for breadfruit" (Pukui *et al* 1974.:86).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. Within the *ahupua`a*, residents were able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111).

During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugarcane, *Saccharum officinarum*), *mai`a* (banana, *Musa* sp.), and *uala* (sweet potato, *Ipomoea batatas*) were also grown. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on the leeward side of Maui was likely to have begun early in what is known as the Expansion Period (AD 1200–1400, Kirch 1985). According to Handy (1940: 159), there was “continuous cultivation on the coastal region along the northwest coast” of Maui . He writes:

On the south side of western Maui the flat coastal plain all the way from Kihei and Ma`alaea to Honokahua, in old Hawaiian times, must have supported many fishing settlements and isolated fishermen’s houses, where sweet potatoes were grown in the sandy soil or red lepo [soil] near the shore. For fishing, this coast is the most favorable on Maui, and, although a considerable amount of taro was grown, I think it is reasonable to suppose that the large fishing population, which presumably inhabited this leeward coast, ate more sweet potatoes than taro with their fish.... [*ibid*]

There is little specific information pertaining directly to Kīhei, which was originally a small area adjacent to a landing built in the 1890s (Clark 1980). Presently, Kīhei consists of a six-mile section along the coast from the town of Kīhei to Keawakapu. Scattered amongst the agricultural and habitation sites were places of cultural significance to the *kama`āina* of the district including at least two *heiau*. In ancient times, there was a small village at Kalepolepo based primarily on marine resources. It was recorded that occasionally the blustery Kaumuku Winds would arrive with amazing intensity along the coast (Wilcox 1921).

There were several fishponds in the vicinity of Kīhei; Waiohuli, Ka`ono`ulu-kai, and Kalepolepo Pond (Site 50-50-09-1288), which is also known by the ancient name of Kō`ie`ie Pond (Kolb *et al.* 1997). Constructed on the boundary between Ka`ono`ulu and Waiohuli

Ahupua`a, these three ponds were some of the most important royal fishponds on Maui. The builder of Kalepolepo and two other ponds (Waiohuli and Ka`ono`ulu-kai) has been lost in antiquity, but they were reportedly rebuilt at least three times through history, beginning during the reign of Pi`ilani (1500s) (*ibid*; Cordy 2000).

Oral tradition recounts the repairing of the fishponds during the reign of Kiha-Pi`ilani, the son of the great chief Pi`ilani, who had bequeathed the ponds to Umi, ruler of Hawai`i Island. Umi's *konohiki* (land manager) ordered all the people from Maui to help repair the walls of Kalepolepo's fishponds. A man named Kikau protested that the repairs couldn't be done without the assistance of the *menehune* who were master builders (Wilcox 1921:66-67). The *konohiki* was furious and Kikau was told he would die once the repairs had been made. Ka`ono`ulu-kai was the first to be repaired. When the capstone was carried on a litter to the site, the *konohiki* rode proudly on top of the rock as it was being placed in the northeast corner of the pond. When it was time for repairs on Waiohuli-kai, the *konohiki* did the same. As the last pond, then known as Ka`ono`ulu-kai, was completed, the *konohiki* once again rode the capstone to its resting place. Before it could be put into position, the capstone broke throwing both the rock and *konohiki* into the dirt. The workers reportedly said "*Ua konohiki Kalepolepo, ua eku i ka lepo*," or, "the manager of Kalepolepo, one who roots in the dirt" (*ibid*:66). That night a tremendous storm threw down the walls of the fishponds. The *konohiki* implored Kikau to help him repair the damage. Kikau called the *menehune* who rebuilt the walls in one night. Umi sent for Kikau who lived in the court of Waipi`o Valley from then on. The region of Ka`ono`ulu-kai and Ka`ono`ulu-kai fishpond became known as Kalepolepo fishpond (*ibid*).

The Kalepolepo fishponds were rebuilt by Kekaulike, chief of Maui in the 1700s, at which time it supplied `ama`ama (mullet) to Kahekili II. Again, it was restored by Kamehameha I when he ruled as governing chief over Maui, and for the last time in the 1840s, when prisoners from Kaho`olawe penal colony were sent to do repairs (Kamakau 1961; Wilcox 1921). At this time, stones were taken from Waiohuli-kai pond for the reconstruction of Kalepolepo. It was here at Kalepolepo that Kamehameha I reportedly beached his victorious canoes after subduing the Maui chiefs. The stream draining into Keālia pond (north of the project area) became sacred to royalty and *kapu* to commoners (Stoddard 1894).

Trails extended from the coast to the mountains, linking the two for both economic and social reasons. A trail known as the *alanui* or "King's trail" built by Kihapi`ilani, extended along the coast passing through all the major communities between Lāhainā and Mākena, including Kīhei. Kolb noted that two traditional trails extended through Ka`ono`ulu. One trail, named "*Kekuawaha`ula`ula*" or the "red-mouthed god", went from Kīhei inland to Ka`ono`ulu.

Another, the Kalelepo trail, began at the Kalepolepo fishpond and continued to upland Waiohuli. These trails were not only used in the pre-Contact era, but were expanded to accommodate wagons bringing produce to the coast in the 1850s (Kolb *et al.* 1997:61).

WESTERN CONTACT

Early records, such as journals kept by explorers, travelers and missionaries, Hawaiian traditions that survived long enough to be written down, and archaeological investigations, have assisted in the understanding of past cultural activities. Unfortunately, early descriptions of this portion of the Maui coast are brief and infrequent. Captain King, Second Lieutenant on the *Revolution* during Cook's third voyage briefly described what he saw from a vantage point of "eight or ten leagues" (approximately 24 miles) out to sea as his ship departed the islands in 1779 (Beaglehole 1967). He mentions Pu'u Ōla'i, south of Kīhei, and enumerates the observed animals, thriving groves of breadfruit, the excellence of the *taro*, and describes the sugarcane as being of an unusual height. Seen from this distance and the mention of breadfruit suggest the uplands of Kīpahulu-Kaupo and `Ulupalakua were his focus.

In the ensuing years, LaPérouse (1786), Nathaniel Portlock and George Dixon, (also in 1786), sailed along the western coast, but added little to our direct knowledge of Kīhei. During the second visit of Vancouver in 1793, his expedition becalmed in the Ma'alaea Bay close to the project area. (A marker commemorating this visit is located across from the Maui Lu Hotel). He reported:

The appearance of this side of Mowee was scarcely less forbidding than that of its southern parts, which we had passed the preceding day. The shores, however, were not so steep and rocky, and were mostly composed of a sandy beach; the land did not rise so very abruptly from the sea towards the mountains, nor was its surface so much broken with hills and deep chasms; yet the soil had little appearance of fertility, and no cultivation was to be seen. A few habitations were promiscuously scattered near the waterside, and the inhabitants who came off to us, like those seen the day before, had little to dispose of. [Vancouver 1984:852]

Archibald Menzies, a naturalist accompanying Vancouver stated, "...we had some canoes off from the latter island [Maui], but they brought no refreshments. Indeed, this part of the island appeared to be very barren and thinly inhabited" (Menzies 1920:102). According to Kahekili, then chief of Maui, the extreme poverty in the area was the result of the continuous wars between Maui and Hawai'i Island causing the land to be neglected and human resources wasted (Vancouver 1984:856).

THE MĀHELE

In the 1840s a drastic change in traditional land tenure resulted in a division, or Māhele, of island lands. This system of private ownership was based on western law. While a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III (Kamehameha III) was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kuykendall Vol. I, 1938:145 footnote 47, 152, 165–6, 170; Daws 1968:111; Kelly 1983:45; Kame`eleihiwa 1992:169–70, 176).

Among other thing, foreigners demanded private ownership of land to insure their investments (Kuykendall Vol. I, 1938:138, 145, 178, 184, 202, 206, 271; Kame`eleihiwa 1992:178; Kelly 1998:4). Once lands were made available and private ownership was instituted the *maka`āinana* (commoners) were able to claim the plots on which they had been cultivating and living, if they had been made aware of the foreign procedures (*kuleana* lands, Land Commission Awards, LCA). These claims could not include any previously cultivated or presently fallow land, `okipū (on O`ahu), stream fisheries or many other resources necessary for traditional survival (Kelly 1983; Kame`eleihiwa 1992:295; Kirch and Sahlins 1992). The awarded parcels were called Land Commission Awards. If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA, issued a Royal Patent number, and could then take possession of the property (Chinen 1961: 16). Fifty-five LCA claims were made for land in Ka`ono`ulu.

As western influence grew, Kalepolepo, west of the project area became the important provisioning area. Europeans were now living or frequently visiting the coast and several churches and missionary stations were established. A Mr. Halstead left medical school on the East coast of the continent to become a whaler and after marrying the granddaughter of Issac Davis, settled in Kalepolepo on land given him by Kamehameha III (Kolb *et al.* 1997). His residence and store situated at Kalepolepo landing was known as the Koa House having been constructed of *koa* logs brought from the uplands of Kula. The store flourished due to the whaling and potato industry and provided an accessible port for exported produce. Several of Hawai`i's ruling monarchs stayed at the Koa House, including Kamehameha III, Kamehameha the IV, Lot Kamehameha (V), and Lunalilo. After viewing the surroundings, Wilcox stated, "...Kalepolepo was not so barren looking a place. Coconut trees grew beside pools of clear warm water along the banks of which grew taro and ape..." (1921:67). However, by 1887 this had changed. Wilcox continues:

...the Kula mountains had become denuded of their forests, torrential winter rains were washing down earth from the uplands, filling with silt the ponds at Kalepolepo...ruins of grass huts

[were] partly covered by drifting sand, and a few weather-beaten houses perched on the broad top of the old fish pond wall at the edge of the sea, with the Halstead house looming over them dim and shadowy in the daily swirl of dust and flying sand...” [ibid]

As early as 1828, sugar cane was being grown commercially on Maui (Speakman 1981:114). Sugar was established in the Makawao area in the late 1800s and by 1899, the Kihei Plantation Company (KPC) was growing cane in the plains above Kīhei. In 1908, the Kihei Plantation was absorbed by the Hawaiian Commercial and Sugar Company (HC&SC); the new-formed company continued cultivating what had been the KPC fields into the 1960s. A 200-foot-long wharf was constructed in Kīhei at the request of Maui plantation owners and farmers and served inter-island boats for landing freight and shipping produce to Honolulu (Clark 1980). In 1927, Alexander and Baldwin became the agents for the plantation (Condé and Best 1973). A landing was built at Kīhei around 1890.

Kaonoulu Ranch lands have been in the Rice family since 1916. Previously, both the Haleakalā and Kaonoulu Ranches leased the then Crown lands for pasture and other ranching activities. The introduction of a dependable water supply in 1952 set a foundation for overseas investment and development, which has thrived along the coastal region of Kīhei.

PREVIOUS ARCHAEOLOGY

Archaeological studies in the greater Kīhei area began in the early twentieth century with T. Thrum (1909), J. Stokes (1909–1916), and W. M. Walker (1931). These surveys included areas of leeward Maui and inventoried both upland of the Kula District and coastal sites (Figure 6).

The barren zone areas of this study have recently been subject to a proliferation of archaeological studies as residential and business endeavors expand from the coastline into other reaches of the Kīhei area. Concomitant with modern expansion involves necessary historic preservation work. The following section provides a general overview of archaeological studies in the general Kīhei area, focused on the barren zone.

As noted by Hammatt and Shideler (1992:10), “what is particularly striking in the many archaeological reports on Kīhei is the general paucity of sites within the transitional or barren zone.” Cordy (1977) and Cox (1976) all conducted large-scale survey in this zone that led to the recordation of only small, temporary habitation or temporary use sites. Several other studies in this zone of Kama`ole Ahupua`a, including those conducted by Mayberry and Haun (1988) and

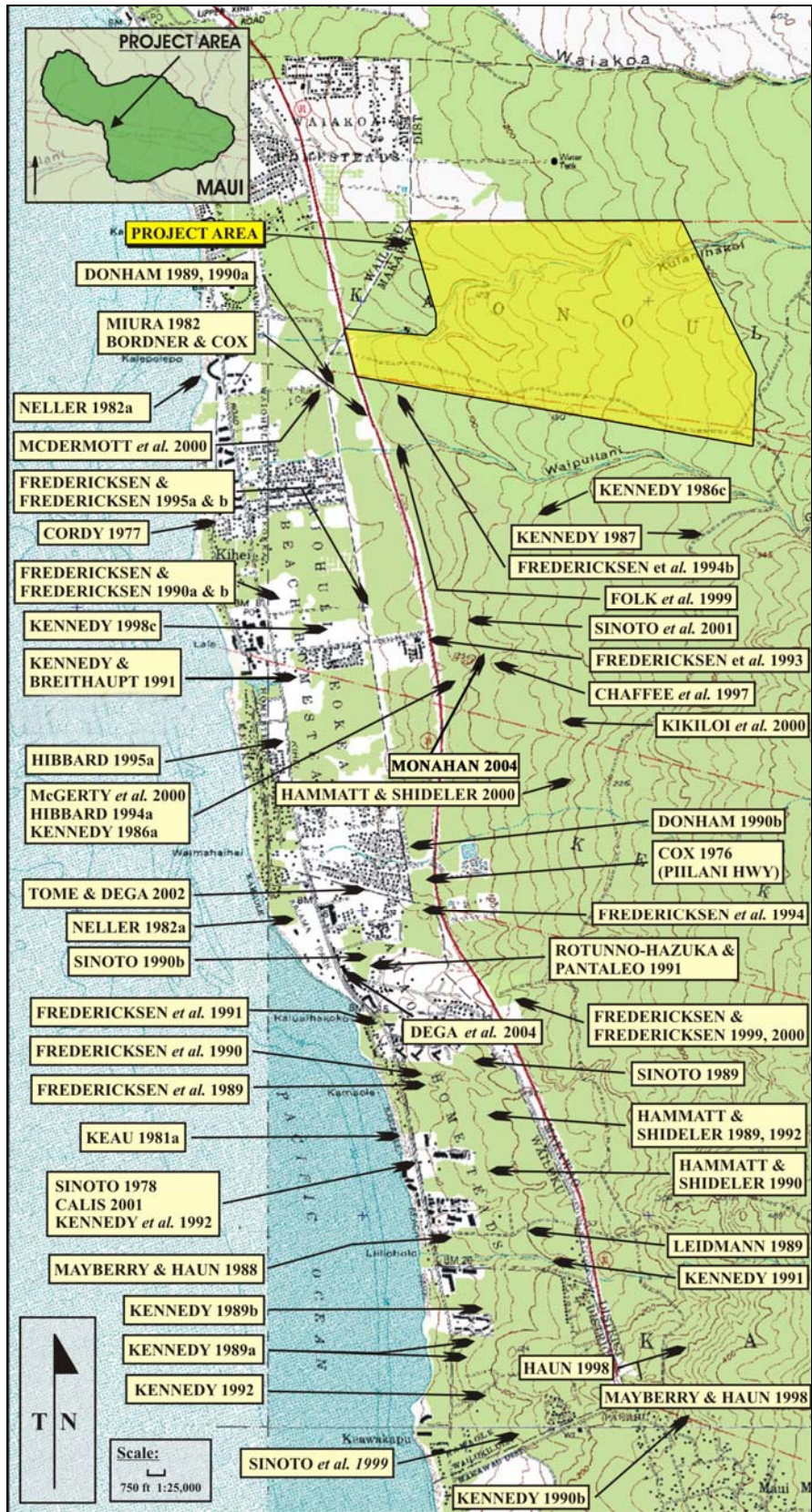


Figure 6: USGS Map Showing Locations of Previous Archaeological Investigations.

Hammatt and Shideler (1990), also only revealed the presence of temporary habitation and temporary use loci.

McDermott (2001:100) states that site densities are typically quite low within the “barren zone” with multiple studies having been conducted on large parcels (Kennedy 1986, Watanabe 1987, Hammatt and Shideler 2000, Kikiloi *et al.* 2000) that did not lead to the identification any pre-Contact sites. However, military sites related to World War II (WWII) training exercises have been previously documented in the area (McGerty *et al.* 2000), these sites often consisting of low, short alignments or walls. The few radiocarbon dates acquired from the area indicate definitive use of the landscape in later prehistory c. A.D. 1500 to 1600+.

SCS, and others, have more recently conducted numerous projects in the vicinity of the present project area. Several studies have been conducted in association with development of the Maui Research and Technology Park and the Elleair Maui Golf Club (Kennedy 1986; Hibbard 1994; Chaffee *et al.* 1997; McGerty *et al.* 2000; Sinoto *et al.* 2001; Tome and Dega 2002; Monahan 2003).

Kennedy (1986) conducted an archaeological reconnaissance of the entire 150.032 acres of the then-proposed Maui Research and Technology Park (TMK:2-2-02, since changed to 2-2-24). Kennedy’s study, which did not include subsurface testing (excavation), concluded that no archaeological sites or features were located within the project area. Chaffee *et al.* (1997) conducted an Archaeological Inventory Survey, including subsurface testing, of a portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Three sites consisting of ten archaeological features were identified. The features included remnant terraces, stone alignments, a mound, and a modified outcrop. All of the sites were interpreted as agricultural in function with the exception of a rock mound that may have functioned as a religious feature.

Monahan (2003) conducted an Archaeological Inventory Survey, including subsurface testing, of a 28.737-acre portion of the Maui Research and Technology Park, within the area investigated by Kennedy (1986). Other than one surface feature, a small arrangement of stacked boulders interpreted as a ‘push pile,’ this survey yielded no evidence of historic or prehistoric significance.

Theresa Donham conducted an Archaeological Reconnaissance Survey of the Haleakalā Greens Subdivision area (Hibbard 1994). She identified a low, circular rock mound, a historical site with multiple features on the crest of a prominent ridge, a linear rock mound or wall

remnant, a rock-filled terrace outlined with a low, rock wall, and other modifications along a rock outcrop. Shell midden was observed on the surface inside an enclosure.

McGerty *et al.* (2000) surveyed 15 selected areas within the Elleair Maui Golf Club, and identified five archaeological sites (State Site Nos. 50-50-10-5043, -5044, -5045, -5046, and -5047) containing a total of seven surface features. The surface features were interpreted as agricultural terraces, perhaps dating from the pre-Contact period, and C-shaped rock formations (fighting positions) built during World War II training. Ten excavation units placed within these features yielded no cultural material.

Sinoto *et al.* (2001) conducted an Archaeological Inventory Survey of a parcel adjacent to the subject property. No archaeological or historical sites or features were identified.

Tome and Dega (2002) conducted an Archaeological Inventory Survey along the northeastern flank of the Elleair Maui Golf Club property. They identified a historical ranching corral and a short agricultural wall, collectively designated State Site No. 50-50-10-5233. No other structures or subsurface deposits were identified. No traditional Native Hawaiian sites or features were identified. Another Inventory Survey along the southern flank of the Elleair Maui Golf Course (Dega 2003) failed to yield any archaeological or historical features.

Scientific Consultant Services (SCS), Inc. conducted Archaeological Inventory Survey (Monahan 2004) on two undeveloped lots totaling approximately 56.647 acres near the Elleair Golf Course in Kīhei, Waiohuli and Ka`ono`ulu Ahupua`a, Wailuku (Kula) District, Kīhei, Maui Island, Hawai`i [TMK: 2-2-24: Portion 12 and 13]. A pedestrian survey and subsurface testing was performed in advance of a proposed residential project near the Elleair Golf Course. Four surface features consisting of stacked basalt stones were located within the project area; each was assigned a separate state site number. Test excavations yielded buried cultural material consistent with traditional Native Hawaiian activities at three of the four sites (Sites 50-50-10-5506, -5507, and -5509). Excavation at the fourth site (-5508)—a C-shaped rock pile consistent with a World War II military training feature—did not yield any subsurface evidence. The discovery of three traditional Native Hawaiian sites in this area is significant, as previous studies have generally failed to document any such activity. One of these sites (-5509) yielded a modern radiocarbon date (0 ± 50 BP), but its context is questionable and it may not be associated with the buried artifacts. Two other sites (-5506 and -5507) did not yield charcoal, although both contained buried traditional artifacts and midden. No additional archaeological work was recommended in the project area (Monahan 2004).

Field Inspection for two waterline corridors was conducted by Dega and Tome in 2006. That letter report describing the results of the field work is included as Appendix A.

SCS personnel Tomasi Patolo, B.A., Dea Funka, B.A., and Bryan Armstrong, B.A. conducted Inventory Survey on the current area of study between January 24 and April 6, 2007 under the general supervision of Michael Dega, Ph.D. (Shefchek *et al* 2008). Forty new archaeological sites were identified and recorded during this work. Of the forty sites recorded during this work, eight are associated with pre-Contact activities. These pre-Contact sites consisted of temporary rock shelters with petroglyph components, enclosures, platforms, a mound and a wall. Historic sites found during this work pertained to agriculture and military training activities.

PROJECT AREA EXPECTATIONS

The current project area falls into the barren zone. Archaeological reconnaissance and inventory survey work in the barren zone have yielded only a modest amount of evidence for traditional and historic-period activity. Documented sites in the general area primarily include agricultural terraces and short walls, C-shaped structures (military period), and historic ranching features (walls, corrals).

This project area has been subject to Inventory Survey, with 20 sites documented (see above). However, being located within the barren zone, it is not expected to yield many, if any, traditional-type deposits in subsurface contexts, this due to the shallow nature of soils overlying bedrock. Previous archaeology in the area (McGerty *et al.* 2000) attests to the likelihood for encountering numerous sites relating to military activity on the parcel. There is limited expectation that significant sites will be identified in subsurface contexts.

REASON FOR MONITORING

The main impetus for full-time Archaeological Monitoring of construction activities in the current project area directly correlates to the positive results earned through Inventory Survey (Fredericksen *et al.* 1994). Given that twenty sites were identified in the area, there maintains some occupation through time, which could be revealed again during Monitoring.

In addition, the numerous archaeological projects that have been conducted in the Kīhei-Makena area have been important in determining the pre- and post-Contact period settlement patterns within the general project area (see Figure 5; Table 1). Much of this research has demonstrated that significant cultural deposits, consisting of subterranean cultural strata,

subsurface pit features, midden, artifacts, and human burials, are present in subsurface contexts in the area. Surface, and subsurface, features related to traditional and historic-period occupation, whether complete or partially truncated, have been documented in several of the area's studies (see Previous Archaeology section below). The present monitoring work will provide an opportunity to more closely assess the presence/absence of significant cultural resources on the property, and if present, will allow for complete documentation of such resources. Data gleaned through this study should allow for contributing to the database of knowledge for the area, and for refining Kīhei settlement pattern models.

MONITORING CONVENTIONS AND METHODOLOGY

This Archaeological Monitoring Plan has been devised in accordance with DLNR-SHPD rules governing standards for Archaeological Monitoring (DLNR-SHPD 2003). SCS monitors will adhere to the following guidelines during monitoring:

1. A qualified archaeologist intimately familiar with the project area and the results of previous archaeological work conducted in the Kīhei-Makena area will monitor subsurface construction activities on the parcel. Please note that one archaeological monitor is required for each piece of ground altering machinery. If significant deposits or features are identified and additional field personnel are required, the contracting archaeologist will notify the contractor, or representatives before additional personnel are brought to the site.
2. If features, or cultural deposits, are identified during Monitoring, the on-site archaeologist will have the authority to temporarily suspend construction activities at the significant location so that the cultural feature(s), or deposit(s), may be fully evaluated and appropriate treatment of the cultural deposit(s) is conducted, per the letter of this plan. SHPD will be contacted to establish feature significance and potential mitigation procedures. Treatment activities primarily include documenting the feature/deposit through plotting its location on an overall site map, illustrating a plan view map of the feature/deposit, profiling the deposit in two dimensions, photographing the finds (with the exception of human burials), collecting artifact and soil samples, and triangulating the finds on a map. Construction work and/or back-filling of excavation pits or trenches will only continue in the sample location when all documentation has been completed.
3. Soil stratigraphy associated with subsurface cultural deposits will be noted and photographed, particularly those containing significant quantities or qualities of cultural materials. If deemed significant by SHPD and the contracting archaeologist, these deposits will be sampled, as determined by the same.

Table 1: List of Sample Archaeological Projects by Ahupua`a Location in Chronological Order.

Location	Report
Kama`ole Ahupua`a	Sinoto 1978
	Keau 1981
	Neller 1982
	Leidemann 1989
	Hammatt and Shideler 1989
	Sinoto 1989
	Fredericksen <i>et al.</i> 1989
	Fredericksen <i>et al.</i> 1990
	Hammatt and Shideler 1990
	Sinoto 1990
	Kennedy 1991
	Fredericksen <i>et al.</i> 1991
	Rotunno-Hazuka and Pantaleo 1991
	Kennedy <i>et al.</i> 1992
	Hammatt and Shideler 1992
	Fredericksen <i>et al.</i> 1994
	Mayberry and Haun 1998
	Haun 1998
	Fredericksen and Fredericksen 1999
	Calis 2001
Tome and Dega 2002	
Keokea Ahupua`a	Cox 1976
	Brown 1989
	Brown <i>et al.</i> 1989
	Donham 1990b
	Kennedy and Breithaupt 1991
	Hibbard 1995
	Hammatt and Shideler 2000
	Fredericksen 2001
	Fredericksen and Fredericksen 2001
Waiohuli Ahupua`a	Cordy 1977
	Miura 1982
	Kennedy 1986
	Watanabe 1987
	Riford 1987
	Kennedy 1988
	Donham 1989
	Donham 1990a
	Fredericksen <i>et al.</i> 1993
	Fredericksen <i>et al.</i> 1994
	Hibbard 1994
	Fredericksen and Fredericksen 1995a
	Fredericksen and Fredericksen 1995b
	Dunn and Spear 1995
	Chaffee <i>et al.</i> 1997
	Sinoto <i>et al.</i> 1999
	McDermott and Hammatt 2000
	Kikiloi and Hammatt 2000
	McGerty <i>et al.</i> 2000
	McDermott 2001
Sinoto <i>et al.</i> 2001	

4. In the event that human remains are encountered, all work in the immediate area of the find will cease and the area will be secured from further activity until burial protocol has been completed. The SHPD-Maui Cultural Historian will be immediately identified about the inadvertent discovery of human remains on the property. Notification of the inadvertent discovery will also be made to the Maui/Lanai Islands Burial Council by either SHPD or the contracting archaeological firm. A determination of the minimum number of individuals (MNI), age(s), and ethnicity of the burial(s) will be ascertained in the field by the contracting archaeologist. Rules outlined in Chapter 6e, Section 43 shall be followed. Profiles, plan view maps, and illustrative documentation of skeletal parts will be recorded to document the burial(s). The burial location will be identified and marked. If a burial is disturbed during trench excavations, materials excavated from the vicinity of the burial(s) will be manually screened through 1/8-inch wire mesh screens to recover any displaced skeletal material. If the remains are to be removed, the work will be in compliance with HRS 6.E-43.6, Procedures Relating to Inadvertent Discoveries after approval from all parties (SHPD).
5. To ensure that contractors and the construction crew are aware of this Archaeological Monitoring Plan and possible site types to be encountered on the parcel, a brief coordination meeting will be held between the construction team and monitoring archaeologist prior to initiation of the project. The construction crew will also be informed about the possibility that human burials could be encountered and how they should proceed if they observe such remains.
6. SCS will provide all coordination with the contractor, SHPD, and any other group involved in the project. SCS will coordinate all Monitoring and sampling activities with the contractor's safety officers to ensure that proper safety regulations and protective measures meet compliance. Close coordination will also be maintained with construction representatives in order to adequately inform personnel of the possibility that open archaeological units or trenches may occur in the project area.
7. As necessary, verbal reports will be made to SHPD and any other agencies as requested.

LABORATORY ANALYSIS

All samples collected during the project, except human remains, will undergo analysis at the SCS laboratory in Honolulu. In the event that human remains are identified and SHPD-Burial Sites Program personnel authorize their removal, they will be curated on-site in a secure location or at the SHPD-Maui. All other burials will remain protected and in place until any decisions are made by the SHPD-Burial Sites Program. Photographs, illustrations, and all notes accumulated during the project will be curated at the Honolulu laboratory. All retrieved artifact and midden samples will be thoroughly cleaned, sorted, and analyzed. Significant artifacts will be photographed, sketched, and classified (qualitative analysis). All metric measurements and weights will be recorded (quantitative analysis). These data will be presented in tabular form

within the final monitoring report. Midden samples will be minimally identified to major ‘class’ (e.g., bivalve, gastropod mollusk, echinoderm, fish, bird, mammal). All data will be clearly recorded on standard laboratory forms that also include number and weight (as appropriate) of each constituent category. These counts will also be included in the final report.

Should any samples amenable to dating be collected from a significant cultural deposit, they will be prepared in the SCS laboratory and submitted for specialized radiocarbon analysis. While primary emphasis for dating is placed on charcoal samples, we do not preclude the use of other material such as marine shell or nonhuman bone materials. SCS will consult with SHPD and the client if radiocarbon dates are deemed necessary.

All stratigraphic profiles will be drafted for presentation in the final report. Representative plan view sketches showing the location and morphology of identified sites/features/deposits will be compiled and illustrated

CURATION

If requested by the land owner, SCS will curate all recovered materials in Honolulu (except human remains and associated goods, which would remain on-island) until a permanent, more suitable curation center is identified. The land owner may request to curate all recovered cultural materials once analysis has been completed.

REPORTING

An Archaeological Monitoring report documenting the project findings and interpretation, following SHPD guidelines for Archaeological Monitoring reports, will be prepared and submitted within 180 days after the completion of fieldwork.

If cultural features or deposits are identified during fieldwork, the sites will be evaluated for historical significance and assessed under State significance criteria. The Archaeological Monitoring report will contain these significance assessments, as well as recommendations for any future work to be conducted on the parcel.

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**APPENDIX A: LETTER REPORT FOR TWO WATERLINES IN THE PROJECT
AREA**

Dr. Melissa Kirkendall
SHPD-Maui
130 Mahalani Street
Wailuku, HI 96793

June 9, 2006

Re: Field Inspection of Proposed Waterlines near the Kaonoulu Market Place in Kihei, Maui, Hawai'i [TMK:2-2-02:por. of 15 and 3-9-01:16]

Dear Dr. Kirkendall:

At the request of Pacific Rim Land, Inc., Scientific Consultant Services, Inc. (SCS) conducted a Field Inspection of a two proposed waterline corridors and a proposed water tank site in the "barren zone" of Kihei, Maui, Hawai'i at TMK:2-2-02:por. 15 and 3-9-01:16. The purpose of the Field Inspection was to determine the presence/absence of architecture, midden deposits, and/or artifact deposits on the surface of the corridors and to assess the potential for the presence of subsurface cultural deposits. Other characteristics pertinent to the parcel were noted and include descriptions of landscape disturbance, topographic changes, and soil regimes present, among others. Fieldwork for this project was conducted on June 9, 2006 by M. Dega, Ph.D. and G. Tome, B.A., both of SCS.

Location and Current Status

The project area is linear in morphology and is generally bounded on the North by two parcels containing corn fields, a residence, a pond, and an orchard. Ohukai Road borders the northern portions of these two parcels. The southern flank is defined by Kulanihakoi Gulch. The eastern flank is demarcated by undeveloped land associated with the future Kaonoulu Market Place (which borders Pi'ilani Highway). The western flank spreads into undeveloped land owned by Kaonoulu Ranch. The current project area is currently undeveloped. A swath of the proposed Kihei/upcountry Highway cuts through a small portion of the project area's northeastern flank.

Two proposed waterline corridors and a tank site were subject to this Field Inspection. Corridor A is designated for a north-south trending corridor running c. 2,200 feet to its terminus at the northern flank of Kulanihakoi Gulch, a large intermittent drainage. Corridor B is designated for an east-west trending segment running c. 3,400 feet to the proposed tank site. The tank site itself will measure 200 sq. ft in diameter. The width of both corridors measures 12 feet. Pedestrian survey of the corridors was conducted by the two crew members walking abreast but separated by 6 feet to cover the flanks and center of the corridors. Ground surface visibility was generally high.

Corridor A consists of slightly undulating land with slope trending toward the south where it meets the base of Kulanihakoi Gulch. Primarily flat across the northern 2/3 of the corridor, the slope descends gradually to the flank of the drainage wherein a virtual cliff face is present as the corridor descends to the stream bank. Corridor A generally runs along the 120 ft. elevation line. This corridor has been subject to minor grading in areas, with several unimproved dirt roads coursing east-west or perpendicular across the corridor in three locations. Corridor B is generally flat as it skirts existing corn fields and gains elevation near the proposed tank

location. An extremely small arterial drainage (c. 3 feet deep) in the western 1/3 has been filled with soil and rocks cleared from the corn fields. From east to west, Corridor B runs from the 120 ft elevation line to a maximum 200 ft above mean sea level at the proposed tank location. The eastern 2/3 of Corridor B primarily consists of corn fields and access roads to the fields. The remaining 1/3 is currently undeveloped. The proposed water tank site occurs at the eastern terminus of Corridor B on the top of a small knoll at the 200 ft elevation line. This land is also undeveloped. Barbed-wire fences are common through and around Corridor A, Corridor B, and the tank site.

RESULTS

Full pedestrian survey of Corridor A, Corridor B, and the proposed water tank site failed to lead to the identification of any archaeological structures, scatters, or deposits. In addition, no areas readily amenable to the recovery of cultural materials in subterranean contexts were identified. A brief listing of description and results for each of the three survey areas follows.

Corridor A

This north-south trending segment crossed both flat and slightly undulating topography to its step terminus on the north bank of Kulanihakoi Gulch. The surface of the corridor was relatively open. Bedrock and scattered, non-modified cobbles and boulders were present along the length of the survey area. Modern impacts included three non-improved roads (c. 8 feet wide) running perpendicular to the corridor, soil testing pits (filled), and multiple cattle trails. A small herd of cattle grazed under the *kiawe* trees near the northern flank of the corridor. Neither rock concentrations nor artifacts/midden were identified on the surface of Corridor A. In addition, bedrock was ubiquitous across portions of the surface. Soil deposits appeared extremely shallow in this area. A close inspection of the steep cliff area near the southern terminus failed to reveal any cultural modifications, including petroglyphs on rock panels. This corridor only yielded negative results and was not expected to yield cultural resources through any subsurface sampling.

Corridor B

A majority of this east-west directional corridor proceeded through corn fields, along modified dirt access roads to the fields, and up a small knoll at its western terminus. Most of the proposed corridor area had been extensively modified through agriculture (corn) and associated infrastructure. Undeveloped portions of this corridor were present for c. 600 feet to the top of the knoll. Surface grasses and scattered cobbles/boulders were identified. None of the rocks formed alignments, walls, or C-shapes. There also appeared to be no areas that could lead to the recovery of cultural resources in subterranean contexts. The terminus of Corridor B led to the tank site.

Water Tank Site

The proposed tank area measures c. 200 sq. ft. in diameter and occurs at the top of a small knoll. The knoll itself is fairly flat. The tank area was primarily devoid of any rock concentrations and covered in surface grasses. Bedrock was evident at the top of the knoll and along its slight slope. Soil deposits appeared shallow even at the apex of the knoll. No structures, scatters, or deposits were identified in the proposed tank area.

In addition, based on previous archaeological work by SCS in this “barren zone” area, few, if any, cultural resources would be expected in subsurface contexts.

Recommendations

This Field Inspection of a “barren zone” project area did not lead to the identification of any archaeological sites nor areas thought to contain deposits in subsurface contexts. The corridors and water tank area surveyed during this Field Inspection were void of sites, this being the result of limited activity through time in the area and the nature of the “barren zone” itself. Few archaeological signatures are present in this zone, particularly in subsurface contexts. While ranching may have altered the landscape of the overall zone, ranching related structures were virtually absent in the project area. Even informal survey of Kulanihakoi Gulch, beyond the project area boundaries, failed to lead to identification of any sites.

Based on the above factors and the extremely limited potential for excavation, no further work is recommended for the above noted project area.

If any questions arise pertaining to this Field Inspection or recommendations herein, please contact me at your earliest convenience. Thank you.

Best Regards,

Michael F. Dega, Ph.D.
Senior Archaeologist
Scientific Consultant Services, Inc.

1224
NEIL ABERCROMBIE
GOVERNOR OF HAWAII



STATE OF HAWAII
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COMMISSION ON WATER RESOURCE MANAGEMENT
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KAHIOLOLWE ISLAND RESERVE COMMISSION
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STATE PARKS

August 10, 2011

Robert Spear, Ph.D.
Scientific Consultant Services, Inc.
711 Kapiolani Blvd., Suite 975
Honolulu, Hawaii 96813

LOG NO: 2011.2060
DOC NO: 1108MD12
Archaeology

Dear Dr. Spear:

**SUBJECT: Chapter 6E-42 Historic Preservation Review –
Archaeological Monitoring Plan for the Pi'ilani Promenade South Project
Ka'ono'ulu Ahupua'a, Makawao District, Island of Maui
TMK: (2) 2-5-002:015 (por.) and 3-9-001:016**

This letter summarizes our review of the aforementioned plan (Chaffee and Dega July 2011; *An Archaeological Monitoring Plan for the Kaonoulu Marketplace Project Located in Kihei, Ka'ono'ulu Ahupua'a, Makawao District, Maui Island, Hawai'i [TMK: 3-9-01:16 and (2) 2-2-002:015 por.]/SCS Project Number 1224 AMP-1*), which we received on July 29, 2011.

The proposed project will involve grubbing, grading and development of 88 acres. A search of our records indicates that an archaeological inventory survey of this location was conducted (Xamanek Researches 1994). SHPD previously determined that a similar proposed project would have no effect in 2006, and more recently we recommended archaeological monitoring during a grubbing and grading permit review from Maui County (*Log No. 2011.0536, Doc No. 1103MD05*).

This plan is accepted as final pursuant to HAR §13-279-4. Please notify the Maui and Oahu offices via fax at the start and completion of archaeological monitoring. Upon receipt of this letter please submit one paper copy of your report marked Final to our Kapolei office along with a CD containing a searchable pdf version of the final report and a copy of this approval letter, marked to the attention of the Kapolei Library. If you have questions about this letter please contact me at (808) 243-5169 or via email to: morgan.e.davis@hawaii.gov.

Aloha,

Morgan E. Davis
Lead Archaeologist, Maui Island Section
State Historic Preservation Division