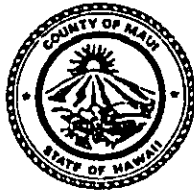


ALAN M. ARAKAWA  
Mayor



GLENN T. CORREA  
Director

JOHN L. BUCK III  
Deputy Director

(808) 270-7230  
Fax (808) 270-7934

**DEPARTMENT OF PARKS & RECREATION**

700 Hali'a Nako'a Street, Unit 2, Wailuku, Hawaii 96793

RECEIVED

'03 JUL 21 P2:07

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

July 11, 2003

Ms. Genevieve Salmonson, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawaii 96813

Subject: Finding of No Significant Impact (FONSI) for Kula Tennis Complex  
Kula, Maui, Hawaii  
TMK: (2) 2-3-37:026

Ms. Salmonson:

The Maui County Department of Parks and Recreation has reviewed the comments received during the 30-day public comment period which began on December 23, 2002. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the July 29, 2003, OEQC Environmental Notice. ✓

We are enclosing a completed OEQC Publication Form and four copies of the final EA. Please call Patrick Matsui, Parks Planning and Development, at (808) 270-7387 if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Glenn T. Correa".

Glenn T. Correa  
Director

c: Carl Takumi, C. Takumi Engineering

AUG 8 2003

**FILE COPY**

2003-08-08-MA-FEA-

FINAL ENVIRONMENTAL ASSESSMENT  
(FINDING OF NO SIGNIFICANT IMPACT)

FOR

(KULA TENNIS COMPLEX)

KULA, MAUI, HAWAII

TMK: (2) 2-3-37:026

PREPARED FOR  
Department of Parks & Recreation  
County of Maui  
1580 Kaahumanu Avenue  
Wailuku, HI 96793

PREPARED BY  
C. Takumi Engineering, Inc.  
18 Central Avenue  
Wailuku, Hawaii 96793

JULY 2003

FINAL ENVIRONMENTAL ASSESSMENT  
(FINDING OF NO SIGNIFICANT IMPACT)

FOR

KULA TENNIS COMPLEX  
KULA, MAUI, HAWAII  
TMK: (2) 2-3-37:026

PREPARED FOR  
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JULY 2003

**FINAL ENVIRONMENTAL ASSESSMENT  
FOR  
KULA TENNIS COMPLEX  
KULA, MAUI, HAWAII  
TMK: (2) 2-3-37: 026**

**1. SUMMARY**

**1.1. APPLICANT/PROPOSING AGENCY:**

Department of Parks & Recreation  
County of Maui  
1580 Kaahumanu Avenue  
Wailuku, Hawaii 96793

**1.2. APPROVING AGENCY:**

Department of Parks & Recreation  
County of Maui  
1580 Kaahumanu Avenue  
Wailuku, Hawaii 96793

**1.3. PROJECT DESCRIPTION:**

The Kula Community Center is located on a 7 acre site in Kealahou, Kula, Maui. The Kula Community Center, Kula Community Clubhouse, and related parking are on the northern portion of the site. Two lighted tennis courts, gateball field and parking area are in use and located on the southern half of the site. The County of Maui proposes to add 4 lighted tennis courts, gateball fields, comfort station, parking, landscaping and related improvements within the southern portion of the site and adjacent to the existing tennis courts. The tennis complex will eventually consist of six lighted tennis courts including the two existing tennis courts and additional gate ball fields, comfort station, and related parking.

The project will be phased with initial construction consisting of two lighted tennis courts, additional parking, abandonment of existing gravel driveway and a new paved driveway along the south boundary of the property. It should be noted that the driveway also serves as primary access to several lots and homes mauka of the site. The remaining work consists of two (2) additional tennis courts, gateball field, comfort station and related improvements, which will eventually be completed as funding becomes available.

Based upon previous investigations, SHPD reported a historic wall along the south boundary of the property. Per the recommendations of the State Historic Preservation Division, a site reconnaissance was conducted. See Appendix C.

**1.4. LOCATION:**

The site is located in Kealahou, Kula, Maui, Hawaii designated as TMK: (2) 2-3-037: 026. Presently the site consist of the Kula Community Center, Kula Community Clubhouse, two lighted tennis courts and gateball field. See attached Figure-1.

**1.5. LAND USE DESIGNATION:**

State Land Use:	Rural
County Community Plan Designation:	Park
County Zoning:	Park

**1.6. NAME AND ADDRESS OF CONTACT PERSON:**

Carl K. Takumi	Phone: (808) 249-0411
C. Takumi Engineering, Inc.	Fax: (808) 249-0311
18 Central Avenue	
Wailuku, Hawaii 96793	

**1.7. PRE-CONSULTATION - AGENCIES CONSULTED:**

**State of Hawaii:**

State Historic Preservation Division

**County of Maui:**

Department of Planning

Department of Public Works & Waste Management

## 2. PROJECT DESCRIPTION

### 2.1 Introduction.

The Kula Tennis Complex development will be undertaken by the Department of Parks & Recreation, County of Maui, and will primarily serve the public and the community. Major elements of the proposed improvements include construction of four lighted tennis courts, gateball field, comfort station, parking area, landscaping and irrigation and related work to be added to existing two tennis courts and gateball fields.

The tennis complex will be constructed in phases. The first phase will include two tennis courts, related parking, and relocation of an existing road. Future phases will construct two lighted tennis courts, comfort station, and gateball fields. It is anticipated that the County will fund all of the design and construction in a number of additional phases as funds become available.

### 2.2 Location of Project.

The project is located at Kealahou, Kula, Maui, Hawaii, designated as TMK: (2) 2-3-037: 026. The Kula Community Center and Kula Community Clubhouse are located on the same site. See attached Figure-1.

### 2.3 Land Ownership.

The site is approximately 7 acres, owned by the R. Gordon Von Tempsky, Jr. Trust and leased to the County of Maui.

### 2.4 Land Use.

The Kula Community Center, Kula Community Clubhouse, and related parking are situated on the north portion of the property. The south half of the property contains the existing tennis courts, gateball field, and tennis court parking. The proposed improvements will be located in the undeveloped portions of the southern half the property.

### 2.5 Applicable Government Permits.

#### State Permits:

NPDES (construction) permit.

#### County Permits:

Grading Permit.

Building Permit.

Driveway Permit.

Work to Perform on County Highway Permit.

### 2.6 Proposed Improvements.

The Kula Tennis Complex will consist of six (6) tennis courts and three (3) gateball fields with

related improvements including parking, comfort station, electrical, landscape and irrigation. An existing gravel access driveway to mauka lots will be relocated along the south boundary of the site and paved due to steeper grades.

### **2.7 Development Schedule and Cost.**

It is anticipated that the first phase of the project consisting of two lighted tennis courts, related parking and site improvements and the relocation of the existing access driveway will begin construction in 2003. The construction phase is expected to last six to eight months. The estimated construction cost of the project is approximately \$600,000.00, which will be funded by the County of Maui. Improvements will be phased as funds become available.

### **2.8 Need for the Project.**

The Maui County Department of Parks & Recreation has noted the existing tennis courts are being used extensively by residents and local tennis teams. As such, the Kula Community Association has been working toward obtaining more tennis courts in the area. The community association indicates that the additional tennis courts would allow them to form a junior tennis organization in the Kula area.

## **3. EXISTING CONDITIONS**

### **3.1 Topography.**

The site generally slopes from east to west at about a 15% slope. A topographic survey using assumed elevations reveals that the southeast corner of the site is at elevation 260 feet and at north west corner of the site is at elevation 160. See attached Figure-3.

### **3.2 Drainage.**

Generally, drainage for the proposed improvements will be directed to the existing drainage system in the site. Drainage improvements were previously installed for the Kula Community Center and the Tennis courts. The drainage system directs storm flows to Lower Kula Road and north to an existing gulch. Grassed swales will be used to drain around the tennis complex to minimize erosion of on-site soils. Grass has long been known as a natural sediment filter for storm waters. Appropriate erosion control measures will be taken to minimize erosion during construction and a Best Management Practice Plan (BMP) will be implemented in accordance with County Drainage Standards.

### **3.3 Soils.**

The general soil classification for the site according to the Soil Survey of Hawaii prepared by the Soil Conservation Service, are Kula cobbly loam (KxaD) 12 to 20 percent. A representative profile, as described in the aforementioned reference, consist of about 8-inches of reddish-brown loam. The subsurface, about 46-inches thick, is dark reddish-brown loam and silty clay loam. The substratum is slightly weathered igneous rock. Permeability is moderately rapid. Runoff is

medium and erosion hazard is moderate.

Site observations and discussions with Department of Parks & Recreation personnel on the construction of the existing tennis court bears that the representative profile is applicable. No blasting was done during the excavation of the weathered igneous rock. It is anticipated that no blasting will be necessary for the Tennis Complex.

#### **3.4 Climate.**

The project site is typical of the leeward lands of Haleakala receiving about 15 inches of annual rainfall and experiencing average temperature ranges from 60°F to 80°F. Being on the leeward side of Haleakala trade winds are characteristic mild making the site ideal for tennis activities. Typical of the Hawaiian Islands, storm winds and rain are usually from the south or southeasterly direction.

#### **3.5 Flood Hazard.**

In accordance with the "Flood Insurance Rate Maps" for the Maui County, most of the project site falls within Zone "C". Zone "C" is designated as areas of minimal flooding. There are no major gulches or channels within the site. See attached Figure-2.

#### **3.6 Surrounding Land Use.**

According to the Makawao-Pukalani-Kula Community Plan, 1996, land adjacent and north of the site is zoned rural and remains relatively undeveloped. Adjacent land east and south of the site are zoned single family, but are presently used as grazing land. Lower Kula Road runs along the west edge of the property between the Holy Ghost Church and more rural properties.

#### **3.7 Flora and Fauna.**

There is no indication of any rare or endangered plants or habitats associated with the project. The site has been previously disturbed with the construction of the existing tennis courts, parking, and gateball fields. Wattle trees (*acacia decurrens*) have overgrown most of the construction area to be developed. Other trees and shrubbery consist of landscaping from previous projects.

#### **3.8 Archaeology.**

Attached is a letter from the State Historic Preservation Division which indicates that there is a historic wall along the south boundary of the site. Further investigation shows that the wall is within the project site. Treatment of the wall be in compliance with the requirements of the State Historic Preservation Division (SHPD).

Per the request of SHPD, a Archaeological Inventory Survey was conducted on May 12, 2003 by Scientific Consultant Services. See Appendix C. Although the parcel has been extensively altered by prior development activities, the results of the survey found two features within the undisturbed sections of the parcel. Feature 1 is a historic period cattle/boundary wall. Feature 2



is a probable agricultural feature associated with traditional period occupation of the area. However, based on the findings of this investigation, it appears probable that additional archaeological research would not significantly contribute to interpretations of the area, Hawaiian traditional cultural practices, or general history of area.

## 4. ENVIRONMENTAL IMPACTS

### 4.1 Construction Impacts.

The proposed project will generate short-term impacts that are typical of site preparation and construction activities. These impacts include air quality, water quality, noise, and potential impacts to vehicular traffic. The impacts are short-term and usually temporary conditions that occur only during the construction period. Most of the impacts are mitigated through compliance with the applicable state and county regulations.

#### 4.1.1 Air Quality.

Emissions from trucks and construction equipment with diesel engines could be cause for short-term air pollution impacts. These emissions are expected to be insignificant.

Dust generated from construction activities such as clearing and grubbing operations, excavation and vehicle movement is expected to be minimal and will be reduced by watering the construction site. The contractor shall be responsible for providing water for dust control. The contractor may obtain water for dust control from the nearest available County facility or may make arrangements to use irrigation water from private sources.

#### 4.1.2 Noise Impacts.

Noise impacts are associated with construction equipment working on the project. Most of the noise will take place only during actual construction. All of these sources will cease upon construction completion. The contractor shall be required to obtain a Noise Permit, if necessary.

Though the area will be lighted to allow for night activities, generally gateball and tennis does not generate disturbing noises with would disrupt neighbors.

#### 4.1.3 Discharge.

No discharge from construction dewatering or hydro testing procedures is expected.

A Best Management Practice Plan will have to be prepared to obtain a Maui County Grading Permit. The contractor will implement the plan to reduce non-point source pollution from reaching state waters during construction. Storm discharge from the landscaped areas should not increase since the area is already grassed. Storm discharge due to the tennis courts, paved parking area and comfort station will increase; however, sediments and other pollutants will be naturally filtered by landscaping as much as practical.

#### 4.1.4 Traffic.

Construction traffic will have minimal impact due to the nature of the project. There is sufficient area on the site to allow construction workers to park on-site. Deliveries such as concrete, plumbing fixtures, pipes, etc. will be occasional.

Permanent access to the site shall be via existing driveways.

#### **4.2 Impacts on Public Facilities.**

##### **4.2.1 Water and Wastewater.**

Once the project is completed, water from the Maui Department of Water Supply will be needed for the comfort station. Low flow fixtures and appropriate plumbing will be incorporated into the design to conserve water.

There is no County wastewater facility in the area. Wastewater from the comfort station will be disposed by individual wastewater treatment system (septic tank and leech field).

##### **4.2.2 Electricity.**

Maui Electric Company lines exist along Lower Kula Road and will be providing service to the tennis courts, comfort station and other improvements.

##### **4.2.3 Fire, Police, and Medical Services.**

The Kula Fire Station is located 1/2 mile south of the project, and the closest police substation is in Makawao at Eddy Tam Park. Kula is served by a medical clinic at the Kula Hospital.

#### **4.3 Socio-Economic Conditions.**

Short-term positive economic impact will result due to the increase in construction-related employment and revenues generated by the purchase of materials, equipment and supplies.

This project will be improving existing park lands that are presently in fallow. In the long-term, the project will provide more recreational facilities for the Kula community.

County park personnel will be maintaining the site along with the maintenance of the existing Kula Community Center and existing tennis facility.

## 5. ALTERNATIVES

The following alternatives were considered:

### 5.1 No-Action Alternative.

The use of the existing tennis facility is increasing. Presently, a seniors tennis club and a school tennis team are using the facility for practice sessions, and both organizations have indicated that additional tennis courts are needed. In addition, the Kula Community Association has requested a six court tennis complex; otherwise, the Kula Community Association would have to travel to other districts to play.

### 5.2 Alternative Site.

An alternative park site, adjacent to Kula Elementary School and approximately ½ mile away from the community center was considered. However, the site is fully developed for open field activities such as baseball and soccer. There is no additional area for the tennis complex. The Kula Community Center site already has two existing lighted tennis courts whereas, the other site has none.

Other County parks are developed and heavily used, but the Kula Community Center site has undeveloped lands available for development.

## 6. MITIGATIVE MEASURES

### 6.1 MITIGATIVE MEASURES FOR SHORT-TERM IMPACTS

Short-term impacts will occur mainly during construction. Mitigative and environmental measures to be implemented during the design, construction, and post-construction phases of the project to minimize short-term impacts are as follows:

The use of mufflers on construction equipment, together with restricting construction activities to standard working hours, will help mitigate noise impacts. All operations will be in compliance with the State Department of Health's rules and regulations, including the need for a Noise Permit, if necessary.

Impacts from dust created by the movement of construction equipment, construction vehicles, and excavation can be mitigated through frequent watering of the site. Watering will occur through the weekend, on holidays, and on other non-working days to reduce the impacts from dust and to limit the potential of a fire hazard.

## 7. FINDING OF NO SIGNIFICANT IMPACT (FONSI)

- (1) **Involve a loss or destruction of any natural or cultural resource;**  
There are two existing historic features within the parcel. Per the request of SHPD, a Archaeological Inventory Survey was conducted on May 12, 2003 by Scientific Consultant Services. The results of the survey found two features within the undisturbed sections of the parcel. Feature 1 is a historic period cattle/boundary wall. Feature 2 is a probable agricultural feature associated with traditional period occupation of the area. Treatment of the wall be in compliance with the requirements of the State Historic Preservation Division. See Appendix C.
- (2) **Curtail the range of beneficial uses of the environment;**  
The Project involves park improvements and is consistent with the land use designation in the Maui County Makawao-Pukalani-Kula Community Plan and does not curtail the beneficial use of the public.
- (3) **Conflict with the State's long-term goals or guidelines as expressed in Chapter 343, HRS;**  
The proposed improvements do not conflict with the Environmental Policies established in Chapter 344, HRS, and the National Environmental Policy Act.
- (4) **Substantially affect the economic or social welfare of the community or state;**  
The Project will not substantially affect the economic or social welfare of the community or state. The project, in itself, is not contributing to new population growth or economic

benefit to any specific organization. The project will provide additional recreational lands.

- (5) **Substantially affect public health;**  
Once the Project is completed, impacts from air, noise, and water quality impacts will be insignificant or not detectable. Overall, the improvements will be positive as compared to the "no-action" alternative since it will provide additional recreational facilities for the area.
- (6) **Involve substantial secondary effects, such as population changes or infrastructure demands;**  
The proposed project will not in itself generate new population growth, but it will provide additional recreational facilities for the area. The comfort station will not significantly impact wastewater and potable water demands.
- (7) **Involves a substantial degradation of environmental quality;**  
Once the Project is completed, impacts on air, noise, and water quality will be insignificant or not detectable. Moreover, park lighting will be of the full cutoff fixture type, which directs light downward in the direction and location it is needed, minimizing impact on the surrounding community. Overall, the improvements will not substantially degrade the area's environmental quality. In fact, new landscaping will improve the area's environment.
- (8) **Cumulatively have a considerable effect on the environment or involve a commitment to larger actions;**  
The proposed project involves park development. The lands will be used for public recreational purposes, thus, substantial effects on the environment will not occur. A commitment to larger actions is not planned at the present time.
- (9) **Substantially affect a rare, threatened, or endangered species or its habitat;**  
No endangered plant or animal species were observed at the project site. The area is overgrown with wattle which makes it difficult for other flora to thrive.
- (10) **Detrimentially affect air or water quality or ambient noise levels;**  
No streams exist within or near the Project area. Air and water quality will comply with the State Department of Health noise and clean water regulations. The comfort station is not noise generating and will not increase ambient noise levels.
- (11) **Affect an environmentally sensitive area, such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, freshwater area, or coastal waters;**  
According the Flood Insurance maps available, the area is within an area of little of no

flood hazard. The site is a substantial distance from the ocean and on the leeward side of Haleakala. The park is in accordance with designated land uses and no conservation lands are near the site.

**(12) Substantially affect any scenic vista or view plane;**

The existing Kula Community Center and tennis courts are on the same site. Due to generally steep slopes, the primary view for the Kula area is looking westward toward the ocean. Due to the depth of the site, the impacts of the proposed improvements on lands mauka of the site should be minimal.

**(13) Require substantial energy consumption.**

The proposed project will require nominal amounts of energy once the Project has been completed. Energy will be required for the comfort station and lighting of tennis courts for night use. However, night use hours will be limited by the use of timers. Similarly, lights will automatically turn-off if not in use for more than an hour.

## 8. FIGURES

1. Location Map
2. Tax Map Key with site location
3. Site Plan with Contours (assumed elevation).



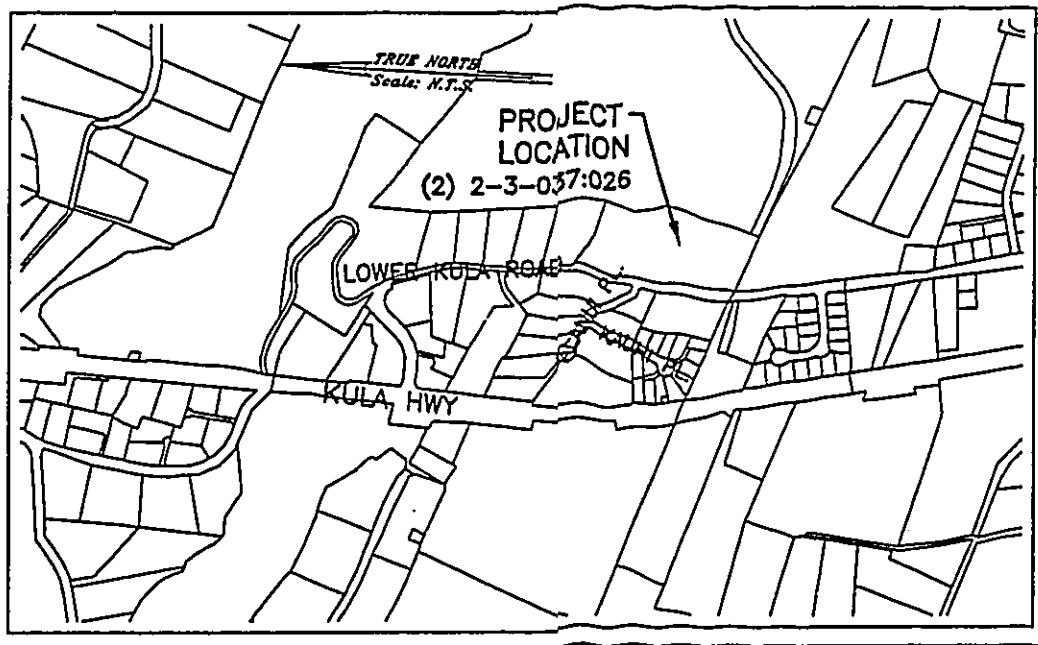
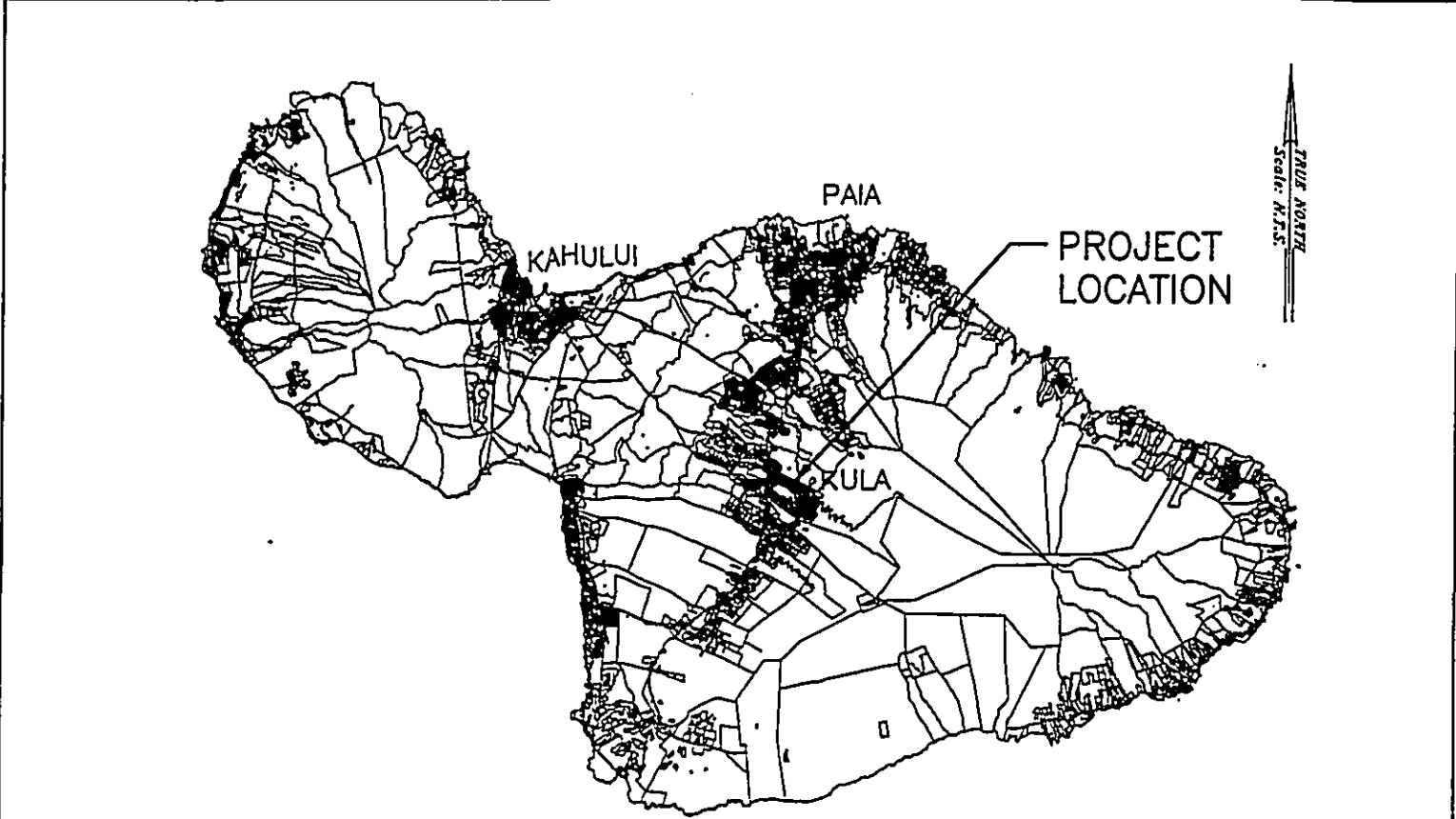
## 9. REFERENCES

*Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai*, U.S. Department of Agriculture, Soil Conservation Service, August 1972.

*FIRM Flood Insurance Rate Map, Maui County, Hawaii*, March 16, 1995, Federal Emergency Agency.

*Atlas of Hawaii (Second Edition)*. Department of Geography, University of Hawaii, University Hawaii Press, Honolulu, 1983.

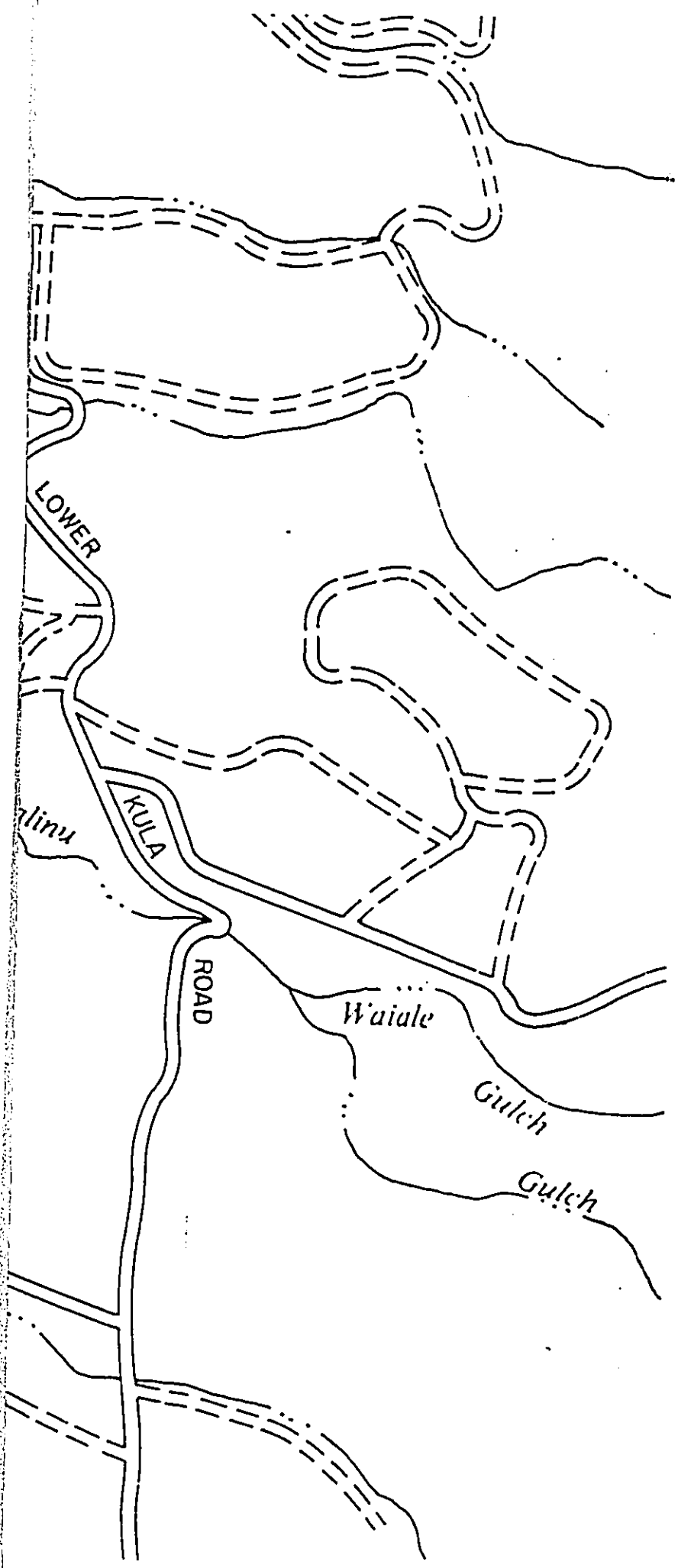
*Makawao-Pukalani-Kula Community Plan, County of Maui*, July 1996.



KULA COMMUNITY CENTER  
IMPROVEMENTS  
TMK: (2) 2-3-37:026

FIGURE - 1





**NATIONAL FLOOD INSURANCE PROGRAM**


**FIRM**  
**FLOOD INSURANCE RATE MAP**

**MAUI COUNTY, HAWAII**

**PANEL 260 OF 400**  
(SEE MAP INDEX FOR PANELS NOT PRINTED)

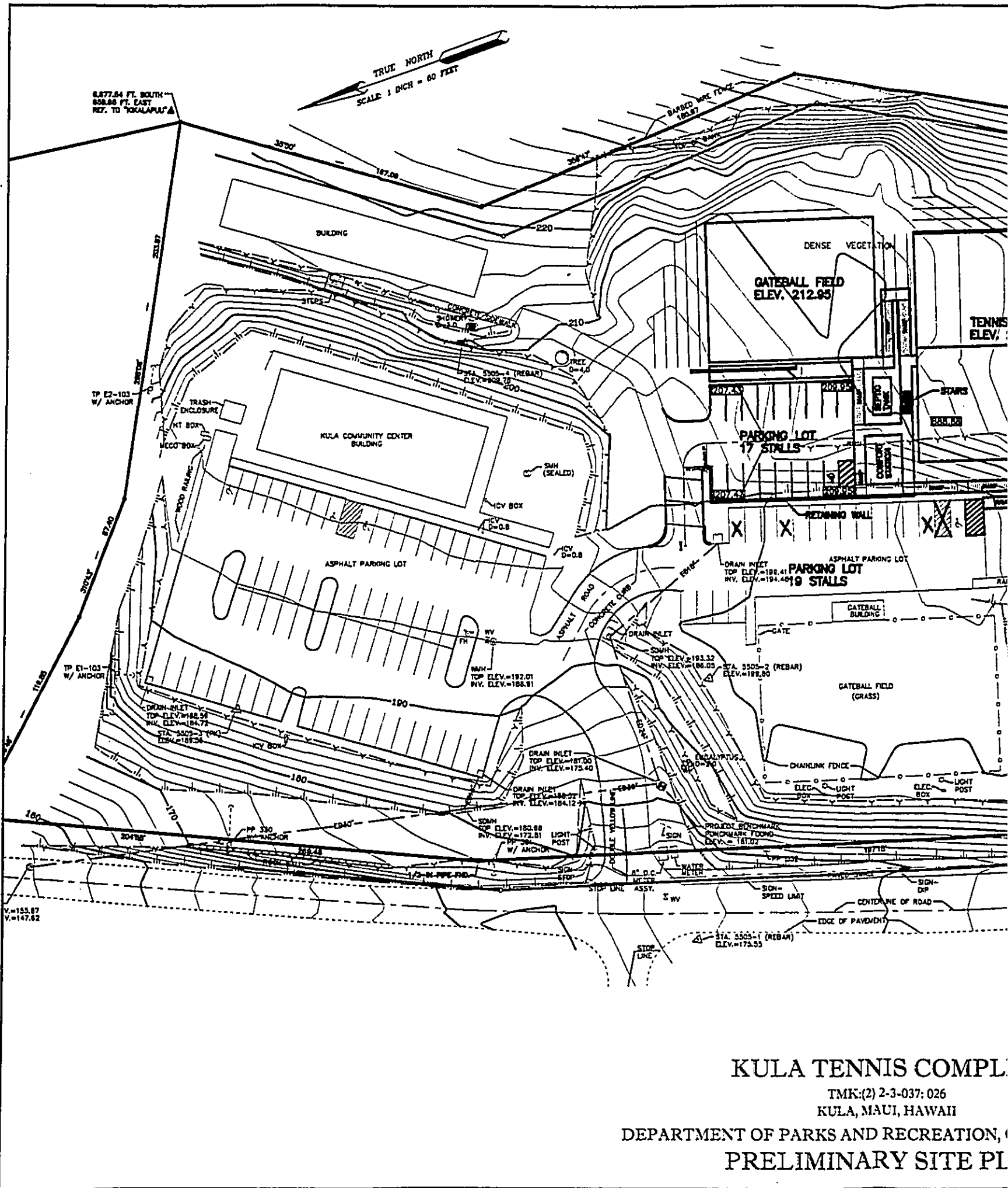
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150003 0260 B

**EFFECTIVE DATE:**  
JUNE 1, 1981

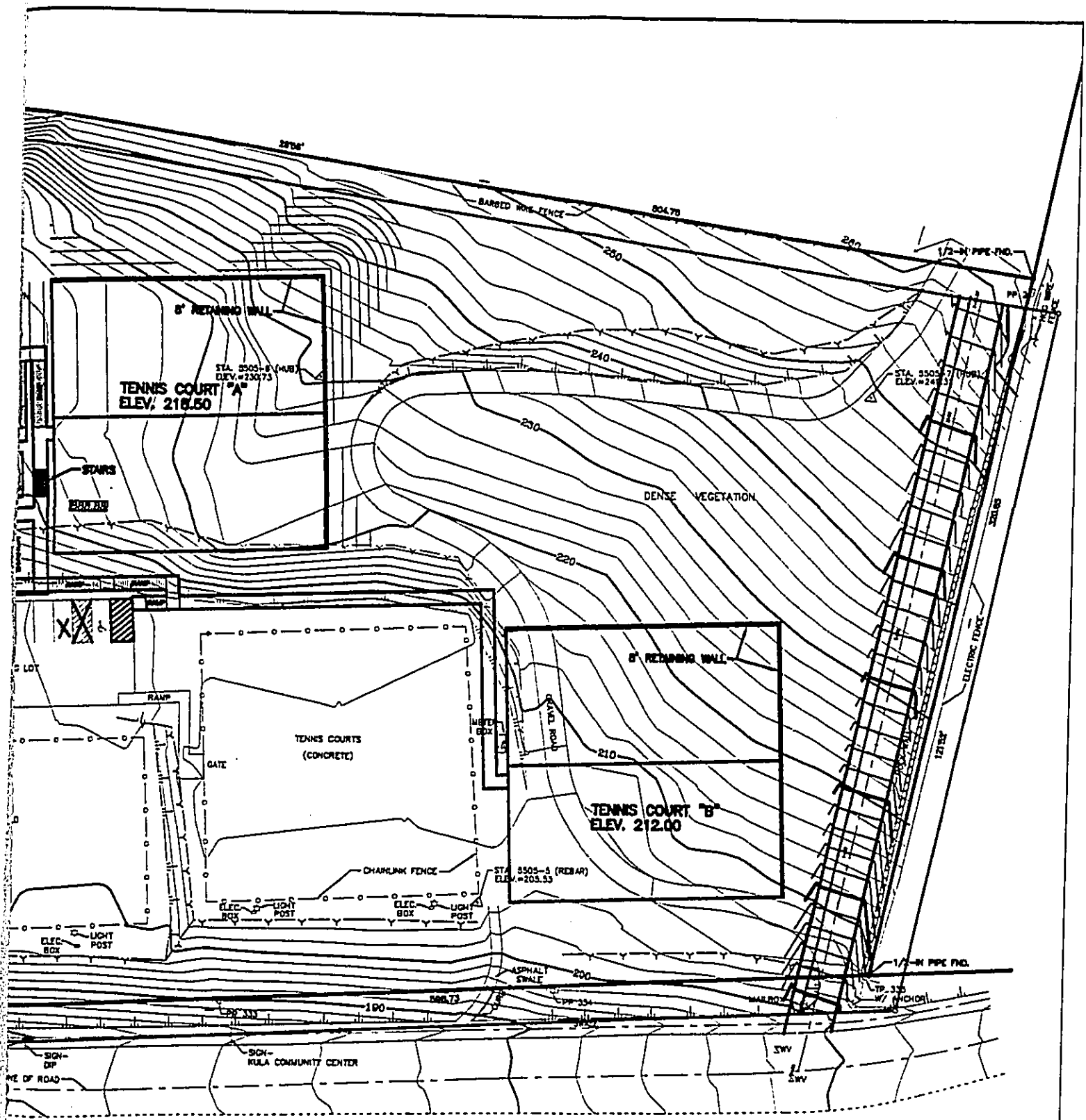


federal emergency management agency  
federal insurance administration

Figure - 2



**KULA TENNIS COMPLEX**  
 TMK:(2) 2-3-037: 026  
 KULA, MAUI, HAWAII  
 DEPARTMENT OF PARKS AND RECREATION,  
 PRELIMINARY SITE PLAN



**IS COMPLEX**

3-037:026  
 OI, HAWAII  
 RECREATION, COUNTY OF MAUI  
 Y SITE PLAN

FIGURE-3

**APPENDIX A: PRE-CONSULTATION LETTERS & RESPONSES**

Agency	Response	
	Yes	No
Department of Public Works & Waste Management County of Maui		x
Maui Planning Department County of Maui		x
State Historic Preservation Division State of Hawaii	10/29/02	

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

GILBERT S. COLOMA-AGARAN, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES  
ERIC T. HIRANO  
LINNEL NISHIOKA

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
CONSERVATION AND RESOURCES  
ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND  
STATE PARKS

October 29, 2002

Mr. Carl Takumi  
C. Takumi Engineering, Inc.  
18 Central Avenue  
Wailuku, Hawaii 96793

LOG NO: 31038 ✓  
DOC NO: 0210CD36

Dear Mr. Takumi,

**SUBJECT: Chapter 6E-8 Historic Preservation Review Pertaining to the  
Information Request for Pre-Consultation for the Kula Tennis  
Complex Draft Environmental Assessment  
Kealahou Ahupua`a, Makawao District, Island of Maui  
TMK: (2) 2-3-037:026**

Thank you for the opportunity to review and comment on the Information Request for Pre-Consultation for the Kula Tennis Complex Draft Environmental Assessment, which was received by our staff September 23, 2002. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division. A field inspection was conducted of the subject property in November 1996 by Ms. Theresa Donham, previously SHPD staff archaeologist.

Based on the submitted information request, we understand the proposed undertaking consists of the addition of four tennis lighted courts, gateball fields, comfort station, parking, landscaping, and related improvements within the southern portion of the subject property and adjacent to the existing tennis courts. In addition, a new paved driveway will be constructed along the southern boundary of the subject property.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject property. This area in general is likely to have once been the location of pre-Contact farming, perhaps with scattered houses. In 1996, Ms. Theresa Donham, previously SHPD staff archaeologist, conducted a field inspection of the subject property, noted an intact historic boundary wall located along the southern boundary of the subject property, and requested that the wall be adequately documented prior to construction (SHPD DOC NO.: 9611KD08/LOG NO.: 18477). To date this documentation has not been conducted nor has it been given a State Site Number.

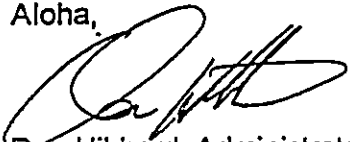


Mr. Carl Takumi  
Page 2

Given the above information, we recommend that an archaeological inventory survey be conducted of the proposed project area to document the historic boundary wall and to determine whether additional significant historic sites are present. An acceptable report documenting the findings of the survey will need to be submitted to this office for review. If significant historic sites are identified, a mitigation plan may need to be developed, in consultation with this office, and executed.

If you have any questions, please call Cathleen Dagher at (808) 692-8023.

Aloha,



Don Hibbard, Administrator  
State Historic Preservation Division

CD:jen

## APPENDIX B: COMMENT LETTERS AND RESPONSES

Organization	Comment Date	Response Date
Office of Environmental Quality Control State of Hawaii 235 S. Beretania Street, Suite 702 Honolulu, Hawaii 96813	1/21/2003	1/27/2003
State Historic Preservation Division Department of Land & Natural Resources Kakahihawa Building, Room 555 601 Kimokila Boulevard Kapolei, Hawaii 96707	1/10/2003	1/27/2003
Department of Planning 220 South High Street Wailuku, Hawaii 96793	12/17/2002	1/27/2003
Department of Public Works & Waste Management 200 South High Street Wailuku, Hawaii 96793	n/a	n/a
Kula Community Association P.O. Box 417 Kula, Hawaii 96790	1/20/2003	1/27/2003

C-2-009

LINDA LINGLE  
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
235 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
Telephone (808) 586-4185  
Facsimile (808) 586-4186  
Email: eeqc@health.state.hi.us

January 21, 2003

Mr. Floyd S. Miyazono, Director  
Department of Parks and Recreation  
County of Maui  
1580-C Kaahumanu Avenue  
Wailuku, Hawaii 96793

Dear Mr. Miyazono:

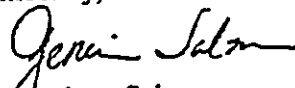
Subject: Draft Environmental Assessment for the Kula Tennis Complex, Maui

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please describe the mitigation measures to minimize spillover, glare and other impacts of the tennis court lighting. Please also consult with the U.S. Fish and Wildlife Service and State Department of Land Natural Resources to minimize potential lighting impacts on flying animals.
2. Please consult with neighbors who may be potentially affected by the lighting and noise.
3. This project should comply with sections 103D-407 and 408 of Hawaii Revised Statutes concerning the use of indigenous plants and recycled glass.
4. In the findings of no significant impacts section, please address the whether the project "involves a substantial degradation of environmental quality" as required under section 11-200-12(b)(7), Hawai'i Administrative Rules.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

  
Genevieve Salmonson  
Director

c: C. Takumi Engineering

**C. TAKUMI ENGINEERING, INC.**

**18 Central Avenue  
Wailuku, Hawaii 96793  
Ph. (808) 249-0411  
Fax: (808) 249-0311**

**DATE:** January 27, 2003

**TO:** Attn.: Jeyan Thirugnanam  
Office of Environmental Quality Control,  
State of Hawaii  
235 South Beretania Street, Ste. 702  
Honolulu, Hawaii 96813

**JOB NO.:** CPK-007

**SUBJECT:** Kula Tennis Complex, Environmental Assessment  
Kula, Maui, Hawaii  
TMK: (2) 2-3-037:026

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Dear Sir:

Thank you for comments on the Draft Environmental Assessment for the above referenced project. The following are our comments and responses to your office's comments.

1. **Please describe the mitigation measures to minimize spillover, glare and other impacts of the tennis court lighting. Please also consult with the U.S. fish and Wildlife Service and State Department of Land Natural Resources to minimize potential lighting impacts on flying animals.**  
Preliminary plans for the park lighting include lights that are of a full cutoff fixture type, which directs light downward in the direction and location it is needed. These types of lights are currently used in the gateball and parking lot areas of the community center. If the cost of these lights are greater than the first phase of construction is budget allows, then a second option may be to construct the conduit, install the wire, and fixtures in the first phase and then the lights in the second phase.
2. **Please consult with neighbors who may be potentially affected by the lighting and noise.** A community meeting was held on Tuesday, April 2, 2002. Various facility users were present at the meeting during which the design of the master plan was discussed.
3. **This project should comply with sections 103D-407 and 408 of Hawaii Revised Statutes concerning the use of indigenous plants and recycled glass.** Drought resistant and native plant species will be addressed by the landscape architect in the design phase.

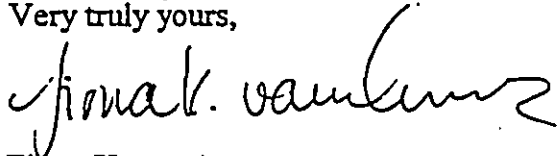
4. **In the findings of no significant impacts section, please address the whether the project “involves a substantial degradation of environmental quality” as required under section 11-200-12(b)(7), Hawaii Administrative Rules.**

The following was added to Environmental Assessment under Section 7. FINDING OF NO SIGNIFICANT IMPACT (FONSI)

(7) **Involves a substantial degradation of environmental quality;**  
Once the Project is completed, impacts on air, noise, and water quality will be insignificant or not detectable. Moreover, park lighting will be of the full cutoff fixture type, which directs light downward in the direction and location it is needed, minimizing impact on the surrounding community. Overall, the improvements will not substantially degrade the area's environmental quality. In fact, new landscaping will improve the area's environment.

If you have any questions, please do not hesitate to call me at (808) 249-0411.

Very truly yours,



Fiona K. van Ammers  
C. Takumi Engineering, Inc.

LINDA LINGLE  
GOVERNOR OF HAWAII



ERIC HIRANO, ACTING DIRECTOR  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
KAKUHIHEWA BUILDING, ROOM 555  
601 KAMOKILA BOULEVARD  
KAPOLEI, HAWAII 96707

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
COMMISSION ON WATER RESOURCE  
MANAGEMENT  
CONSERVATION AND RESOURCES  
ENFORCEMENT  
CONVEYANCES  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
LAND  
STATE PARKS  
LOG NO: 31456  
DOC NO: 0301CD05

January 10, 2003

Mr. Carl Takumi  
C. Takumi Engineering, Inc.  
18 Central Avenue  
Wailuku, Hawaii 96793

Dear Mr. Takumi,

**SUBJECT: Chapter 6E-8 Historic Preservation Review – Draft Environmental Assessment for the Proposed Kula Tennis Complex Draft Environmental Assessment [County/Parks and Recreation] Kealahou Ahupua`a, Makawao District, Island of Maui  
TMK: (2) 2-3-037:026**

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (Draft EA) for the Proposed Kula Tennis Complex Draft Environmental Assessment, which was received by our staff December 11, 2002. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division. A field inspection was conducted of the subject property in November 1996 by Ms. Theresa Donham, previously SHPD staff archaeologist.

We have previously responded to an information request pertaining to the proposed undertaking. As these comments still apply they are paraphrased below.

Based on the submitted Draft EA, we understand the proposed undertaking consists of the addition of four tennis lighted courts, gateball fields, comfort station, parking, landscaping, and related improvements within the southern portion of the subject property and adjacent to the existing tennis courts. In addition, a new paved driveway will be constructed along the southern boundary of the subject property.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject property. This area in general is likely to have once been the location of pre-Contact farming, perhaps with scattered houses. In 1996, Ms. Theresa Donham, previously SHPD staff archaeologist, conducted a field inspection of the subject property, noted an intact historic boundary wall located along the southern boundary of the subject property, and requested that the wall be adequately documented prior to construction (SHPD DOC NO.: 9611KD08/LOG NO.: 18477). To date this documentation has not been conducted nor has it been given a State Site Number.

Given the above information, we recommend that an archaeological inventory survey be conducted of the proposed project area to document the historic boundary wall and to determine whether additional significant historic sites are present. An acceptable report documenting the findings of the survey will need to be submitted to this office for review. If significant historic sites are identified, a mitigation plan may need to be developed, in consultation with this office, and executed.

If you have any questions, please call Cathleen A. Dagher at 692-8023.

Aloha,

*P. Holly McEldowney*

P. Holly McEldowney, Acting Administrator  
State Historic Preservation Division

CD:jen

**C. TAKUMI ENGINEERING, INC.**  
**18 Central Avenue**  
**Wailuku, Hawaii 96793**  
**Ph. (808) 249-0411**  
**Fax: (808) 249-0311**

**DATE:** January 27, 2003

**TO:** Attn.: Cathleen A. Dagher  
Department of Land and Natural Resources,  
State Historic Preservation Division,  
State of Hawaii  
601 Kamokila Boulevard  
Kapolei, Hawaii 96707

**JOB NO.:** CPK-007

**SUBJECT:** Kula Tennis Complex, Environmental Assessment  
Kula, Maui, Hawaii  
TMK: (2) 2-3-037:026

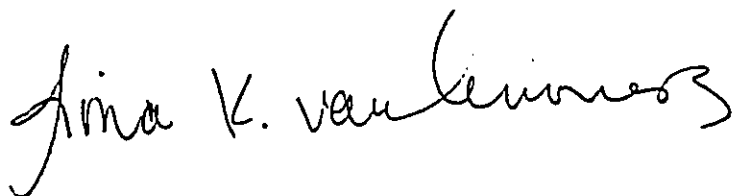
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Dear Sir:

Thank you for comments on the Draft Environmental Assessment for the above referenced project. The following are our comments and responses to your office's comments.

1. Per your recommendation, an archaeological inventory survey will be conducted of the proposed project area to document the historic boundary wall and to determine whether additional significant historic sites are present. The results of this survey will be submitted to your office and included as an appendix with the final EA.

If you have any questions, please do not hesitate to call me at (808) 249-0411.  
Very truly yours,

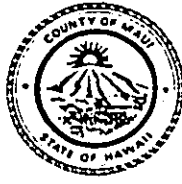


Fiona K. van Ammers  
C. Takumi Engineering, Inc.

JAMES "KIMO" APANA  
Mayor

JOHN E. MIN  
Director

CLAYTON I. YOSHIDA  
Deputy Director



COUNTY OF MAUI  
DEPARTMENT OF PLANNING

December 17, 2002

Mr. Carl K. Takumi  
C. Takumi Engineering, Inc.  
18 Central Avenue  
Wailuku, Hawaii 96793

Dear Mr. Takumi:

RE: Preliminary Comments on a Draft Environmental Assessment (DEA)  
for the Kula Tennis Complex, Parks and Recreation  
TMK: 2-3-037:026 Kula, Maui, Hawaii (LTR 2002/6479)

The Maui Planning Department has reviewed the above-referenced Draft Environmental Assessment for Kula Tennis Complex and requests that Draft Environmental Assessment include the following:

1. Drainage Report and Drainage Plan in full compliance with all applicable governmental requirements. Site run-off should be handled on-site, not channeled to nearby gulch.
2. The project includes night lighting and surrounding Makawao-Pukalani-Kula Community Plan designation is SF. The Draft Environmental Assessment should address hours of operation and direction of lighting that minimizes disturbances to adjacent neighbors.
3. As part of community participation in the process, the applicant is advised to hold a community meeting with the affected property owners and residents of Waiakoa.
4. Makawao-Pukalani-Kula Community Plan Policy Recommendations, Implementing Actions and Standards for the Makawao-Pukalani-Kula Region (pg. 21 d. 26) acknowledges the unique country town ambience and delineates that "land use spatial patterns which enhance the functional viability of pedestrian-oriented town and village centers" be supported. Please provide for pedestrian access in front of and into the proposed park.

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793  
PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7634

*Quality Seamless Service - Now and for the Future*

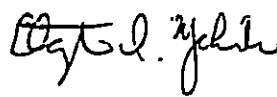


Mr. Carl K. Takumi  
December 17, 2002  
Page 2

5. The planting plan should utilize drought resistant plants as well as native plant species.

Thank you for your cooperation. If additional clarification is required, please contact Ms. Maria N. Isotov, Staff Planner, of this office at 270-7735.

Very truly yours,



for JOHN E. MIN  
Planning Director

JEM:MNI:smb

c: Clayton Yoshida, AICP, Deputy Planning Director  
Aaron Shinmoto, PE, Planning Program Administrator (2)  
Maria N. Isotov, Staff Planner  
DSA (2)  
TMK File  
General File  
K:\WP\_DOCS\PLANNING\LETTERS\ltr2002\ltr20026479KulaCommCtr.wpd

**C. TAKUMI ENGINEERING, INC.**

**18 Central Avenue  
Wailuku, Hawaii 96793  
Ph. (808) 249-0411  
Fax: (808) 249-0311**

**DATE:** January 27, 2003

**TO:** Attn.: Ms. Maria N. Isotov  
Department of Planning, County of Maui  
250 South High Street  
Wailuku, Maui, Hawaii 96793

**JOB NO.:** CPK-007

**SUBJECT:** Kula Tennis Complex, Environmental Assessment  
Kula, Maui, Hawaii  
TMK: (2) 2-3-037:026

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Dear Sir:

Thank you for comments on the Draft Environmental Assessment for the above referenced project. The following are our responses to your office's comments.

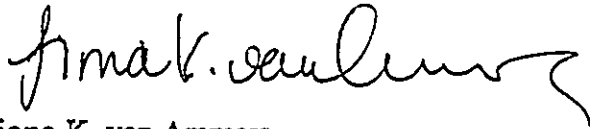
1. **Drainage Report and Drainage plan in full compliance with all applicable governmental requirements. Site run-off should be handled on-site, not channeled to nearby gulch.**  
A drainage report and drainage system design will be completed once the project has moved past preliminary planning and into design phase.
2. **The project includes night lighting and surrounding Makawao-Pukalani-Kula Community Plan designation is SF. The Draft Environmental Assessment should address hours of operation and direction of lighting that minimizes disturbances to adjacent neighbors.**  
Preliminary plans for the park lighting include lights that are of a full cutoff fixture type, which directs light downward in the direction and location it is needed. These types of lights are currently used in the gateball and parking lot areas of the community center. If the cost of these lights are greater than the first phase of construction is budget allows, then a second option may be to construct the conduit, install the wire, and fixtures in the first phase and then the lights in the second phase.
3. **As part of community participation in the process, the applicant is advised to hold a community meeting with the affected property owners and residents of Waiakoa.**  
A community meeting was held on Tuesday, April 2, 2002. Various facility users were

present at the meeting during which the design of the master plan was discussed.

4. **Makawao-Pukalani-Kula Community Plan Policy Recommendations, Implementing Actions and Standards for the Makawao-Pukalani-Kula Region (pg. 21 d. 26) acknowledges the unique county town ambience and delineates that "land use spatial patterns which enhance the functional viability of pedestrian-oriented town and village centers" be supported. Please provide for pedestrian access in front of and into the proposed park.**  
A pedestrian cross walk will be addressed in the design phase.
2. **The planting plan should utilize drought resistant plants as well as native plant species. Drought resistant and native plant species will be addressed by the landscape architect in the design phase.**

If you have any questions, please do not hesitate to call me at (808) 249-0411.

Very truly yours,



Fiona K. van Ammers  
C. Takumi Engineering, Inc.

For  
Carl 1/20/03

①

KULA COMMUNITY ASSOCIATION  
PO. Box 417 - Kula, HI 96790  
<http://kulamail.com>

The vision of the Kula Community Association is to preserve open space, support agriculture, maintain a rural residential atmosphere, and to work together as a community.  
The specific purpose of this association is to improve the quality of life for the residents of Kula, to promote civic welfare and generally to benefit the community of Kula.

Robert Halvorson  
Parks Project Manager  
County of Maui  
Parks and Recreation Department  
1580-C Kaahumanu Ave  
Wailuku, Hawaii 96793

**Re: Kula Tennis Complex Project Draft Environmental Assessment**

Dear Robert,

Thank you for forwarding the Draft Environmental Assessment and current draft site plan to us for review.

Our association agrees with the need for the drafting of a master plan for this park. We also believe the additional four tennis courts (six total), along with other community recreational uses for this park site will benefit many of Maui's citizens.

We do have a concern about the unspecified lighting design for the tennis, gateball, and parking additions. The installation of poor lighting, 'light that travels beyond its intended use', could adversely affect the surrounding neighborhoods, the observatories at the summit, and possibly endangered night flying birds.

The existing Community Center parking lot lighting and gateball court lights are of a full cutoff fixture type, which directs light downward where it's needed. This is similar of the type of lighting that should be considered for all new park improvements.

We would like to see included in the Final EA, the noting of potential light trespass from improvements of the park, and language included, expressing the commitment of the County to utilize an adequate lighting design, with appropriate fixtures, to mitigate a possible light trespass problem.

Our organization understands the challenge of providing appropriate lighting for safe recreational play, without causing spill light. We believe the quiet rural nights of the Kula community warrants that we make the best attempt at supplying the best technology. If the cost of doing the lighting prohibits it to be done with the currently planned phases of construction, it could be done with an additional phase. It would be worth the wait to put the conduit in place and install the wire, poles and lights later.

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(2)

This is not just a park for all those upcountry that play tennis and the private gate ball club; it belongs to the entire Maui community for enjoyment. The Southern mauka portion of this park, is undedicated for use on the current master plan, and is noted in the DEA map as 'dense vegetation'. This area is roughly 1/2 ~ 3/4 of an acre, a very desirable location for a community passive use park. It could have possibly a small pavilion, picnic tables, cooking grills, horseshoes, or just a place to sit and watch the sunset. Just off the newly paved 20' wide farm road, this community-landscaped hillside would be an amenity for the rest of the community to enjoy. It will also add an open space buffer between the ball courts and the neighboring properties. We believe this area should be dedicated on the parks master plan and noted in the Final EA as 'landscaped passive park use.' We would like to see this portion of the site cleared and rough graded during the first phase. This would allow an early landscape plan to be put in place for this open area. Some commitment from the community has already been voiced for the planting and upkeep of such an area. We are sure this will have sound support throughout Kula, and hope you agree that for this park to be complete, it needs a common open area for everyone to enjoy.

The Kula Community Association thanks you for including us in this beneficial project for all of Maui County. We look forward to working with your office, the Mayor, and the Council, on the final design and funding.

**Minor Corrections to be made in the Draft EA**

1. Page 7, 4.2.3.

The Kula fire station (not Kihei) is located 1/2 mile south of the project.  
The closest Police substation is in Makawao at Eddy Tam Park.  
Kula is served by a medical clinic at the Kula Hospital. (not Sanitorium).

2. Page 8, 5.1

The Kula Community Association has requested a six-court complex; otherwise, the Kula tennis community would have to travel to other districts to play.

Mahalo nui loa,

Karolyn Mossman  
President, Kula Community Association  
878-2982

Steve Sutrov  
Parks Committee Chairman  
878-2739

cc. C. Takumi Engineering, Inc.  
Councilmember Jo Anne Johnson  
Councilmember Charmaine Tavares  
O.E.Q.C.

**C. TAKUMI ENGINEERING, INC.**

**18 Central Avenue  
Wailuku, Hawaii 96793  
Ph. (808) 249-0411  
Fax: (808) 249-0311**

**DATE:** January 27, 2003

**TO:** Attn.: Steve Sutrov  
Kula Community Association  
P.O. Box 417  
Kula, Hawaii 96790

**JOB NO.:** CPK-009

**SUBJECT:** Kula Tennis Complex, Environmental Assessment  
Kula, Maui, Hawaii  
TMK: (2) 2-3-037:026

---

Dear Sir:

Thank you for comments on the Draft Environmental Assessment for the above referenced project. The following are our comments and responses to your office's comments.

1. Per your recommendation, the final design of the park lighting will be of the full cutoff fixture type lightings or equivalent. All possible actions are being taken to ensure that the lighting is the least disruptive of the adjacent community and ambient environment.
2. The parks department has agreed to designate the area in the southern mauka portion of the park as 'landscaped passive park use.'
3. Corrections to the local fire station and hospital locations will be included in the final EA.

If you have any questions, please do not hesitate to call me at (808) 249-0411.  
Very truly yours,



Fiona K. van Ammers  
C. Takumi Engineering, Inc.

**APPENDIX C: ARCHAEOLOGICAL INVENTORY SURVEY**

**ARCHAEOLOGICAL INVENTORY SURVEY  
OF 0.70 ACRES IN KEALAHOU AHUPUA'A,  
KULA DISTRICT,  
ISLAND OF MAUI, HAWAII  
[TMK;2-3-37, and a portion of 26]**

Prepared by:  
**Lauren Morawski, B.A.**  
and  
**Michael F. Dega, Ph.D.**  
June 2003

Prepared for  
Mr. Carl Takumi  
C. Takumi Engineering, Inc.  
18 Central Ave.  
Wailuku, HI 96793

**SCIENTIFIC CONSULTANT SERVICES Inc.**



711 Kapiolani Blvd. Suite 975 Honolulu, Hawaii 96813



### ABSTRACT

At the request of C. Takumi Engineering, Inc., Scientific Consultant Services (SCS), Inc. conducted an Archaeological Inventory Survey of approximately 0.70 acres of land (about 30,448 square feet) located in the *ahupua'a* of Kealahou, Kula District, Maui Island, Hawai'i [TMK: 2-3-37 and a portion of 26]. The goal of this Archaeological Inventory Survey was to determine the presence or absence of archaeological sites on the parcel. This survey precedes the construction of tennis courts, a parking area, and an addition to the Kula Community Center.

Systematic pedestrian survey revealed the presence of two archaeological features. Feature 1, was a historic period ranching wall and/or boundary wall and Feature 2, was a terrace. Feature 2 is a probable agricultural feature associated with traditional-period occupation of the area. One shovel probe was excavated within the earthen portion of the terrace, but no cultural materials were observed or collected. The date of the features construction and use remains undetermined. The features have been assigned as State Site No. 50-50-10-5451. The features were originally significant under Criteria D, this site is no longer considered significant.

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## INTRODUCTION

At the request of C. Takumi Engineering Inc., Scientific Consultant Services (SCS), Inc. conducted Archaeological Inventory Survey of approximately 0.70 acres (30,448 square feet) of land located in the *Ahupua'a* of Kealahou, Kula District, Maui Island, Hawai'i [TMK:2-3-37 and a portion of 26] (Figures 1 and 2). John Zachman, B.A., and John Reisdorf, B.A. conducted fieldwork on May 12, 2003 under the overall direction of the Principle Investigator, Michael Dega, Ph.D.

The goal of this project was to determine the presence or absence of archaeological sites within the project area (see Figure 2) through systematic surface survey and to determine the nature of these sites through limited hand testing. Research was directed towards understanding the nature and temporal placement of any identified sites and their component features. This investigation precedes the construction of an addition and related improvements for the Kula Community Center (Figure 3).

## ENVIRONMENTAL SETTING

The project area is located in the town of Kula, directly adjacent to the Kula Highway (to the east) within the Kealahou subdivision. The property is bounded to the north by a private landowner, to the east and south by undeveloped land, and to the west by Kula Highway.

## GEOLOGY AND GENERAL PROJECT AREA SOILS

Kula is located in leeward east Maui on the southwestern slopes of Haleakala. The district of Kula lies in the convergence zone of the Kula volcanic series and the Hana volcanic series. Soils in the project area have been classified under the Puu Pa Kala Pane association and also include Kula cobbly loam (Foote *et al.* 1972:118). This type of soil is typical of upcountry Maui. And consists of well-drained soils on uplands of East Maui. These soils developed in volcanic ash overlying fragmental *a'a* lava. They are deep, gently sloping to steep, well-drained soils that have a medium-textured or moderately fine-textured subsoil or underlying material.

The project area is located between Keahuaiwi Gulch to the north and Waiakoa Gulch to the south at approximately 2,900 amsl. Topography is variable along the southwestern flanks of the volcano, variable meaning undulating with small drainages and swales interspersed by plateaus, lava outcrops, and lava finger formations. Annual rainfall in Kula averages between 30

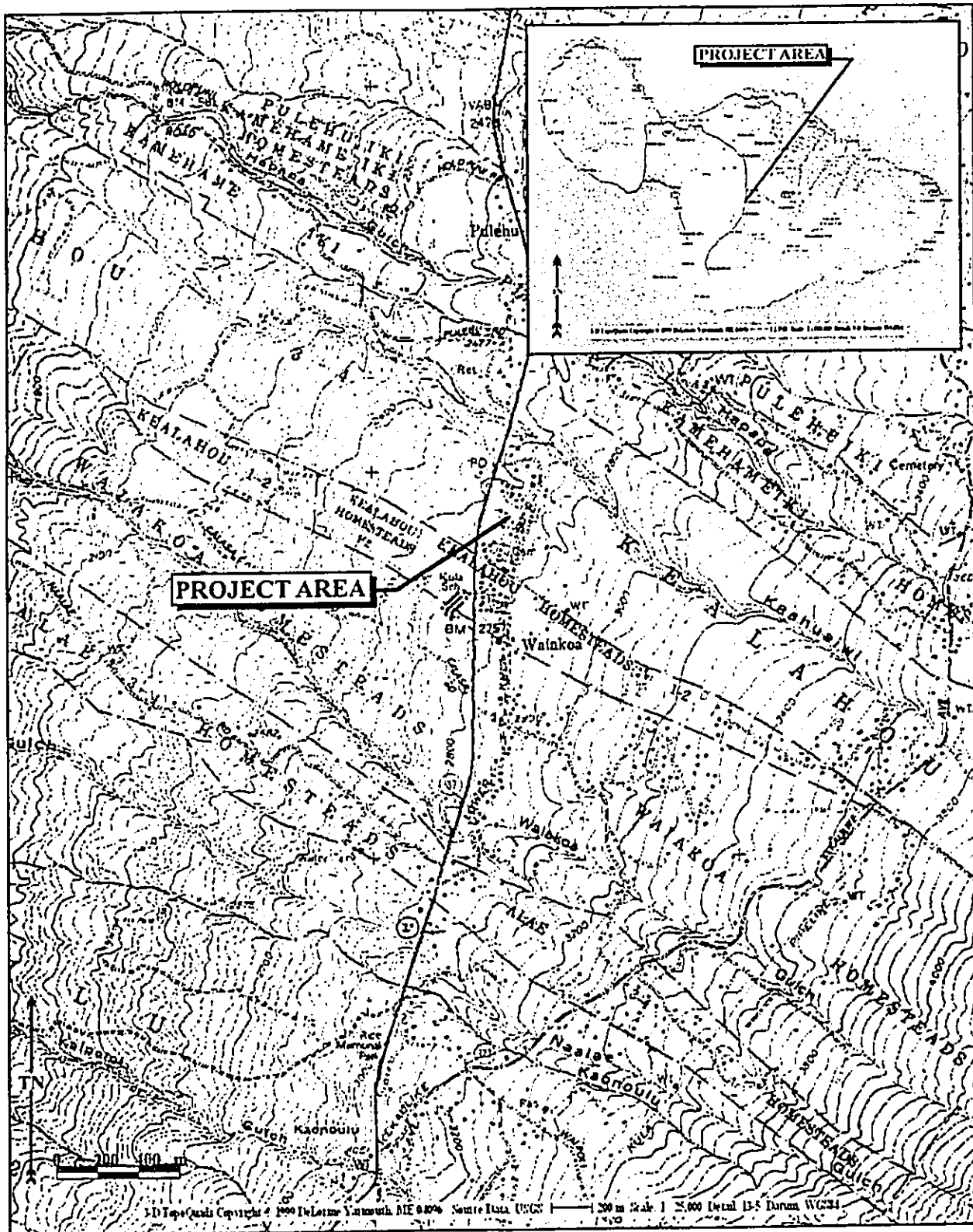


Figure 1: USGS Quadrangle Map of General Project Area.

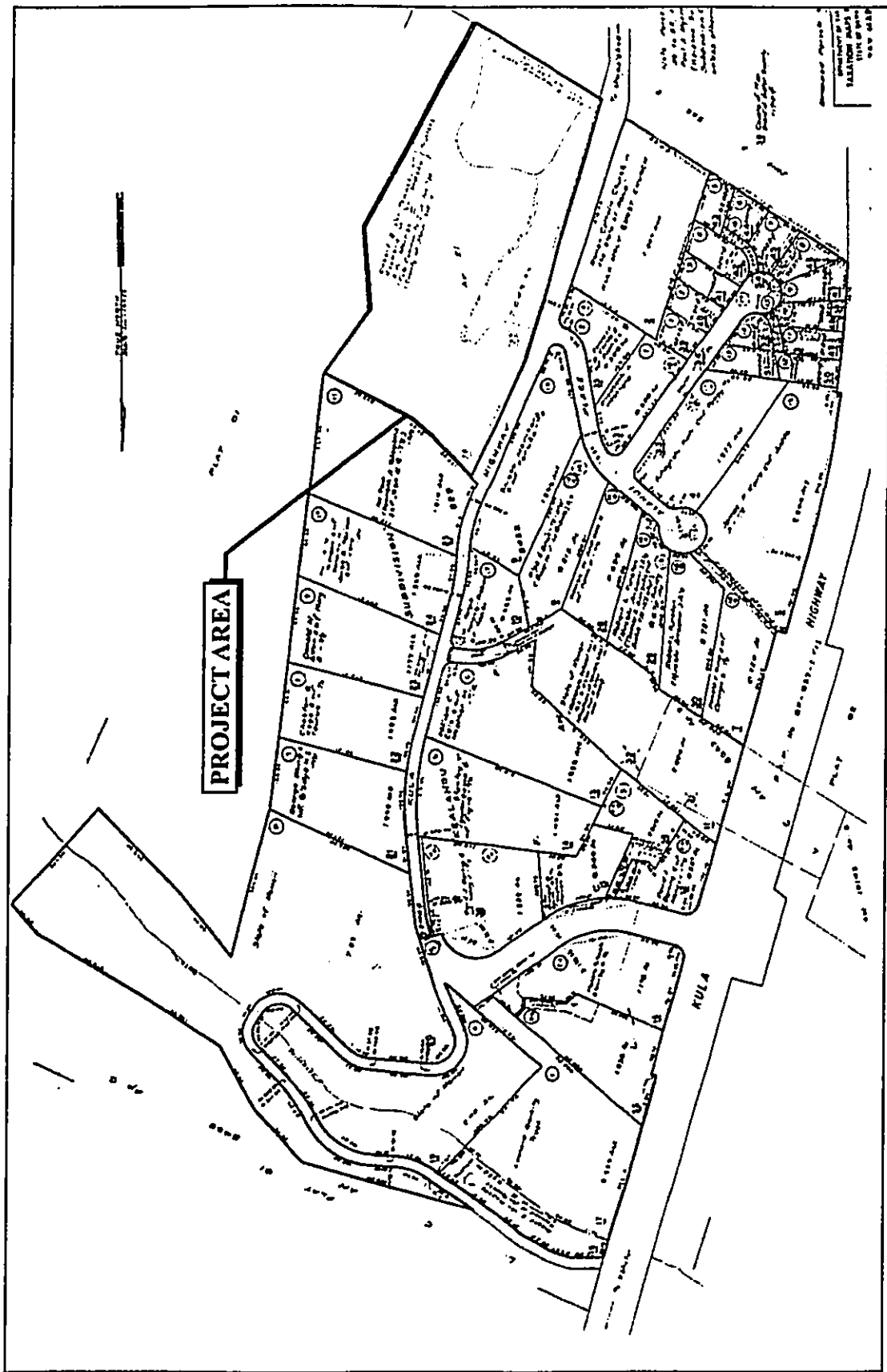


Figure 2: Tax Map Key [TMK] Showing Subject Parcel.

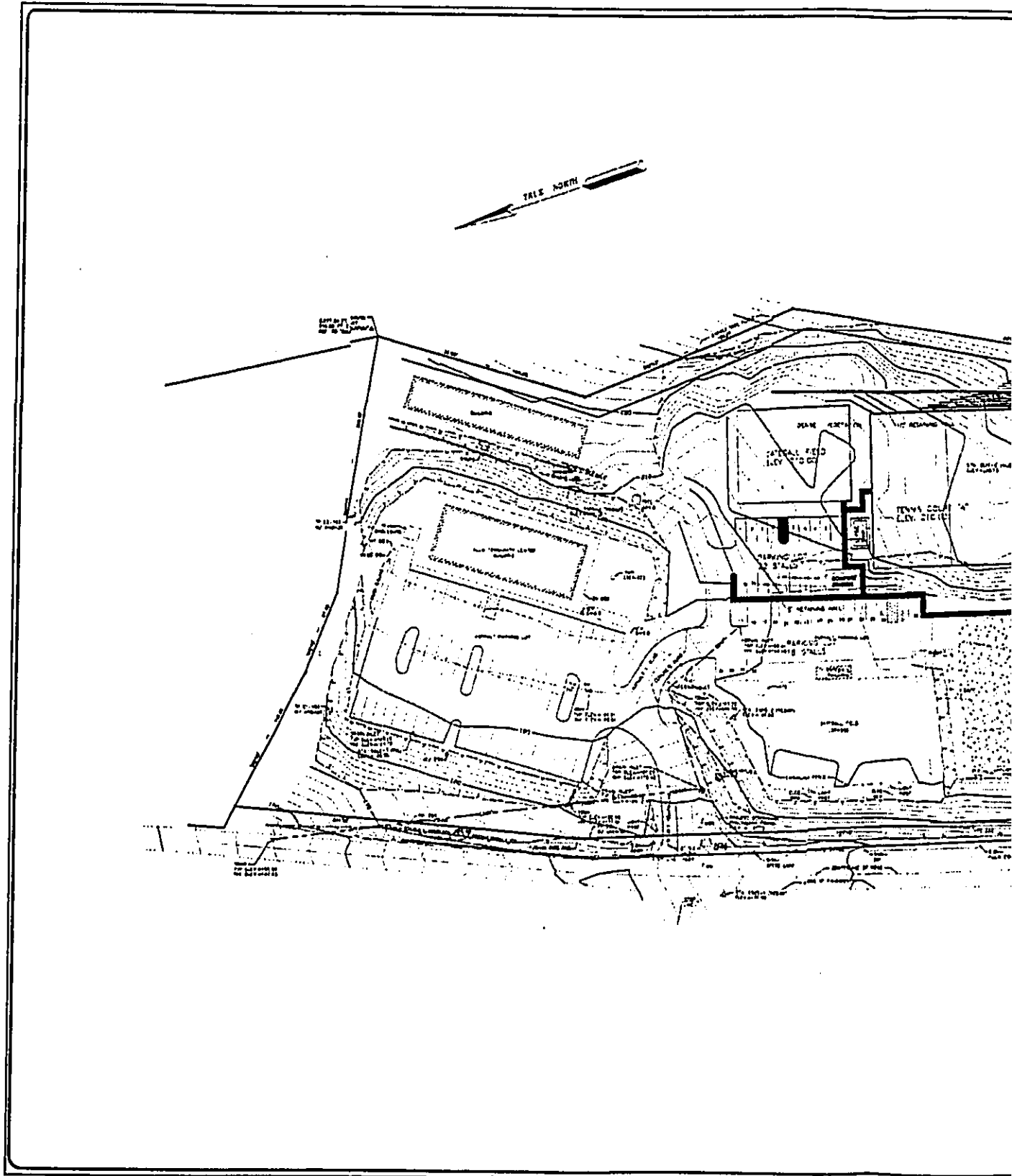
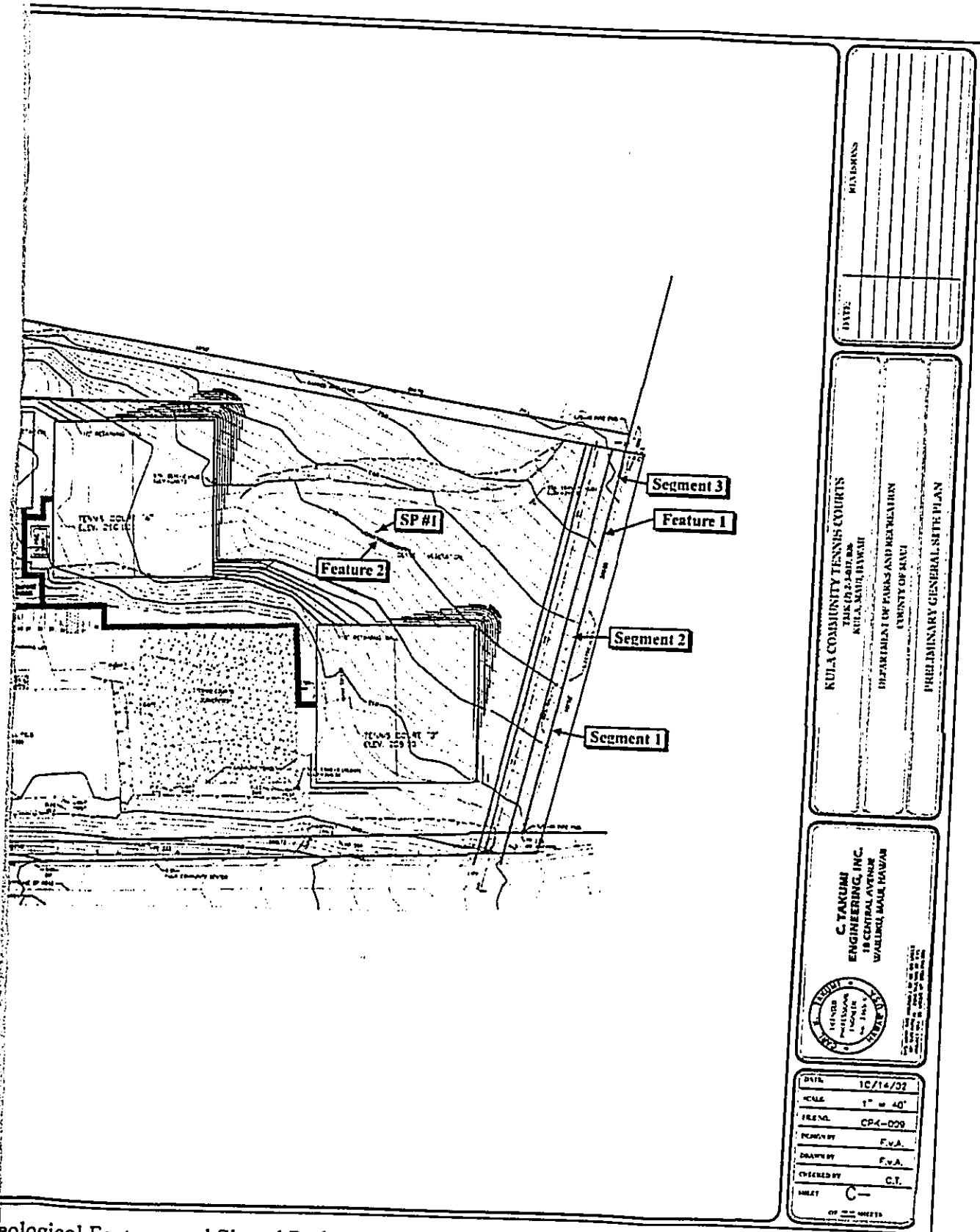


Figure 3: Construction Plan View Showing Proposed Location of Construction and Archaeological Features



DATE	
PLANNERS	

KULA COMMUNITY TENNIS COURTS  
 2100 103-3401 RD  
 KULA, MAUI, HAWAII  
 DEPARTMENT OF PARKS AND RECREATION  
 COUNTY OF MAUI  
 PRELIMINARY GENERAL SITE PLAN

C. TAKUMI  
 ENGINEERING, INC.  
 18 CENTRAL AVENUE  
 WAILUKU, MAUI, HAWAII

DATE	10/14/92
SCALE	1" = 40'
FILE NO.	CP4-000
DRAWN BY	F.V.A.
CHECKED BY	C.T.
SHEET	C-1

Archaeological Features and Shovel Probe.



## DOCUMENT CAPTURED AS RECEIVED

and 40 inches per year (Price 1983:62). The project area is situated on a fairly moderate to steep slope at the northern boundary.

Extensive land disturbances in the project area and adjacent environs have occurred over the past thirty to forty years. Deforestation and agricultural activities have altered erosion patterns. Changing erosion patterns have led to abundant soil deposition on slopes, which may subsume archaeological features. Construction of the Kula community center and its associated recreational facilities has altered the original surface and subsurface integrity of the landscape. Bulldozing and grading activities have occurred throughout various portions the parcel relating to the construction of the community center and its associated infrastructure. A two-track road runs through the property to access adjacent lots (Figure 4).



Figure 4: Photograph of the Two-Track Road that Runs Through the Property.

## VEGETATION

Undisturbed portions of the project area are overgrown with various types of introduced trees, shrubs, and grasses. The thick vegetation hampered surface visibility. The immediate project area contains species of ironwood, *Koa haole* (*Leucaena leucocephala*), *kiawe* (*Prosopis pallida*), *panini* (*Opuntia ficus-indica*), and lantana (*lantana sellowiana*). Various kinds of introduced grasses including blue rats tail (*Stachytarphete urticifolia*), balsum pear (*Momordica charantia*), and several other unidentified grass species exist throughout the parcel. Additionally several creeping vines are prominent throughout the landscape, these include morning glory (*Ipomoea purpurea*), and castor bean plant (*Ricinus communis*).

## TRADITIONAL AND HISTORICAL SETTING

### PRE-CONTACT

*Kula*, meaning open country or plain, is used to describe arid regions wherein dryland cultivation is common. The district of Kula is renown for dryland agriculture and in later times, pig husbandry. Dryland field systems were characterized by extensive stone and earthen embankments, a reliance on rainfall, and regular rotations of crops (Kolb *et al.* 1997:6). Maui had more acreage under dryland cultivation than in pond fields, which is similar to the patterns seen on Hawai'i Island. Maui and Hawai'i are both geologically young and have not developed annual or perennial streams needed for pond fields. This has led the inhabitants of these islands to rely on other cultivation techniques, such as dryland agriculture.

Another important resource of the Kula district in pre-Contact times was its upland dry forest. The upland forest was an important resource to early Hawaiians as it provided a source of wood for canoes, houses, and fires. Additionally, upland forests provided endemic and indigenous shrubs and plants for use in medicines and provided a habitat for many species of native birds that were hunted for food and feathers.

Pig husbandry was a productive industry in Kula. Pigs served an important role in the economic system in Hawai'i. According to Kolb *et al.* (1997), pigs were used not only as a reliable source of protein, but additionally, they were collected as taxes by chiefs and used as ritual sacrifices in elaborate ceremonies to solidify social relationships between commoners and those that governed them. Raising large amounts of pigs necessitated the abundance of stable crops, such as sweet potato and taro, for feed. Kula's dry environs were ideal to provide these resources. Leeward communities, such as Kula, provided large quantities of pigs to the explorers, including La Perouse in 1786. He documented a trade of three hundred pigs to replenish his food supplies in the ships log (Kolb *et al.* 1997:26).

This increase in agricultural production and its association with an increase in pig husbandry may be correlated to the period of unification and the desire to produce durable goods for not only increased populations, but also for an increased amount of sacrificial goods. According to Kolb *et al.* (1997), labor investments in temple construction declined after the period of unification. However, the amount of sacrificial offerings increased. Kula's dry climate and its lack of perennial streams made it perfect for the growing of 'uala (sweet potatoes) and dryland varieties of *kalo* (taro).

In early traditional times, cultivating 'uala was a critical component of the upcountry field system. Kamakau (1961) relates the legend of Kiha-a-Pi'ilani and sweet potatoes in the Kula district. There was a great famine in Kula and Makawao and the *maka'ainana* were reduced to subsistence famine foods such as *lauhale*, *pualele*, and *popolo*. Kiha-a-pi'ilani, cleared a potato patch in one night that would normally require the labor of eighty men. The people were skeptical and wondered where he would find enough potato slips to plant the patch. On that next morning, Kiha-a-pi'ilani went to Hamakuapoko and Hail'imaile to gather slips. He returned with enough slips to plant the patch, thus eliminating the famine in Kula (Kamakau 1961:23).

Other legends associated with Kula's spiritual importance are described in Handy and Handy (1972). They state that Haleakala served as a final resting place for the dead of Kula and Honua'ula. Kula was also home to 'A'apueo, an owl associated with instigating a famous battle between the chiefs of Wailuku and the owls (Uaua cited in Kolb *et al.* 1997:25).

#### POST-CONTACT

The post-Contact period in Kula continued to be associated with agricultural and animal husbandry practices. The cultivation of the Irish potato and the raising of livestock, now primarily cattle, replaced earlier traditional crops. Kuykendall relates the change in crops:

...Before that time the whalers had created a limited market for fresh vegetables, fresh meat, and fruit the great increase in the number of whale ships after 1840 caused a corresponding increase in the demand for such products of the soil. In bulk and value, potatoes (sweet and Irish) ranked first in this traffic. In the early days only sweet potatoes had been obtainable at the islands, but after 1830, if not sooner, cultivation of the Irish potato was taken up and during the 1840's and 1850's became of great importance. It was shortly before 1840 that Irish potatoes were first raised in

the Kula district, which proved to be so well adapted to them that it soon came to be called the 'potato district' [1938 Volume I:313].

The native Hawaiian and the immigrant farmer in Kula had easy access to ports along the south coast of Maui, which facilitated the exchange of goods. The California gold rush also created a level of demand, in which Kula farmers could provide the supply. A large Chinese community was created in response to the labor need to farm potatoes used to feed Californians. In addition to potatoes, Chinese farmers grew corn, beans, cabbage, onions, wheat, and cotton (Kolb *et al.* 1997:62).

Kula continues to this day to be renowned for its agricultural productivity as it continues to respond to changing market demands. Its economic realm has currently expanded to include tropical flowers, such as the *protea*, and a local vineyard as well.

### PREVIOUS ARCHAEOLOGY

The project area itself and the general area surrounding it have not been subject to extensive archaeological research. Thus, not much is known about the area's archaeological patterns. Archaeological studies in the region have concentrated on neighboring *ahupua`a*. Department of Hawaiian Homelands (DHHL) landholdings in Keokea and Waiohuli located to the south and west of the current project area have been subject to previous archaeological testing. For detailed results of these studies see Kolb *et al.* (1997) and Brown *et al.* (1989). Ethnographic information on the project area is extremely limited as well.

Winslow Walker first surveyed the area in 1931 during his island wide inventory. Walker documented within the Kula and Honua`ula Districts an array of site types being distributed in and around community settlements including 59 *heiau*, 3 fishponds (*loko kai or wai*), 11 abandoned villages, and 5 ancient villages which have been replaced by modern communities. According to Kolb *et al.* (1997) the pattern of *heiau* within the Kula district implies that, like the *heiau*, most of the settlement was concentrated in upcountry areas. This is based on the presumption that *heiau* were constructed in and around community settlements. Previous analysis has confirmed that densely populated areas contain large numbers of *heiau* (Kolb *et al.* 1997). Walker documented 26 *heiau* in the Kula region. *Heiau* identified within the upcountry portion of Kula include, Alae Heiau, Waiakoa Heiau, Rice Camp Heiau, Pulehu Heiau, Kohea Heiau, Molohai Heiau, Papakea Heiau, and Kaumiumimua Heiau. Other *heiau* in the area are described in Brown *et al.* (1989) and include, Ho`ola and Ho`oula Ua in Keokea and Kaimupeelua in Waiohuli. Additionally, many petroglyph and rock art sites have been

documented in gulches in and around the area of upcountry Kula. These sites vary in nature and chronology but add to the areas cultural significance in traditional and historic times.

DHHL contacted the Bishop Museum in 1986 to perform a reconnaissance survey of Keokea and Waiohuli. Although the entire area was not thoroughly covered 113 archaeological sites were recorded (Riford cited in Brown *et al.* 1989:2). Inventory Survey, performed by Roderick Brown *et al.* in 1989, revealed the presence of 159 archaeological sites in the Keokea and Waiohuli subdivisions. Of these 159 sites, 61 were complexes. The archaeological feature types included: walls, enclosures, terraces, mounds, overhangs, uprights, lithic scatter, alignments, caves, platforms, bridges, and burials. Functional interpretations for these sites include: agriculture, habitation, religious ceremonies, animal control (cattle), burial, transportation, storage, and lithic reduction (Brown *et al.* 1989:11). Radiocarbon dates acquired and submitted during this project yielded a date range from A.D. 680-1890 (Brown *et al.* 1989:8).

DHHL contracted the Department of Land and Natural Resources (DLNR) State Historic Preservation Division (SHPD) to conduct archaeological research in Waiohuli and Keokea in 1992. During this survey, they recorded a total of 1,093 archaeological features, which were clustered into 213 sites within the project area. Additionally six previously recorded sites were included within the study creating a total of 219 sites within the project area. More than half of all identified features were determined to be agricultural in nature. Agricultural site types such as terraces, garden enclosures, mounds, modified outcrops, walls, enclosures, alignments, and features associated with animal husbandry practices are included. Radiocarbon dates submitted from a selection of the features range from A.D. 1399-1955 (Kolb *et al.* 1997:98). One hundred and twenty-one permanent habitation sites were identified within the project area, including enclosures, walled terraces, terraces, and platforms usually rectangular in shape (Kolb *et al.* 1997:104). Ninety-eight temporary habitation sites were recorded. Six *heiau* were identified within the confines of the project area. For a complete and detailed analysis of these sites, see Kolb *et al.* 1997.

### SETTLEMENT PATTERNS

The settlement patterns of the general project area cannot be explicitly determined without extensive archaeological research. Research has only been conducted in small pieces in and around the area and conclusive settlement patterns have yet to be developed. Inferences to settlement patterns can be drawn from neighboring areas, such as Waiohuli and Keokea where extensive research is still ongoing. However, research even in these areas is still quite under

represented given that vast tracts of land within the districts have yet to be studied. According to Kolb *et al.* (1997), the archaeological record indicates a considerable permanent habitation in the uplands with associated burials, large *heiau*, and extensive agricultural fields. All four models of settlement could be employed within the district, the two exclusive (coastal or upland), the bi-model, and transhumant. However, all of these models could be further substantiated with more conclusive research.

### PROJECT AREA EXPECTATIONS

Based on the limited archival research and previous archaeology conducted in outlying areas, generally Waiohuli and Keokea Ahupua`a, it was thought that archaeological features relating to agricultural practices and habitation could possibly be present within the confines of the project area.

Possible archaeological features to be encountered could include stone and earth embankments, terraces, mounds, modified outcrops, garden enclosures, animal enclosures, boundary walls, platforms, surface artifact and/or midden scatters, and possibly human burials. These patterns have been preliminarily confirmed by research conducted in Keokea and Waiohuli.

However, the project area is located on an extensively altered land parcel. Construction of the original Kula community center occurred 30–40 years ago prior to an archaeological assessment of the parcel. The area has been graded and the original integrity of the parcel has been altered.

### METHODOLOGY

Methods utilized during the current Inventory Survey, including those related to fieldwork and archival research, will be presented here.

The survey phase of fieldwork consisted of two people systematically surveying the entire parcel (100% of 0.70 acres) with the objective of searching for surface features and/or artifact scatters. The undeveloped sections of the project area are located in a densely vegetated area (see Figure 3). Due to the thick vegetation, surveyors conducted cardinal direction transects spaced 5 meters apart.

One .5 by .5 m test unit was excavated using arbitrary .1 m levels and all excavated materials were screened using 1/8-inch mesh screen. Stratigraphic profiles of the excavated walls were generated on standard graph paper. All archaeological features were plotted on the general contractor's plan view map. Photographs of the general project area, archaeological features, testing locations, and all excavated proveniences were taken using a 35 mm film and will be catalogued at the SCS office in Honolulu. No cultural materials were recovered, thus no artifact related laboratory methods were employed.

Archival research entailed investigating the historic and archaeological background of the general area. This included a documentary search of known archaeological sites in this region of Maui as well as a review of previous archaeological projects in this specific area. In addition, a review of historic documents was conducted in order to understand the impact of post-Contact events on the cultural and archaeological landscape of the region.

Laboratory work was conducted in the Honolulu office of SCS and included the drafting of site plan view maps and shovel probe profiles. No samples were available for specialized analysis (*i.e.*, radiocarbon dating). All documentary materials are currently being curated at the SCS office in Honolulu.

### FIELDWORK RESULTS

Two archaeological features were located during the survey portion of the fieldwork. One shovel probe was conducted within Feature 2 to determine if cultural materials were present.

Feature 1 is presumed to be a historic cattle wall and /or boundary wall (Figure 5). Feature 1 is in good condition. It is constructed of stacked basalt cobbles and boulders set seven to eight courses high, with larger rocks forming the base. The feature measures 98 m (length) by .8 m (width) and is oriented east/west. Interior heights, exterior heights, and wall widths were recorded at three locations labeled Segments 1, 2, and 3 respectively (see Figure 3). Segment 1 measured 1.2 m on the interior, 1.1 m on the exterior, and had a width of .8 m. Segment 2 measured 1 m on the interior, .9 m on the exterior, and had a width of .75 m. Segment 3 measured 1.4 m on the interior, 1 m on the exterior, and had a width of .8 m. The wall stretches *mauka-makai* from the paved road to within 5 m of the eastern property boundary (see Figure 3). The wall currently forms the southern property boundary. No artifacts were observed in association with the wall. The wall construction does not appear to extend beneath the surface, therefore it is presumed to be historic in nature.

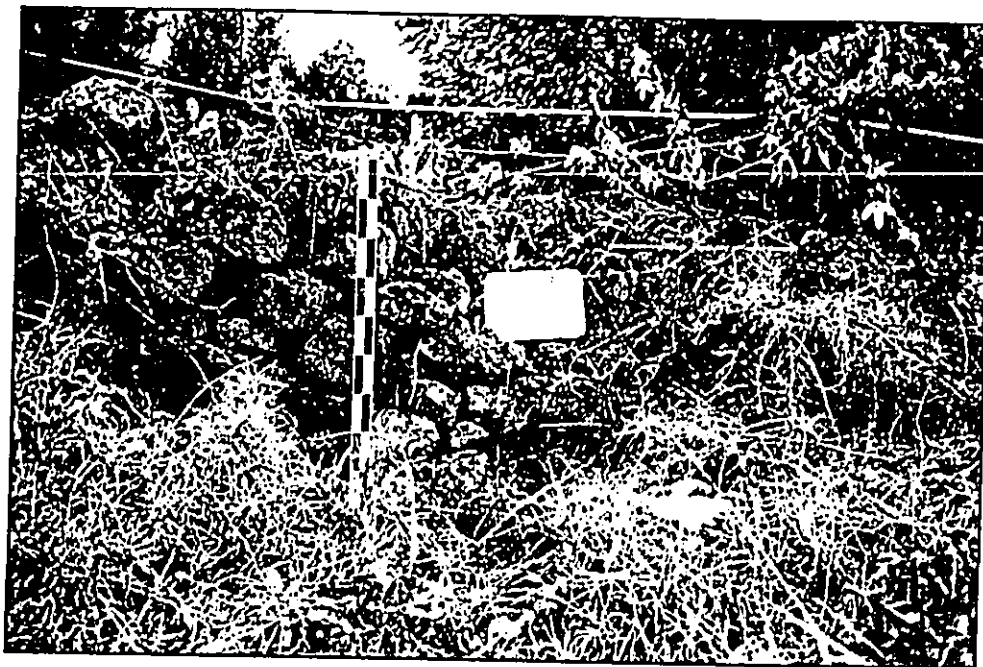


Figure 5: Photograph of Feature 1, Presumably a Historic Cattle Wall.

Feature 2 was a terrace forming a level soil area above (Figure 6). The feature was constructed of subangular *a`a* basalt boulders and cobbles. The construction consisted of four to six courses of stacked rock and was two courses in width (Figure 7). The feature measures 13 m (length) by .8 m (width) and is oriented northeast/southwest. There is a fairly level soil area behind the terrace. No artifacts were observed in association with the terrace. The terrace is disturbed on the southwestern end by a large *Kiawe* tree. The terrace is in fair condition, but appears to have been mechanically altered. There appears to be bulldozer-pushed material above the terrace. The base course of the terrace continues below the modern ground surface. An old lawnmower deck was observed on the topside of the terrace. Due to the subsurface construction the feature was determined to be prehistoric in nature. One shovel probe was excavated to determine the function of the terrace and to recover any cultural materials for specialized analysis.

#### SHOVEL PROBE 1 (SP-1):

SP-1 was excavated within Feature 2. The .5 by .5 m test probe was placed 2 m at 90 degrees from the wall of the terrace (Figure 8). The unit was manually excavated in arbitrary .1 m levels. Three stratigraphic layers, Layers I–III were observed (Figure 9). The unit was excavated to a terminal depth of 1 m below surface. All excavated materials were screened using both 1/4 and 1/8-inch mesh. No cultural materials or charcoal were observed or





Figure 6: Photograph of Feature 2, Presumed to be a Prehistoric Agricultural Terrace.

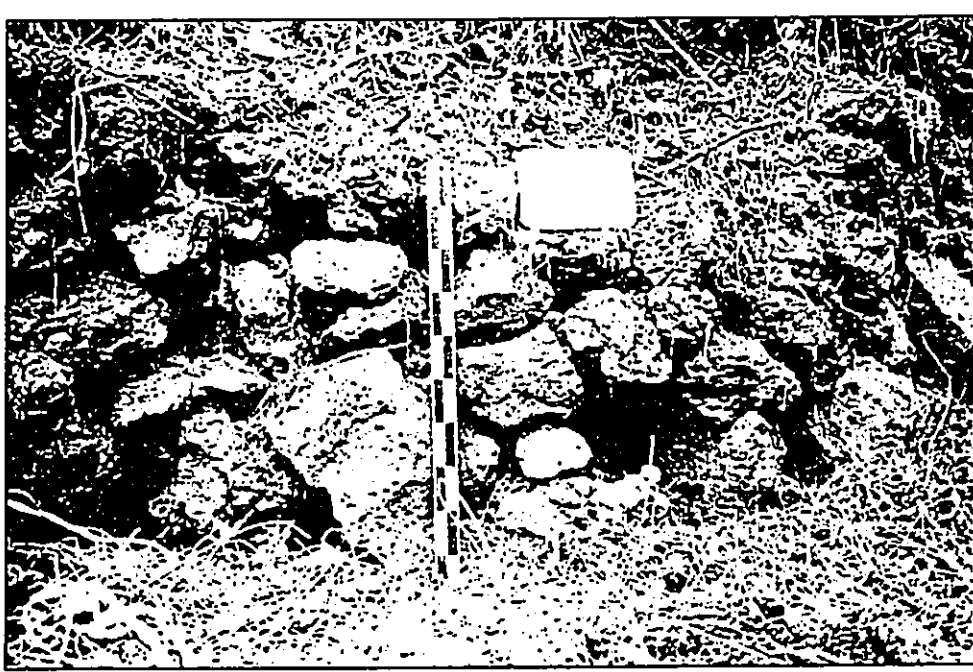


Figure 7: Close-up View of Feature 2's Construction.



Figure 8: Location of SP-1 in Relation to Feature 2, the Prehistoric Terrace.



Figure 9: Post-Excavation View of SP-1, Showing all Three Layers.

collected. The unit was determined to be sterile and terminated 1 m below modern ground surface.

Layer I (Figure 10) measured 0–.12 mbs and consisted of dark, yellowish-brown silt (10YR 3/4). The soil exhibited well-formed blocky peds *in situ* when soil is broken. Layer I contained an abundance of roots and had a 10 percent modern gravel content. The soil was loose and dry.

Layer II (see Figure 10) measured .12–.58 mbs and consisted of a brown silt (10YR 4/3). The soil exhibited well-formed, crumbly peds *in situ* when broken. The gravel content remained at 10 percent and root content decreased with depth. Modern gravel was not observed within this layer. The soil was consolidated and dry.

Layer III (see Figure 10) measured .58–1 mbs and consisted of a dark, yellowish-brown silt (10YR 4/4). The soil does not exhibit peds either *in situ* or when broken. The rock content was high with 30 percent gravel and a minimal amount of roots. The soil was compact and dry.

#### DISCUSSION AND CONCLUSIONS

Archaeological Inventory investigations were performed on approximately .70 acres of land located in Kealahou Ahupua'a, Kula District, Maui Island, Hawai'i [TMK:2-3:37 and a portion of :28]. The goal of the project was to investigate the presence/absence of surface and subterranean archaeological structures, artifacts, or cultural deposits across undisturbed sections of the parcel. Research was geared toward understanding the nature and chronological affiliation of identified sites and their relationship to the settlement patterns and history of land use in the area. This work preceded the construction of more tennis courts, a parking area, and an addition to the community center on the subject land parcel.

The project area is located within an extensively altered land parcel, parts of the parcel were developed 30–40 years ago for use as a community center and recreation area. Tennis courts and an existing community center were constructed prior to any archaeological assessment of the subject parcel. The area has undergone grading related to this construction. This grading has altered the area's original integrity. However, in undisturbed sections of the parcel two archaeological features were identified and recorded. Feature 1 is a historic period cattle/boundary wall. Feature 2 is a probable agricultural feature associated with traditional period occupation of the area. As no datable materials were recovered the time-period of this features construction and use remains undetermined.

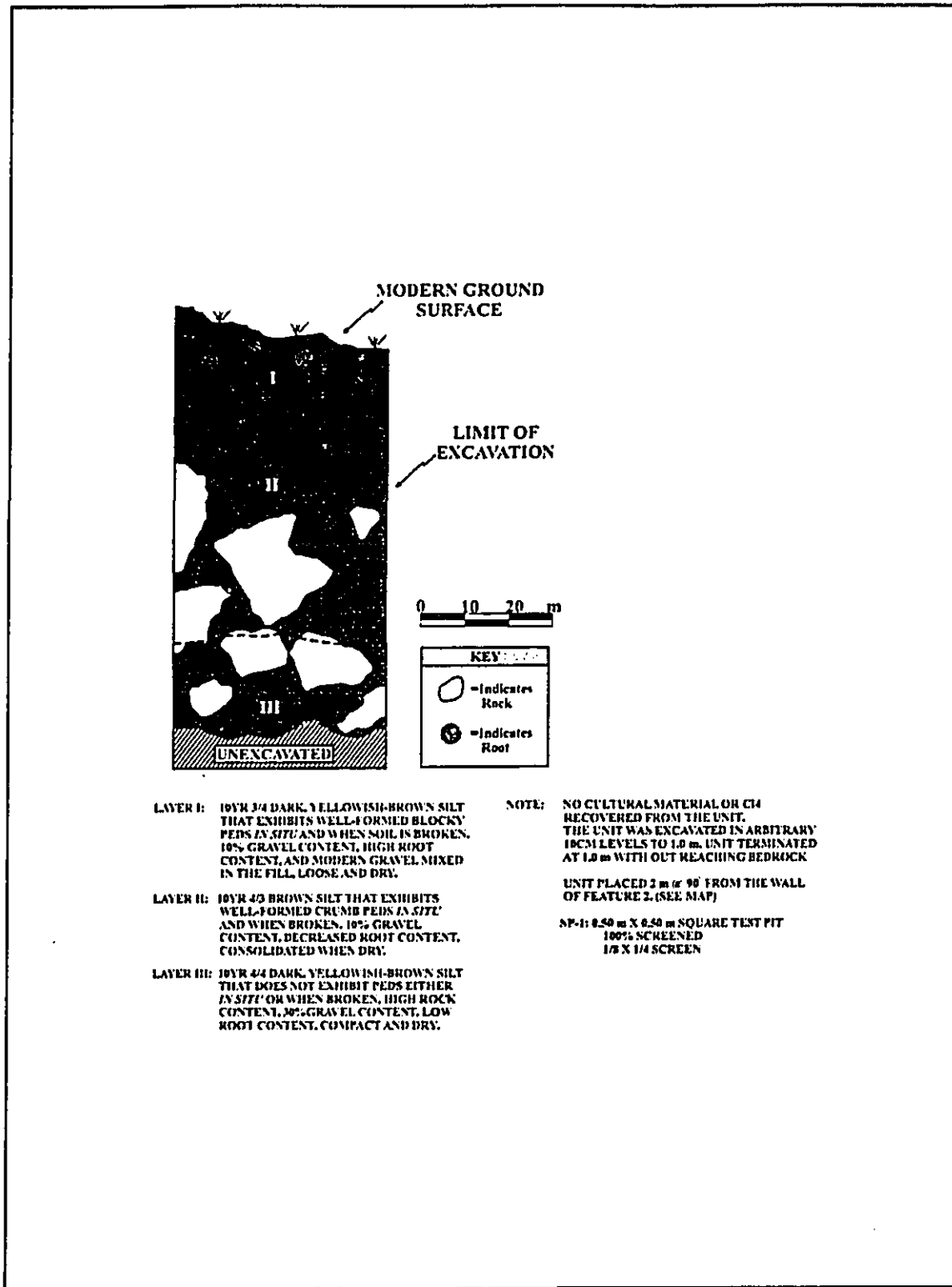


Figure 10: Stratigraphic Profile of SP-1, Showing all Three Layers.

### SIGNIFICANCE ASSESSMENTS

State Site No. 50-50-10-5451 is significant under Criteria D, meaning that the site has yielded, or is likely to yield, information important for research on prehistory or history. The fieldwork has been completed and the site is no longer considered significant.

### RECOMMENDATIONS

This parcel has been extensively altered by prior development activities. Based on the findings of the present investigations, it appears probable that additional archaeological research would not significantly contribute to interpretations of the area, region, Hawaiian traditional cultural practices and lifeways, and/or the history of the area in general. However, due to the overall lack of archaeological research in the general area the possibility exists that archaeological features of a subterranean nature may exist in undisturbed portions of the project area. The erosion patterns in the area may have subsumed archaeological features as no surface characteristics remain to indicate their presence. Human burials have been found in all areas relating to occupation and may exist in subterranean contexts.

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