

DEPARTMENT OF  
**PARKS AND RECREATION**  
COUNTY OF MAUI

1580-C Kaahumanu Avenue, Wailuku, Hawaii 96793

LINDA CROCKETT LINGLE

Mayor

CHARMAINE TAVARES

Director

MICHAEL A. DAVIS

Deputy Director

(808) 243-7230

FAX (808) 243-7394

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OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

March 15, 1995

Mr. Gary Gill, Director  
Office of Environmental Quality Control  
220 S. King Street, Suite 400  
Honolulu, HI 96813

Dear Mr. Gill:

**SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT (EA) FOR KEIKI ZOO  
MAUI TMK: (2) 3-8-07:1, KAHULUI, MAUI, HAWAII**

The County of Maui, Department of Parks and Recreation has reviewed the final environmental assessment and recommends filing for the subject project. We have made a negative declaration determination. Please publish notice of the availability of this project in the next OEQC Bulletin.

Please contact me at (808) 243-7626, if you have any questions or comments. Thank you for your consideration of this request.

Sincerely,

Charmaine Tavares, Director  
Department of Parks and Recreation  
County of Maui

1995-03-23-MA-FA- Maui Keiki Zoo

Final  
Environmental Assessment

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Keiki Zoo Maui

March 1995

Prepared by:

Maui Zoological Society  
P.O. Box 1769  
Wailuku, Maui, Hawaii 96793

Keiki Zoo Maui Final Environmental Assessment  
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## Keiki Zoo Maui Final Environmental Assessment

### I. PROJECT OVERVIEW

#### A. PROJECT LOCATION, EXISTING USE, AND LAND OWNERSHIP

The proposed project falls within T.M.K.(2) 3-8-07; por. 1. It is located on Kanaloa Avenue in Central Maui within the Maui Central Park District between the Maui Zoological and Botanical Gardens and the Maui Family YMCA. (See Figure 1). The proposed site, which is approximately 4.0 acres in size, is owned by the County of Maui. The parcel is presently vacant. It has been used in recent years as a dump site for irrigation and fencing materials. Portions of the site have been filled with concrete, rubble and topsoil.

#### B. PROJECT NEED

The establishment of Keiki Zoo Maui will expand and improve the zoo-going and recreational opportunities for Maui residents. Animals in safe, comfortable and healthy homes serve as ambassadors to remind us that we are responsible for all living creatures, and thereby develop our sensitivity and caring for one another.

A large portion of Maui's youth live in rental housing without the opportunity to enjoy the beneficial effects or the well being derived from interacting directly with animals. There are over 6000 registered school children under the age of twelve in the Kahului-Wailuku region. Keiki Zoo Maui will offer these children an after-school "safe-place," with opportunities for learning and recreation.

Keiki Zoo Maui will serve Maui's elderly as well, many of whom also have very limited opportunities to interact with animals. Animals can restore one's sense of humor; this is particularly important for Maui's isolated elderly. Animals can help put people back in touch with some of the happy and healthy sides of their lives.

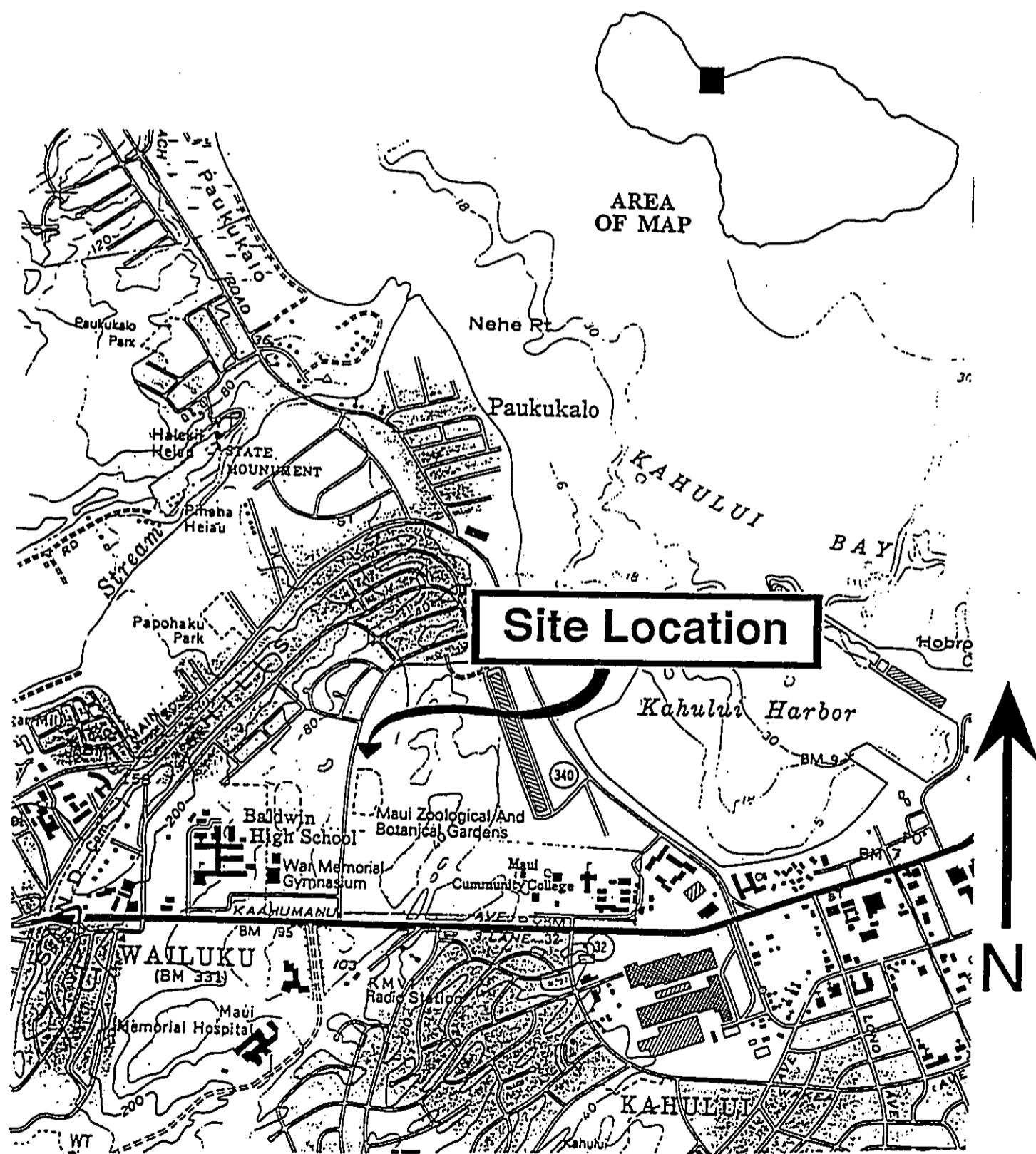
The project will also offer a family-oriented destination for the more than two million visitors who travel to Maui each year.

#### C. PROPOSED ACTION

The proposed action will serve as a functional extension of the existing adjacent zoo, Maui Zoological and Botanical Gardens, inasmuch as the proposed Keiki Zoo Maui is also a zoo. The project site will be cleared of refuse and scrub, but large existing female kiawe trees will be maintained. Forage will be established for animal grazing according to a pasture management plan being developed by the U.S. Department of Agriculture's Soil Conservation Service.

DOCUMENT CAPTURED AS RECEIVED

# Figure 1 Keiki Zoo Maui Location Map



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Over 70 percent of the project area is committed to remain in open space. Grading will be limited to building sites and service roads. In addition to developed pasture land for grazing, proposed improvements consist of landscaped picnic areas, a petting barn, rest rooms, feed shed, office/gift shop, animal hospital, staff/maintenance hall and employee parking. (See Figure 2). Energy-conscious building design will be employed. The structures will be naturally ventilated and will utilize solar fans and solar water heating.

Petting animals will be located within several paddocks. Before entering a paddock, children are given instructions on how to safely interact with the animals. Children will enter the paddocks attended by the parent or guardian who accompanied them to the zoo as well as a volunteer docent. To protect the animals from stress, petting time will be alternated with down time during which no children will be allowed in the paddock.

Keiki Zoo will be owned by the County of Maui, and operated by Maui Zoological Society, a public, non-profit organization. While Keiki Zoo Maui has been awarded a one-time seed money grant from the County of Maui, it will rely upon gate fees, donations, contributions, memberships, concessions and grant money to meet its construction and operating budget. Keiki Zoo Maui will offer scholarships and work-study opportunities in exchange for membership privileges.

## I. DESCRIPTION OF THE EXISTING ENVIRONMENT

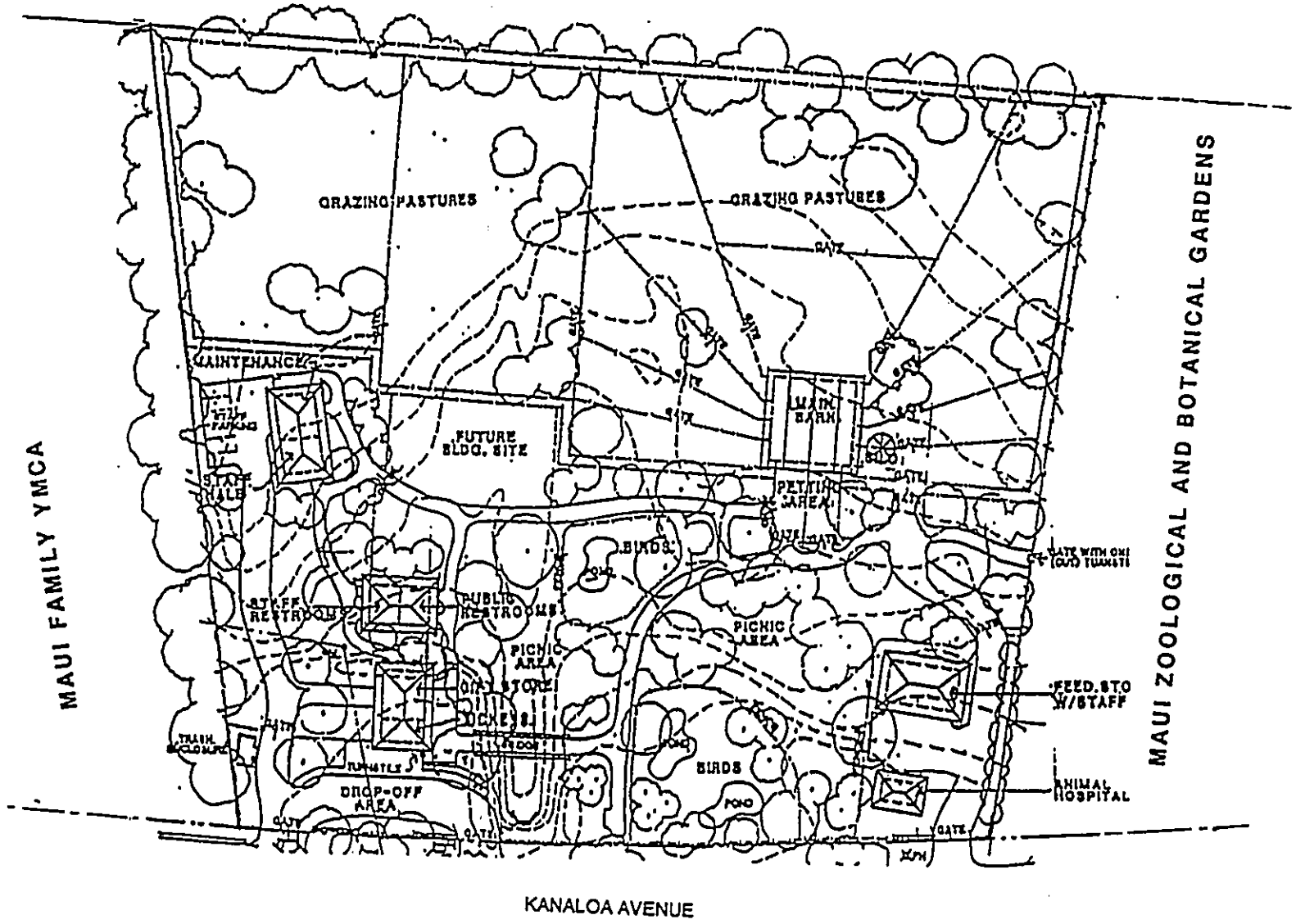
### A. PHYSICAL SETTING

#### 1. Surrounding Land Use

The project site is located within the Central Maui Park District. As such, surrounding land use is limited to park-related/recreational uses. The proposed site is located between the Maui Family YMCA to the north and the Maui Zoological and Botanical Gardens to the south. The War Memorial complex and single family residences are located directly across Kanaloa Avenue, which fronts the proposed site. The War Memorial Complex consists of baseball and soccer fields, the War Memorial Stadium and parking, and the War Memorial Gymnasium and pool. Several county offices are also located at this complex. Vacant land is located to the east of the site. This area is slated for continued development of the Central Maui Park District. Specific park uses of this area will be determined by the Maui Central Park Citizens Advisory Committee.

# Figure 2 Keiki Zoo Maui Site Plan

MAUI CENTRAL PARK  
FUTURE EXPANSION





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### 2. Climate

The climate in the Wailuku-Kahului region is influenced by the persistent north-north easterly trade winds. Average temperatures at the project site (based on temperatures recorded at Kahului Airport) range from lows in the F60s to highs in the F80s. Rainfall at the project site averages approximately 20 inches per year.

### 3. Topography and Soil Characteristics

The project site is located on Maui's flat central isthmus ranging in elevations from approximately +40 feet to +64 feet MSL. The site slopes away from Kanaloa Avenue. There is a gulch perpendicular to Kanaloa Avenue running through the site.

The site is located on soils belonging to the Pulehu-Ewa-Jaucas association. These soils are well-drained and excessively drained, and have a moderately fine textured to coarse-textured subsoil or underlying material. The soil type specific to the project site is classified as Puuone sand of the Puuone Series (PZUE). Puuone series soils developed in material derived from coral and seashells. Puuone sand is found on sandhills near the ocean. In a representative profile cemented sand underlies greyish-brown, calcareous sand.

### 4. Flood Hazard

The project site falls within lands designated Zone "C" by the Flood Insurance Rate Map. Zone "C" is an area of minimal flooding.

### 5. Flora and Fauna

The project site falls within the Kiawe and lowland shrubs vegetation zone. Characteristic plants of this zone are kiawe, koa haole, finger grass and pili grass. The dominant plants in all vegetation zones at lower elevations are species introduced to Hawaii since 1778.

The vegetation in the leveled front portion of the parcel is sparsely populated by hardy weeds. The gully in the back consists of open kiawe forest and dense stands of Guinea grass. There are no rare or endangered native plants on the site.

Fauna and avifauna found in the vicinity of the project site are typically associated with the urban setting of Kahului. These include dogs, cats, rates and mongoose. Fauna at the adjacent Maui Zoological and Botanical Gardens includes several species of exotic birds and animals.

### 6. Archaeological Resources

The site has been previously graded and used as a dump site for refuse and fill material, thus minimizing the potential of encountering significant cultural resources. Archaeological inventory surveys within the vicinity have found no

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significant archaeological resources.

Archaeological surface and subsurface sampling at the nearby Maui Arts and Cultural Center site found no evidence of human burials as well as "a marked absence of stratigraphy beyond the duff level." Field findings at the Maui Arts and Cultural Center site indicate that large scale terracing in order to level this dune took place, and is responsible for the absence of surface features and subsurface indications of buried deposits and/or burials.1\*

No significant archaeological resources were encountered during an intensive surface survey with subsurface testing conducted at the site of the Maui Central Park Parkway and Papa Avenue extension.

A field inspection by the DLNR's Maui staff archaeologist of the adjacent YMCA racquetball building site determined that significant historical sites are not likely to be present because of prior land disturbance.2‡

**7. Air Quality**

Air quality in the vicinity of the proposed site is generally considered to be good. Non-point sources are limited primarily to vehicular traffic along Kanaloa Avenue. There are no point sources in the immediate vicinity of the proposed site. Air quality is considered to be enhanced by persistent northeasterly trades which rapidly disperse concentrations of emissions.

**8. Noise Characteristics**

Surrounding noise levels in the vicinity of the project site are considered relatively low. Background noise levels are attributed to natural (e.g. wind) conditions, animals at the adjacent Maui Zoological and Botanical Gardens, and traffic from Kanaloa Avenue.

**9. Visual Resources**

Iao Valley in the West Maui mountains offers a dramatic visual backdrop to the project site on the west. Haleakala is visible to the southeast.

**B. SOCIO-ECONOMIC ENVIRONMENT**

**1. Population**

The population of the County of Maui has exhibited relatively strong growth over the past decade with the 1990 population estimated to be 100,374, a 41.7% increase over the 1980 population of 70,847. Growth in the County is expected to continue, with resident population projections to the years 2000 and 2010, estimated to be 123,900 and 145,200, respectively (DBED, 1990).

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The Wailuku-Kahului Community Plan region is also anticipated to grow rapidly, with the regions 1990 population of 32,816 expected to rise to 40,119 by the year 2000. (Community Resources, Inc., 1982).

### 2. Economy

Kahului is the Island's center of commerce. Along with neighboring Wailuku, the region offers a wide range of commercial services and governmental activities. The region is also surrounded by agricultural acreage which includes sugar, pineapple, and macadamia nuts.

## C. PUBLIC SERVICES

### 1. Police And Fire Protection

The County of Maui's Police Department is headquartered at its Wailuku Station, located less than 0.5 mile from the project site. The region is served by the Department's Central Maui Patrol.

Fire protection services are provided by the Maui County Department of Fire Control's Wailuku Station located in Wailuku approximately two (2) miles from the project site. The Kahului Fire Station is located approximately three (3) miles from the project site.

### 2. Solid Waste

Only two landfills are currently operating on Maui, the Central Maui Landfill in Puunene, and the Hana landfill. Single family residential solid waste collection is provided by the County and taken to the Central Maui Landfill, which also accepts waste from private refuse collection companies.

Keiki Zoo Maui is working to establish a animal waste management plan with the Recycling Section of the Maui County's Solid Waste Division. Animal wastes will be recycled at the County Co-composting facility.

### 3. Schools

There are over 6000 registered school children under the age of twelve in the Kahului-Wailuku region. The State of Hawaii, Department of Education operates several schools in the Wailuku-Kahului region, serving elementary, intermediate and high school students. Wailuku-Kahului's public schools include Lihikai, Kahului and Wailuku elementary schools, Iao and Maui Waena Intermediate Schools and Baldwin and Maui High Schools. In addition there are several private schools in the region serving preschool through grade twelve. Maui Community College is also in the area.

**4. Recreational Facilities**

A wide range of recreational resources are available within the Wailuku-Kahului region. The region encompasses numerous County residential and beach parks. Recreational facilities in close proximity to the proposed project include the War Memorial Complex, Kahului Community Center and Wailuku Community Center, Maui Zoological and Botanical Gardens, the Maui Family YMCA, and Maui Youth and Family Services' Central Maui Facility.

**D. INFRASTRUCTURE**

**1. Roadways**

The Wailuku-Kahului area is served by a number of arterial, collector and local roads. The major arterial connecting Kahului with Wailuku is Kaahumanu Avenue. Access to Kanaloa Avenue is provided off of Kaahumanu Avenue and Kahului Beach Road. Kahului Beach Road is a state road currently scheduled for expansion from a two to four lane arterial. Kanaloa Avenue is a four-lane collector road between Kaahumanu Avenue and the makai limits of the War Memorial Center area, where it narrows to a wide, two-lane roadway to its intersection with Kahului Beach Road. It intersects with Kaahumanu Avenue and Kahului Beach Road at signalized intersections. The route of the proposed Maui Central Park Parkway is not established at this time. Keiki Zoo Maui access will be provided from Kanaloa Avenue.

**2. Wastewater**

The County's Wailuku-Kahului Wastewater Reclamation Facility, located approximately one half mile south of Kahului Harbor, services the vicinity of the project site. The design capacity of the Wailuku-Kahului Wastewater Reclamation Facility is 7.9 million gallons per day. Service is available to the site via an 12 inch sewer main which runs along Kanaloa Avenue.

**3. Water**

The Wailuku-Kahului region is served by the Board of Water Supply's domestic system. A 12' water line runs along the west side of Kanaloa Avenue.

**4. Drainage**

There is an existing culvert crossing Kanaloa Avenue carrying storm discharge from mauka properties and discharge into the Project site. A natural earth ditch carries the storm discharge north through the site and into a natural drainage sump at the northeast end of the site. During intense storms, the pond overflows to the east and into the remaining undeveloped park area. (Appendix A).

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**5. Electrical**

Maui Electric Company, which services adjacent sites, will provide electrical service to the site.

**III POTENTIAL IMPACTS AND MITIGATION MEASURES**

**A. PHYSICAL ENVIRONMENT**

**1. Surrounding Uses**

The proposed project is consistent with surrounding land use. It is located amidst child-and recreation-oriented facilities; between the Maui Family YMCA and an existing zoo (Maui Zoological and Botanical Gardens). Keiki Zoo Maui will function as an extension of the existing zoo.

The War Memorial Complex, a sports complex located across Kanaloa Avenue from the proposed project, is also recreational in nature. The proposed site is located within the Maui Central Park District, which is intended to provide for the "planning and development of educational, recreational and cultural facilities in a setting of a regional park..." (Maui County Code Ordinance No 19.27) A zoo is considered a permitted principal use by this ordinance.

**2. Topography/Landform**

Impacts to topography and landform are not expected to be significant. Minimal grading will be required to develop the site as planned. Grazing pastures and paddocks will follow the existing contour of the site, and will not require grading. The buildings will be sited so as to minimize grading by honoring the existing topography. Building sites will be limited primarily to areas already filled and graded. As much of the site has been previously graded, the environmental impacts to topography or landform are not expected to be significant.

**3. Flora and Fauna**

Vegetation at the site is limited primarily to kiawe trees and grasses. The proposed project will require removal of some of the existing vegetation from the site. However, there are no apparent significant floral resources located upon the site. The long-term impacts upon flora are expected to be beneficial. Landscaping will include the use of native plant species to the extent practicable.

Impacts to fauna are also anticipated to be minimal because the area is essentially depauperate of fauna, with the exception of fauna typically associated with the urban setting of Kahului. These include dogs, cats, rats and mongoose.

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No species of animal will be at Keiki Zoo Maui without State Department of Agriculture and the U.S. Department of Agriculture clearance. All Keiki Zoo Maui animals will be Board of Agriculture certified animals listed on the U.S. Department of Agriculture/State of Hawaii "Conditionally Approved Status List of Animals" and the "Restricted List: Case by Case Board Approval." Accordingly, Keiki Zoo Maui will strictly comply with all State and Federal requirements for keeping all its animals. Eight foot high perimeter zoo fencing will be constructed in compliance with Federal USDA requirements, thereby minimizing the possibility of animal escape from Keiki Zoo Maui. There are therefore no adverse impacts anticipated to flora and fauna in the vicinity, nor to the neighboring Maui Zoological and Botanical Gardens.

#### 4. Archaeological Resources

As the site has been disturbed by previous grading, filling, and dumping, likely archaeological resources have already been disturbed or destroyed. Thus there is no anticipated effect on such resources. In the event that cultural resources are encountered during the site grading or construction, an adequate mitigation plan will be developed in conjunction with the State Historic Preservation Office.

#### 5. Air Quality

Air quality in the immediate vicinity of the project is anticipated to be effected over the short term by construction activities. Proper emission control devices and dust control measures, such as regular watering, will minimize these potential impacts. On a long term basis, the project will not generate adverse air quality conditions.

#### 6. Noise

Ambient noise conditions will be affected over the short-term by construction activities. Construction equipment, such as bull dozers, front end loaders and materials-carrying trucks, would be dominant source of noise during the construction period. Construction is anticipated to be limited to daylight hours only and will be minimized through proper adherence to Department of Health requirements.

There are no anticipated significant adverse long-term impacts as a result of the proposed action. Animal calls from the facility are not anticipated to constitute significant impacts to the noise environment. The noise generated from Keiki Zoo Maui will represent an incremental difference in noise generated in the area because the site is located adjacent to an existing zoo.

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### 7. Visual Resources

Development of Keiki Zoo Maui will have a beneficial long-term impact on visual resources. The site has been used as a dump site for some years. Discarded fencing and irrigation material, concrete, and rubble have been deposited at the site, creating an unsightly situation and altering its natural topographic contours. The site is currently overgrown by kiawe. Landscaping and restoring some of the natural topography will enhance the vicinity's visual resources.

## B. SOCIO-ECONOMIC ENVIRONMENT

### 1. Population and Local Economy

On a short term basis, the project will support construction and construction-related employment.

On a long term basis, the Keiki Zoo will provide fifteen (15) jobs. Ten (10) full time and five (5) part time jobs will be generated as a result of the proposed project. There will also be volunteer staff support. At this staffing level, the employment related impacts of the project upon public service needs, such as police, medical facilities and schools are not considered significant.

Keiki Zoo Maui will utilize Federal and state programs available to non profit organizations to train or retrain individuals from all people groups for volunteers and paid staff. In addition to Native American/Hawaiian Ancestry groups, these will include senior citizens, mentally and physically challenged, troubled youth, economically disadvantaged as well as able-bodied people. As a community service organization, Keiki Zoo Maui will be an equal opportunity employer. Child care facilities for Keiki Zoo staff will be provided on site.

### 2. Housing

The proposed project is not anticipated to have an impact on housing. Adequate housing already exists in the Kahului-Wailuku region to easily house prospective employees.

## C. INFRASTRUCTURE

### 1. Roadways

The proposed action is not anticipated to have a significant long-term impact on roadways. The action represents a functional extension of the adjacent Maui Zoological and Botanical Gardens. As such, it will attract essentially the same users as the existing zoo. Many of the anticipated users will arrive by bus, both school groups and users of the MEO line, which already runs along Kanaloa Avenue. Operating hours of 10:00 AM to 4:00 PM will be maintained so as to minimize the traffic impact on the commuter peak.

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**2. Water**

The proposed project is anticipated to generate an average daily water demand of 6,800 gallons 3+ . Water will be supplied to the project by the Maui County Water Department.

No adverse impacts to water quality are anticipated as a result of the proposed action. Erosion control measures will be implemented during the construction phase to minimize soil loss from the site. Because the sandy soil is highly permeable, drainage is excellent.

**3. Drainage**

Drainage for the existing culvert form Kanaloa Avenue will remain in the existing ditch which will be improved to fit the final site conditions and still remain adequate for the flows anticipated.

Storm runoff for the site for existing conditions for a ten year storm is estimated to be 3.80 cfs. Preliminary calculations estimate the storm run off after development is 3.86 cfs or an increase of 0.06 cfs. The increase in runoff is considered insignificant and will not have any adverse effects upon adjacent and downstream properties. (See Appendix A).

**4. Wastewater**

This wastewater will be accommodated by the County's Wailuku-Kahului Wastewater Reclamation Facility, which has a capacity of 7.9 million gallons per day. Currently this facility treats approximately 5.3 MGD.



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**RELATIONSHIP TO GOVERNMENT PLANS, POLICIES AND CONTROLS**

**A. STATE LAND USE DISTRICTS**

The Hawaii Land Use Law, Chapter 205, Hawaii Revised Statutes, establishes four major land use districts in which all lands in the State are placed. These districts are designated "Urban," "Rural," "Agriculture," and "Conservation." The subject property is located within the "Urban" district. The establishment of a zoo is compatible with this designation.

**B. GENERAL PLAN OF THE COUNTY OF MAUI**

The General Plan of the County of Maui (1990 Update) provides long term goals, objectives and policies directed toward the betterment of living conditions in the county. Addressed are social, environmental, and economic issues which influence future growth in Maui County. The following General Plan objectives are addressed by the proposed project:

Objective: To provide high-quality recreational facilities to meet the present and future needs of our residents of all ages and physical ability. Keiki Zoo Maui will provide a high-quality recreational facility for the benefit of residents of all ages and physical abilities.

Objective: To provide a wide range of recreational, cultural and traditional opportunities for all our people. By offering an interactive experience with animals, Keiki Zoo Maui will complement to the existing Maui Zoological and Botanical Gardens by establishing a unique, interactive facility.

Objective: To provide Maui residents with continually improving quality educational opportunities which can help them better understand themselves and their surroundings and help them realize their ambitions. Keiki Zoo Maui will act as the base for Maui Zoological Society's extensive educational programs which will include on-site programs, school outreach programs and zoo mobile programs.

Objective: SPECIAL PROGRAMS: To create a community in which the needs of all segments of the population will be recognized and met. Support Federal, State and County programs and services designed to improve the general welfare and conditions of Native Hawaiians.

**C. WAILUKU-KAHULUI COMMUNITY PLAN**

Nine (9) community plan regions have been established in Maui County. Each Region's growth and development is guided by a Community Plan which contains objectives and policies in accordance with the County General Plan. The purpose of the Community Plan is to outline a relatively detailed agenda for carrying these out.

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The proposed project is located within the Wailuku-Kahului Community Plan region within an area designated as "Park.". The proposed project is consistent with this designation. The Wailuku-Kahului Community Plan identifies the problem of increased demand for recreational and community facilities and the need for development of the Maui Central Park and upgrading the zoo facilities. (Wailuku-Kahului Citizen Advisory Committee, Recommended Revisions to the Wailuku-Kahului Community Plan. December 1993). These objectives are served by the proposed action.

Objective: Encourage apprenticeship or work study programs, in conjunction with higher educational or technical/vocational studies.

#### **D. Park Districts Ordinance**

Keiki Zoo Maui is in compliance with the Park Districts Ordinance (Maui County Ordinance 19.27). This ordinance, which is intended to provide for the planning and development of educational, recreational, and cultural facilities in a regional park setting, specifically identifies the Maui Central Park District. The ordinance establishes permitted uses within the Maui Central Park District, and identifies zoos as one of five "Principal Uses."

#### **V. FINDINGS AND CONCLUSIONS**

The proposed Keiki Zoo Maui will expand and improve the zoo-going and recreational opportunities for Maui residents. Keiki Zoo Maui will serve Maui's youth and elderly, many of whom have limited opportunities to interact with animals. By keeping most of the site in open space, the proposed project will complement the Maui Central Park as it develops.

The proposed project will involve limited earthwork and building construction activities. In the short term, these activities may generate temporary nuisances normally associated with construction activities. All construction activities are anticipated to be limited to normal daylight working hours. Impacts generated from construction activities are not considered significant.

From a long-term perspective, the proposed project is not anticipated to result in adverse environmental impacts. The proposed project is not anticipated to have an adverse effect upon public service needs, such as police, medical facilities and schools. In addition, the impact upon roadways, water, wastewater, drainage and other infrastructure systems are not considered significant. Keiki Zoo Maui is consistent with surrounding land uses and is consistent with existing land use designation for the area.

In light of the foregoing findings, it is concluded that the proposed action will not result in any significant impacts.

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**VI. AGENCIES CONSULTED IN THE PREPARATION OF THE ENVIRONMENTAL ASSESSMENT**

The following agencies, organizations were consulted in preparing this environmental assessment:

**County Agencies**

Fire Department  
Land Use and Codes  
Maui Economic Opportunity Seniors  
Maui Office of Economic Development  
Mayor's Office  
Parks and Recreation Department  
Planning Department  
Public Works Department  
    Engineering Division  
    Solid Waste Division, Recycling Section  
    Wastewater Division  
Water Department

**State Agencies**

Board of Education  
Department of Education  
Department of Health  
Department of Land and Natural Resources  
    Division of Forestry and Wildlife  
    State Historic Preservation Office  
Governors Office, Maui Division  
Maui Community College Provost

**Federal Agencies**

U.S. Department of Agriculture, Federal Veterinarian for the State  
U.S. Department of Agriculture, Soil Conservation Service

**Other Organizations**

Alu Like  
Big Brothers, Big Sisters  
Boy Scouts  
Kihei Community Association  
Kiwanas of Lahaina  
Kula Hospital  
Maui Central Park Advisory Committee  
Maui County Council members  
Maui Farm  
Maui Humane Society  
Maui Visitor Bureau  
Maui Youth and Family Services  
Outdoor Circle  
Rotary Clubs, Kahului, Wailuku, Wailea and Spreckelsville  
Soroptimists of Maui  
YMCA Board

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VII. REFERENCES

- Archaeological Consultants of Hawaii, May 5, 1990 letter to Mr. Vern Stanford, MACC
- Armstrong, R. Warwick, (ed.) Atlas of Hawaii. University of Hawaii Press, 1991.
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- County of Maui, Department of Water Supply, 1989. Central Maui Water Study, Phase II: Water Demand Study Central Maui Area.
- Environmental Assessment for the YMCA Racquetball Building.
- Hibbard, Don of the State Historic Preservation Division, Letter to Mr. Brian Miskae, County Planning Department, September 18, 1992.
- U.S. Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. 1972.
- Wailuku-Kahului Citizen Advisory Committee, Recommended Revisions to the Wailuku-Kahului Community Plan. December 1993.
- Wilson Okamoto and Associates, Inc., Maui Community Plan Update Infrastructure Assessment, September 1992.

Keiki Zoo Maui Final Environmental Assessment

Appendix A

DRAINAGE AND EROSION CONTROL REPORT

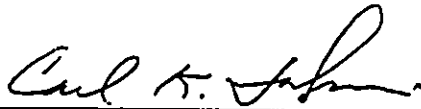
Appendix A

DRAINAGE AND EROSION CONTROL REPORT  
FOR  
PROPOSED MAUI PETTING ZOO

KAHULUI, MAUI, HAWAII

TMK: 3-8-07:1

Prepared For:  
MAUI ZOOLOGICAL SOCIETY



---

This work was prepared by  
me or under my supervision

Prepared By:  
NORMAN SAITO ENGINEERING  
CONSULTANTS, INC.  
WAILUKU, MAUI, HAWAII  
NOVEMBER 1994

PRELIMINARY DRAINAGE AND EROSION CONTROL REPORT  
FOR  
MAUI PETTING ZOO  
KAHULUI, MAUI, HAWAII  
TMK: 3-8-07: 1

I. SCOPE:

This report summarizes the drainage conditions and discusses means for protecting against flood damage and erosion during construction.

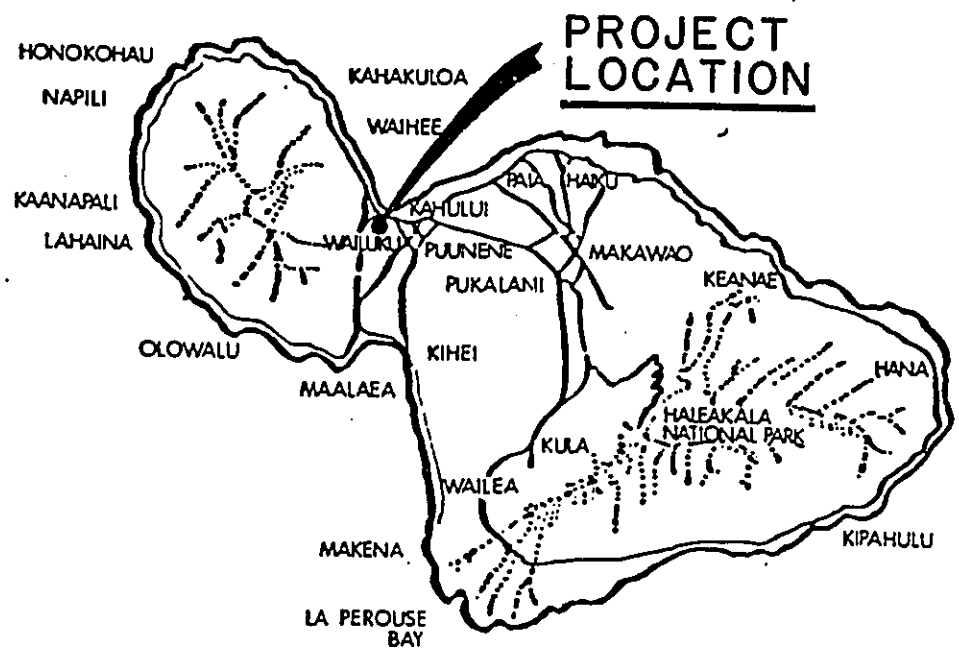
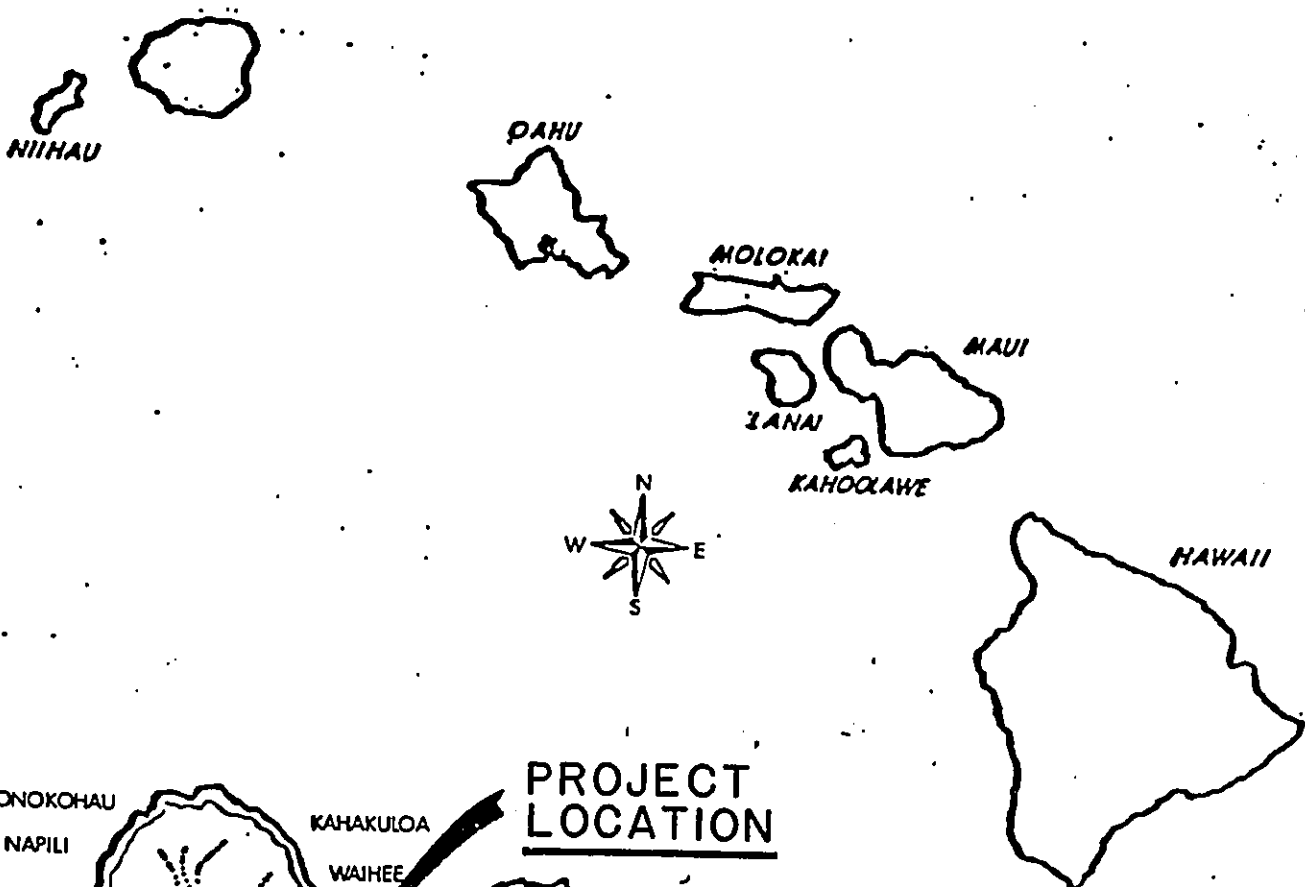
II. REFERENCES:

- A. "Drainage Master Plan for the County of Maui," R.M. Towill Corporation, October 1971.
- B. Technical Paper No. 43 "Rainfall Frequency Atlas of the Hawaiian Islands" for areas to 200 square miles, duration to 24 hours, and return periods from one to 100 years, U.S. Department of Commerce, Weather Bureau, 1962.
- C. "Erosion and Sediment Control Guide for Urbanizing Areas in Hawaii," Soil Conservation Service, 1976.
- D. "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii," Soil Conservation Service, August 1972.
- E. Flood Insurance Rate Map (FIRM), Federal Emergency Management Agency, Federal Insurance Administration, June 1, 1981.
- F. "Storm Drainage Standard", City and County of Honolulu Public Works, March 1969.

III. PROJECT DESCRIPTION:

The project consists of approximately 4 acres of undeveloped land between the present zoo and the Maui YMCA. The site is makai of Kanaloa Avenue. Makai of the site is undeveloped. The area has been designated as Park in the present Wailuku-Kahului Community Plan. The project location map is included (Figure 1).

There is an existing culvert crossing Kanaloa Avenue carrying storm discharge from mauka properties and discharge unto the Project Site. A natural earth ditch carries the storm discharge north through the site and into a natural drainage sump at the northeast end of the site. During intense storms, the pond overflows to the east and into the remaining undeveloped park area.



**PROJECT  
LOCATION**

Island Of  
**MAUI**

**LOCATION MAP**



#### IV. EROSION CONTROL PLAN:

The soil loss for this area has been estimated by the Universal Soil Loss Equation (HESL) in accordance with the County of Maui Grading Ordinance concerning soil erosion and sedimentation control.

The estimated soil loss was the used to find the severity number and the minimum tolerable erosion rate versus the estimated erosion rate. The present standards allow a maximum severity number of 50,000 and a minimum tolerable erosion rate versus estimated erosion rate of 1. The calculations are given in Appendix A and the results are shown below:

Estimated soil loss: 23 tons/acre/year

Severity number: 920 < 50,000

Tolerable erosion rate versus best estimate of uncontrolled erosion rate:

54 > 1

Normal construction erosion control measures should include:

- A. Dust control by sprinkling with sprinklers/water wagons, as necessary.
- B. Protection of all exposed slopes with temporary diversions, berms and swales at the top of the slopes. Grassing will take place immediately after grading is complete.

#### V. TSUNAMI INUNDATION:

The National Flood Insurance Program, Flood Insurance Rate Map, Maui County, Hawaii, September 6, 1989, identifies projects site as being within Zone C, areas of minimal flooding and not within a Tsunami Inundation Zone.

#### VI. DRAINAGE:

The "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (August 1972)" classifies the soil type on the project site as PZUE (Puuone sand, 7 to 30 percent slopes) with an C rated Hydrologic Classification.

Storm runoff was determined by the Rational Method in accordance with the Maui County Drainage Master Plan. Storm runoff from the site for existing conditions for a 10 year storm is estimated to be 3.80 cfs. Preliminary calculations estimates the storm runoff after development is 3.86 cfs or an increase of 0.06 cfs.

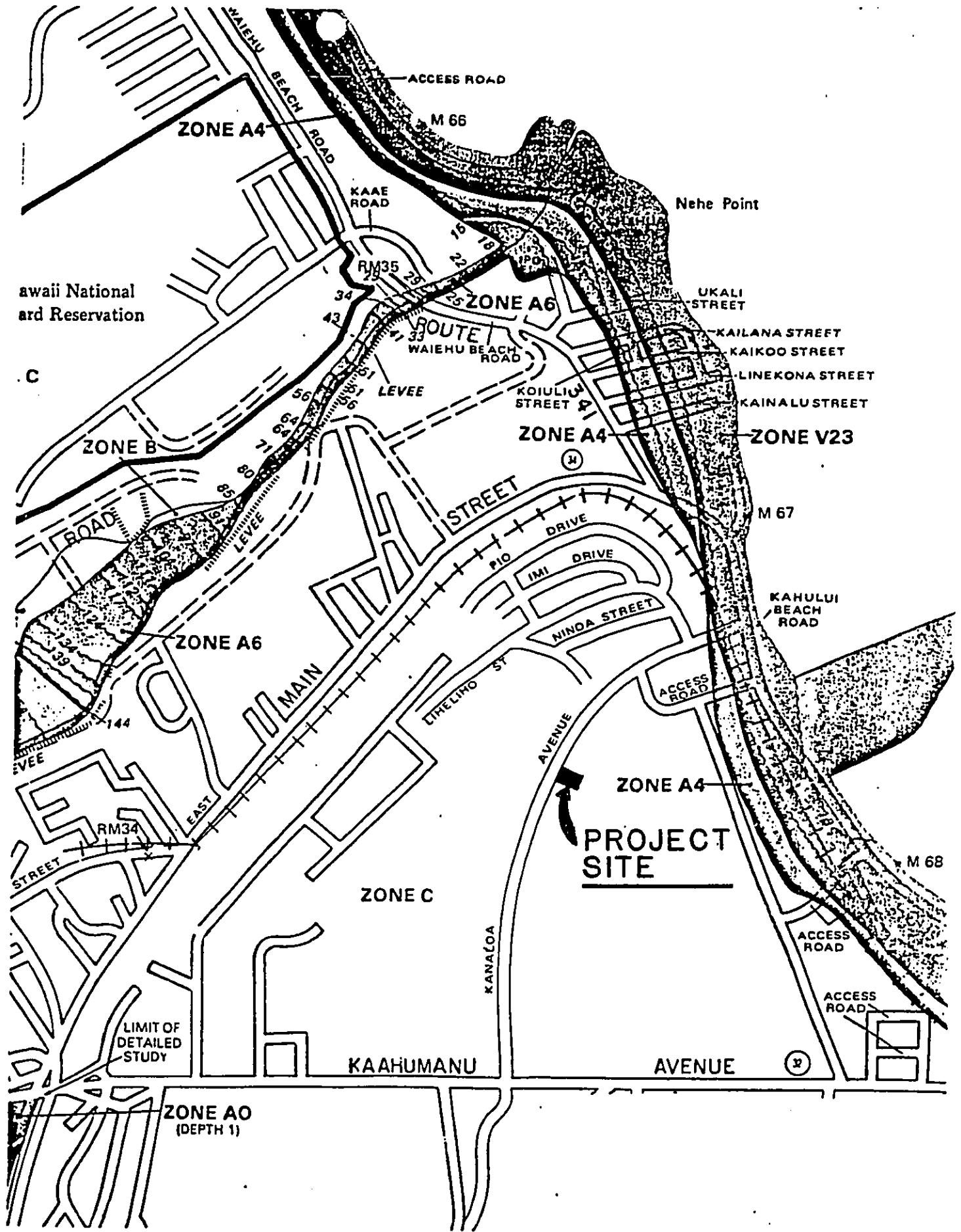
The increase in runoff is considered insignificant and will not have any adverse effects upon adjacent and downstream properties.

Drainage for the existing culvert from Kanaloa Avenue will be via open ditch. The existing ditch will be improved to fit the final site conditions and still remain adequate for the flows anticipated. The existing ponding area will be regraded but will remain in the same approximate location. Over flow drainage patters from the pond and the site will be maintained to minimize impact to the adjacent and downstream areas.

Preliminary site hydrology calculations are included in Appendix B.

#### **VII. CONCLUSION**

The proposed project does not create any adverse effects on adjacent and downstream properties.



APPENDIX "A"

SOIL EROSION CONTROL PLAN

## SOIL EROSION CONTROL PLAN

### 1. SOIL CONDITIONS DURING CONSTRUCTION:

Calculations for maximum area to be graded at once.  
Landscaping shall proceed after all work has been completed.

### 2. HESL SOIL LOSS FOR PROJECT DURING CONSTRUCTION:

Erosion Rate, as set forth by the County of Maui Ordinance:

$$E = R * K * LS * C * P$$

Where:

E = Soil Loss in tons/acre/year  
R = Rainfall Factor = 170 tons/acre/year  
K = Soil Erodibility Factor - Puuone (PZUE) = 0.10  
L = Slope Length = 410'  
S = Slope Gradient = 6.0%  
LS = Slope - Length Factor = 1.35  
C = Cover Factor - Bare Soil = 1.0  
P = Control Factor = 1.0

$$E = 170 \text{ tons/acre/year} \times 0.10 \times 1.35 \times 1.0 \times 1.0 \\ = 23 \text{ tons/acre/year}$$

### 5. SEVERITY NUMBER (H):

$$H = (2 * F * T + 3 * D) * A * E$$

Where:

H = Severity Number  
F = Unit Downslope - Downstream Factor = 4  
D = Coastal Water Hazard Rating Factor (Class A) = 2  
T = Time of Disturbance (years) = 1/2 yr.  
A = Area of Disturbance = 4.0 acres  
E = Soil Loss Rate from USLE = 23.0 tons/acre/year

$$H = (2 \times 4 \times .5 + 3 \times 2) \times 4.0 \times 23.0 = 920 < 50,000$$

3. ALLOWABLE SOIL LOSS FOR SITE:

Maximum Allowable Construction Area x Erosion Rate = 5,000  
tons/year

Project Construction Area = 4.0 acres

Allowable Erosion Rate = (5,000/4.0)  
= 1,250 tons/acre/year < 23 tons/acre/year

4. TOLERABLE EROSION RATE VERSUS BEST ESTIMATE OF UNCONTROLLED  
EROSION RATE:

$$\frac{1,250 \text{ tons/acre/year}}{23 \text{ tons/acre/year}} = 54 > 1$$

6. CONCLUSION:

Normal construction erosion control measures should be sufficient for the project site, with no excessive soil loss occurring.

APPENDIX "B"

GENERAL SITE HYDROLOGY CALCULATIONS

APPENDIX B

EXISTING CONDITIONS

AREA: 4.0 Acres

Rainfall (I) = 2 inches (10 year-1 hour).

Determine Runoff Coefficient:

Infiltration (Medium)	0.07
Relief (Rolling)	0.03
Vegetal Cover (High)	0.00
Development Type (Agricultural)	<u>0.15</u>
Run Off Coefficient	0.25

Determine Time of Concentration ( $T_c$ ):  
@ L= 410'; S= 6.0%; poor grass

$T_c = 13.5$  min.

Determine rainfall intensity @ I = 2";  $T_c = 13.5$  min.: i = 3.8 inches

Determine Peak Run Off:

$$Q = CiA = 0.25 \times 3.8 \times 4.0 = 3.8 \text{ cfs}$$



APPENDIX B

DEVELOPED CONDITIONS

AREA: 4.0 Acres

Rainfall (I) = 2 inches (10 year-1 hour).

Determine Runoff Coefficient:

Infiltration (Medium)	0.07
Relief (Rolling)	0.03
Vegetal Cover (Medium)	0.03
Development Type (Agricultural)	<u>0.15</u>
Run Off Coefficient	0.28

Determine Time of Concentration ( $T_c$ ):  
@ L= 410'; S= 6.0%; ave. grass

$T_c = 18.0$  min.

Determine rainfall intensity @ I = 2";  $T_c = 18.0$  min.: i = 3.45 in

Determine Peak Run Off:

$$Q = CiA = 0.28 \times 3.45 \times 4.0 = 3.86 \text{ cfs}$$

Keiki Zoo Maui Final Environmental Assessment  
Appendix B  
AGENCY CONSULTATIONS

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF FORESTRY AND WILDLIFE  
54 SOUTH HIGH ST., 1ST FLOOR ROOM 101  
WAILUKU, HAWAII 96793  
January 19, 1995

Michael J. Wilson  
WILLIAM W. PATI, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

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JOHN P. KEPPELER, II  
ODNA L. HANAIKE

AQUACULTURE DEVELOPMENT  
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CONSERVATION AND  
ENVIRONMENTAL AFFAIRS  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
PROGRAM  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

Mr. Leonard Costa  
County of Maui  
Department of Parks and Recreation  
1580-C Kaahumanu Avenue  
Wailuku, Hawaii 96793

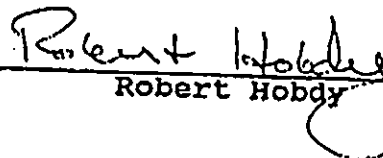
Dear Mr. Costa:

On January 17, 1995 I conducted a walk-through survey of the site of the proposed keiki zoo looking for any rare or endangered native plant species that might occur there. I found none.

The area had been filled and leveled some years ago to make the site suitable for future development. In the back of the parcel there is a natural gully in the sand dunes and this area too shows signs of previous clearing and piling of kiawe debris. There is no undisturbed terrain within this parcel.

The vegetation in the leveled front portion was very sparse and consisted of only the hardiest weeds. The gully in the back consists of open kiawe forest and dense stands of Guinea grass. I assure you that no rare or endangered native plants inhabit this site.

Sincerely,

  
Robert Hobdy

JOHN WADSWORTH  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION  
33 SOUTH KING STREET, 8TH FLOOR  
HONOLULU, HAWAII 96813

KRITH AJIYE, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

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JOHN P. KEPPELER II  
DONA L. HANA'AKE

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CONSERVATION AND  
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CONVEYANCES

FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
DIVISION

LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

November 25, 1994

Ms. Wanda M. Riggs, Executive Director  
Maui Zoological Society  
P.O. Box 1796  
Wailuku, Hawaii 96793

LOG NO: 13283 ✓  
DOC NO: 9411KD19

Dear Ms. Riggs:

**SUBJECT:** Historic Preservation Review of the Keiki Zoo Maui Project, Kahului, Wailuku District, Island of Maui  
TMK: 3-8-07: por. 1

Thank you for the opportunity to review and comment on the proposed *keiki* petting zoo project. The c. 5 acre project area is located in the sand hills area of Kahului, along Kanaloa Avenue. The existing Maui County Zoo is located immediately to the south, and the YMCA facility is to the north.

A brief inspection of portions of the project area was conducted by Historic Preservation Division staff archaeologist Theresa K. Donham on October 25, 1994. Most of the project area is currently covered with *kiawe*, which is being cut and removed by hand. The portion of the parcel fronting Kanaloa Avenue has been filled with a considerable amount of imported soil. The extent to which the remainder of the property has been disturbed is difficult to determine. It appears that some grading may have occurred in the past, as the sand dunes in the area have been somewhat leveled. Small bulldozing pushpiles are presently scattered throughout the parcel.

In your letter dated November 8, 1994, you indicated that approximately 60% of the project area will be open space and is not to be graded or otherwise modified. Service roads and building sites are to be graded.

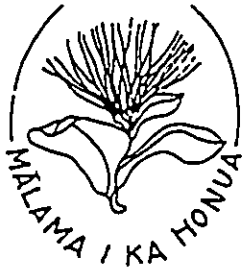
We believe that construction activities within the fill zone fronting Kanaloa Avenue will have no effect on historic properties. We recommend that for the remainder of this project, any undisturbed areas that are to be impacted by grading should be examined through subsurface testing. Prior to the subsurface testing, a surface survey of the project area should be conducted, in order to determine if any visible remnants of undisturbed or disturbed sites are present, and to identify areas of previous fill and disturbance. If mechanical vegetation grubbing is planned for any of the proposed open space areas, limited testing will also be needed in these areas prior to grubbing. If historic sites are found during the survey and testing, then acceptable mitigation plans would have to be developed in consultation with our office.

Please contact Ms. Theresa K. Donham at 243-5169 if you have any questions.

Sincerely,

DON HIBBARD, Administrator  
State Historic Preservation Division

Keiki Zoo Maui Final Environmental Assessment  
Appendix C  
DRAFT ENVIRONMENTAL ASSESSMENT COMMENTS



SIERRA CLUB, HAWAII CHAPTER RECEIVED  
 MAUI GROUP  
 P.O. BOX 2000 KAHULUI, HAWAII 96732  
 JAN 10 1995  
 PARKS & RECREATION

COPY  
 December 31 1994

Gary Gill, Director  
 Office of Environmental Quality Control  
 220 South King Street  
 Central Pacific Plaza, Suite 400  
 Honolulu, HI 96813

Dear Mr. Gill,

Attached please find the Sierra Club's comments on the Draft Environmental Assessment for the proposed Keiki Zoo Maui project in Kahului, Maui. This action was published in the CEQC bulletins of Dec. 8 and Dec. 23, 1994.

Sincerely,

*Mary M. Evanson*  
 Mary M. Evanson, Co. chair  
 Conservation Committee

Happy New Year!

COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR KEIKI ZOO MAUI, KAHULUI MAUI

In the notice printed in the OEQC Bulletin and on pages 2, 9, and 12 of the draft Environmental Assessment this proposed project is identified as being a "functional extension of the existing adjacent zoological and botanical gardens". The map (Fig. 1) also gives the impression that this project is part of the existing zoo and garden. The proposed Keiki Zoo Maui is a private venture of the Maui Zoological Society, a non profit corporation that has received a five-year license to occupy county land from the County of Maui to develop and manage a petting zoo and animal exhibits, gift shop and amenities concessions open to the public on a fee basis. The adjacent Maui County Zoological and Botanical Gardens is a free county facility manned and managed by Maui County employees. These are two separate entities and the confusing impression that they are extensions of each other should be clarified.

Although Hawaii Administrative Rules are clear that in preparing an EA early consultation with agencies having jurisdiction or expertise as well as consultation with citizen groups and individuals is essential, this was not done. Both the Maui Group of the Sierra Club and Friends of the Maui Zoo and Botanical Gardens (a support group for the existing County facilities) have given public testimony and written letters and comments regarding this project, they were not given the opportunity to make any pre-assessment comments. Community associations, the adjacent YMCA and the nearby Maui Youth Center were also not consulted. If one did not receive the OEQC Bulletin, one would not know about this opportunity to give input into this project.

It should also be noted that copies of the draft EA were not readily available for public review here on Maui. Several people told me that they called the Department of Parks & Recreation for copies or at least the opportunity to look over a copy, none were available. This is a serious flaw in the public review process.

Page 1 PROJECT LOCATION, EXISTING USE, AND LAND OWNERSHIP

Ownership of the land is not addressed or is the size of the parcel. The size of the lot is important in a project of this nature.

PROJECT NEED

Most of these needs are already being met by existing facilities and agencies, will this project have a negative impact on these existing facilities? Will the proposed services such as after school care be provided free, if not what will the charges be?

Page 2 PROPOSED IMPROVEMENTS

It should be noted that clearing of the lot has already begun. The plan being developed by the U.S. Department of Agriculture's Soil Conservation Service should have been included in this Draft. There are serious concerns about how forage and pasturage can be established in this desert-like site without the introduction of top soil and/or chemicals. More information is needed.

Comments on draft EA for Keiki Zoo Maui - continued - page 2

Page 3 Climate

Temperatures in the 90s were observed in the adjacent Zoo. There is no mention in the EA of what kinds or numbers of animals will be in this location.

Page 7 Roadways

Kanaloa Avenue is a four-lane highway with a bike path, it is not 2 lanes.

Page 9 Topography/Landform

A Grading Plan should have been included in this draft EA:

Flora and Fauna

A Flora & Fauna study should be done especially as relative to insects.

Page 12 SOCIO-ECONOMIC ENVIRONMENT

A cost analysis should be provided. There is concern that this project may not be economically feasible and that the tax payers of Maui will be negatively impacted. There is also concern about how this project will affect the County zoo and garden and its employees; is there sufficient revenue on Maui to support two zoos adjacent to each other?

In regard to Keiki Zoo Maui's proposal to actively seek and train employees from the Native American/Hawaiian Ancestry group I call attention to Exhibit B attached to the "LICENSE TO OCCUPY" drawn up and signed by the County of Maui and the Maui Zoological Society on August 17, 1994;

GENERAL CONDITIONS FOR GRANT OF A LICENSE TO OCCUPY COUNTY REAL PROPERTY

In consideration of a grant of license to occupy real property the Grantee Shall:

1. Not discriminate either in the hiring of staff, use of volunteers, or delivery of client services on the basis of sex, sexual orientation, national origin, age, race, color, religion or handicap.

INFRASTRUCTURE

This proposed new facility will not attract the same users as the adjacent Maui Zoological and Botanical Gardens. The proposed Keiki Zoo will charge for admission to the premise, the adjacent county zoo facilities are free.

PARKING: No off-street parking is provided.

Page 13 Water - Second sentence is incomplete.

Drainage: A detailed Drainage Plan should have been provided. Because of the many fences planned in the low areas storm debris could cause flooding, how will storm debris be handled? A great deal of water can flow from the mauka areas through the Kanaloa Avenue culvert onto the property.

Submitted by Mary Evanson, co-chair, Conservation Committee  
December 31, 1994



DR. FERN P. DUVALL II  
534 Olinda Road

January 5, 1995

Mr. Leonard Costa  
County of Maui  
Department of Parks and Recreation  
1580 Kaahumanu Avenue  
Wailuku, Maui, Hawaii 96793

Dear Leonard:

I wanted to comment on the Draft Environmental Assessment for Keiki Zoo Maui which I feel has several problem areas that need to be addressed for the final assessment.

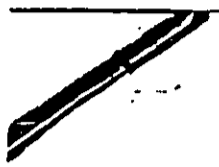
I am unaware of any attempts by the applicant to contact or involve citizen groups or individuals that might have comments in formulating the Draft EA. I belong to, and am deeply involved with, "The Friends of the Maui Zoo and Botanical Gardens", as well as "The Native Hawaiian Plant Society" both of which have vested interest in the existing "Zoo" and its future development. I work professionally with wildlife, with the State of Hawaii Department of Land and Natural Resources at the Olinda Endangered Species Facility, and am very concerned with developments which the county undertakes with respect to the existing Maui Zoo.

I am concerned whether the "general public" was sufficiently apprised of this project, or not. It was very hard for the public to obtain the Draft EA for this project, in order to study it and make any comments. I called you and was referred to the project consultant for a copy; this is curious operating procedure since the lead agency must have public copies available. I do receive the OEQC and requested from Honolulu that a copy be sent, which I did receive. My questions and comments follow:

1. Where, in which county document(s) is it outlined that this Keiki Zoo is a functional expansion of the existing Zoo? I am unaware of any planning that includes expansion of the zoo to include "petting zoo" functions. Rather, I am aware that the existing Zoo is in severe need of changes to existing caging to allow for the humane and species-correct maintenance of the collection. How is the awarding of \$150K to an adjacent new development warranted, when it flies in direct competition with needed changes at the County's facilities? Where in the Draft EA is the economic impact of this new project - using public funds - on the existing zoo (both presently and in the future) discussed? When entrance fees are required for the entry to the Keiki Petting Zoo how can this be an "extension" of the current public non-fee County zoo?

2. I visited the site on Jan. 5, 1995 and found that the site already showed clearing of much vegetation over about 40% of the parcel; how does this occur without permits and previous to a go ahead for development?

DOCUMENT CAPTURED AS RECEIVED



- 3. I am concerned that no botanical survey was undertaken since hard sand accretion dunes are on the site, and native vegetation is present on them. At one time a rare Portulaca was present in the area. I am aware that the "Central Park" is taking serious concern with the "dune areas" in their parcel, why is this area different? I do not agree that the parcel is largely an altered site disturbed in most areas. BUT this brings up another point important to more than just accurate botanical surveys and that is: how large is the parcel, where are maps with details of boundaries, just what IS the parcel. This is not in the draft EA.
- 4. I am concerned that the Burial Commission was not contacted as to possibilities of burials, cultural or archeological significance of the site. The distance of the site of the Arts and Cultural Center to the project site make presence or absence of archeological finds at the former an inappropriate comparison for the Keiki Zoo site, and should not be accepted.
- 5. No where is the list of animal species, or numbers to be maintained, indicated in the Draft EA. I am very concerned about which species from the State Department of Agriculture's Restricted List are proposed for inclusion at the site. Disclosure of species and numbers is in the public interest.
- 6. Where flooding/drainage at the current zoo is a problem during heavy rainfall, where is a grading plan for the project? All the internal paddock fences would seem to make for some tremendous water back-ups and flooding. Page 13 states that runoff would be insignificant; but neglects the issues of fence effects.
- 7. Where is all the waste water to go? Is it not necessary to have a septic-leaching field to accommodate animal waste generated at the site? Is not animal waste already an issue at the existing zoo? Can it simply go to the waste treatment facilities?
- 8. Where is the water to come from that will be used at the site? Whom is it that shall pay for it? Will it be County water? No where is the cost of water, or waste treatment/removal, discussed in the document.
- 9. Page 12 states that the Keiki Zoo will actively seek Hawaiian Ancestry people for employment; is this not discriminating hiring procedure? 76% of the current Maui county populace is non-Hawaiian.

Sincerely,

*Fern P. Duvall*

Fern P. Duvall

cc: Wanda Riggs ✓  
Maui Zoological Society  
 Shelley Pellegrino  
 County of Maui  
 OEQC

COF

→ BU/ Please send  
copies to  
affected  
parties/also  
review/comment

January 4, 1995

Mr. Gary Gill, Director  
Office of Environmental Quality Control  
220 S. King Street - Suite 400  
Honolulu, Hawaii 96813

'95 JAN 11 10:00 AM

RE: Comments upon the Draft Environmental Assessment (EA)  
for Keiki Zoo Maui TMK: (2) 3-8-07:1, Kahului, Maui,  
Hawaii

Dear Mr. Gill,

I have reviewed the aforementioned EA submitted by the Maui  
Zoological Society. I feel it does not adequately assess project  
impacts in two areas:

First, in their assessment under section III POTENTIAL  
IMPACTS AND MITIGATION MEASURES: B. SOCIO-ECONOMIC ENVIRONMENT the  
Society failed to indicate that their facility will be a private  
facility, that the facility will charge admission, contain  
concession stands, and will compete with the public facility for  
funding to develop and/or improve existing conditions.

(It should be noted the existing County zoo suffers from which  
An organization called the Friends of the Maui Zoo and Botanical  
Gardens Inc. to help solve some these problems.)

1. The mitigation and social impact of admission costs on  
large families, the competing commercial and non-commercial aspects  
should be addressed and are not.

2. Further, if the organization were to take over the  
existing public zoo, public employees may either be relocated or  
otherwise lose their positions, the assessment should contain  
information regarding this potential impact and does not.

3. Under RELATIONSHIP TO GOVERNMENT PLANS, POLICIES AND  
CONTROLS the assessment fails to distinguish that a commercial  
enterprise is proposed and the existing facility is open to the  
public as a public park. Commercial zoos were not contemplated in  
the General Plan nor the Wailuku-Kahului Community and this change  
should be adequately justified in the assessment.

4. The giving away of public land and resources for this  
kind of enterprise should be carefully reviewed with regard to its  
justification, and social ramifications.

The Second area of inadequacy which should be carefully  
reviewed concerns the claims that an "interactive" facility  
involving animals is desirable in general and, if it is, what  
liability will the County expose itself to, as the facility is  
situated on Public land?

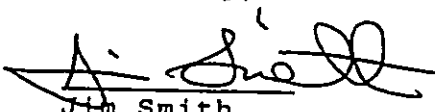
This draft assessment should be revised to comprehensively address the following issues as described in the attached letter addressed to this writer from Tony Vecchio, Zoo Director of the Roger Williams Park Zoo, Providence Rhode Island and summarized here:

1. Transmission of zoonotic diseases.
2. Effect of interactive experience upon animals
3. Danger and mitigation proposed to protect public.

(Under item 1, a complete description of the type of animal housing, method and frequency of disinfection and disposal of fecal matter in public sewage should be included.)

The Assessment does not appear to comply with the intent of HRS 343, therefore I respectfully request your office require revision of the applicant's draft to include comment relevant to my concerns and that the redraft be submitted for public review.

Sincerely,

  
Jim Smith  
P.O. Box 403  
Paia, Maui HI 96708

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F128

9413988

P.02

WILLIAM L. DERRIG  
Comptroller of Parks



VINCENT A. CIANCI, JR.  
Mayor

## Department of Public Parks

*"Building Pride In Providence"*

19 August 1994

Dear Mr. Smith,

I enjoyed speaking with you today. I have spent a lot of time during my 17 year career working on problems associated with petting zoos. Each of the four zoos that I have been employed by have some sort of 'children's area'. I have also consulted with a number of zoos in the New England area who were wrestling with the same problems that you are. I will briefly outline some of my thoughts on petting zoos, however, keep in mind it really is a knotty problem; feel free to contact me if you would like to discuss these issues in more detail.

There is one major plus to having a petting zoo. That is the remarkable and memorable experience children have when they are able to make physical contact with an animal. I will qualify this statement by telling you that children love any hands-on experience, especially when it is interactive. It is the adults that believe the live animal component is what the children want when in fact the youngsters are equally happy with interactive video, puzzles, mazes, playground equipment, etc.

There are several disadvantages to a petting zoo. The most serious and most frequently ignored is the chance of children contracting zoonotic diseases (diseases that can be transmitted from animals to man). We all know how difficult it is to get children to wash their hands or keep them from putting their hands in their mouths. There is a danger of children being exposed to a great number of bacteria after petting animals that have been lying on the ground in a dirty exhibit.

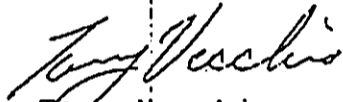
Secondly, in a contact yard there is a real danger of a small child being unintentionally hurt by an animal. Even a sheep or a pygmy goat is large to a three-year old. Try to imagine yourself being knocked down by a 310 pound NFL lineman and you get an idea of what kind of experience the child is going to remember from his/her trip to the zoo. It is not a matter of finding animals that are not aggressive. Many of the accidents I've seen involve gentle animals that were either being chased by other children or competing for food when they've run into a child.

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Finally, and in my mind, the most compelling reason for not having a contact yard is the stress that it causes the animals. I have seen all sorts of schemes for limiting the number of occupants, supervising the children, rotating the animals out of the area, and even choosing animals that enjoy contact. The fact is no animal likes a continual barrage of children touching them. The constant contact with no escape causes even the most even-tempered animal to eventually learn that by being aggressive either the children will stay away or some zookeeper will move them to a safer area. In this age of growing awareness of animal welfare issues it is a mistake to create a situation in which animals will suffer.

I hope this information is of some use to you. Good luck with your zoo and feel free to call me anytime.

Sincerely,



Tony Vecchio  
Zoo Director  
Roger Williams Park Zoo

Keiki Zoo Maui Final Environmental Assessment

1 \* Archaeological Consultants of Hawaii, May 5, 1990 letter to Mr. Vern Stanford, MACC

2 ‡ Letter from Don Hibbard of the State Historic Preservation Division to Mr. Brian Miskae, County Planning Department, September 18, 1992

3 † County of Maui, Department of Water Supply, 1989. Central Maui Water Study, Phase II: Water Demand Study Central Maui Area. (At an estimated demand of 1700 gal/acre/day for "Park use.")

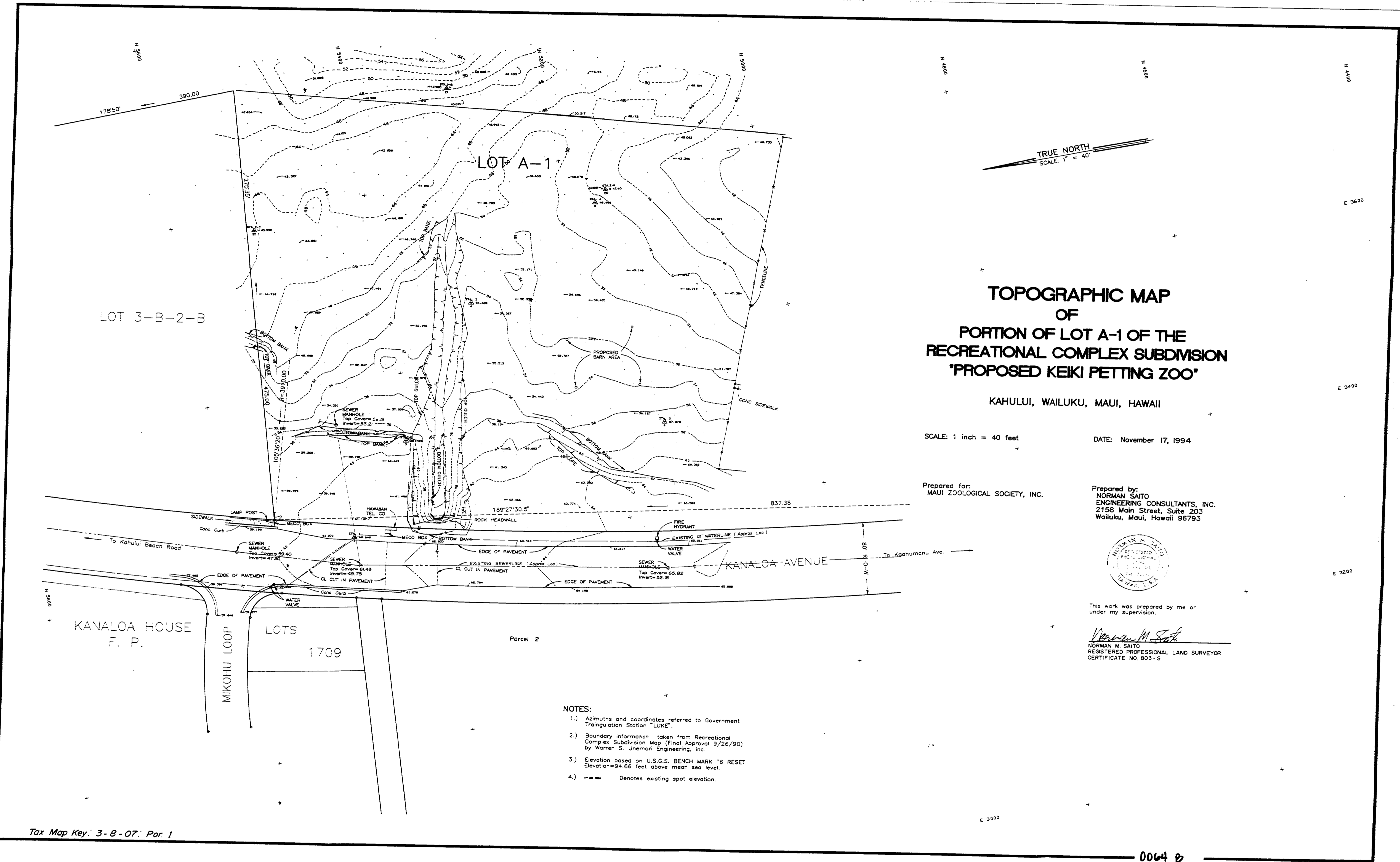
**OVERSIZED  
DRAWING/MAP**

**PLEASE SEE  
35MM ROLL**

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FOLLOWS



**TOPOGRAPHIC MAP  
OF  
PORTION OF LOT A-1 OF THE  
RECREATIONAL COMPLEX SUBDIVISION  
"PROPOSED KEIKI PETTING ZOO"**

KAHULUI, WAILUKU, MAUI, HAWAII

SCALE: 1 inch = 40 feet      DATE: November 17, 1994

Prepared for:  
MAUI ZOOLOGICAL SOCIETY, INC.

Prepared by:  
NORMAN SAITO  
ENGINEERING CONSULTANTS, INC.  
2158 Main Street, Suite 203  
Wailuku, Maui, Hawaii 96793



This work was prepared by me or  
under my supervision.

*Norman M. Saito*  
NORMAN M. SAITO  
REGISTERED PROFESSIONAL LAND SURVEYOR  
CERTIFICATE NO. 803-S

- NOTES:
- 1.) Azimuths and coordinates referred to Government Transposition Station "LUMCK"
  - 2.) Boundary information taken from Recreational Complex Subdivision Map (Final Approval 9/26/90) by Warren S. Unemori Engineering, Inc.
  - 3.) Elevation based on U.S.G.S. BENCH MARK T6 RESET Elevation=94.66 feet above mean sea level.
  - 4.)  $\circ$  Denotes existing spot elevation.