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EXECUTIVE CHAMBERS
HONOLULU

October 14, 1992

DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

JOHN WAIHEE
GOVERNOR

MEMORANDUM

TO: The Honorable William W. Paty, Chairperson
Department of Land and Natural Resources

SUBJECT: Final Supplemental Environmental Impact Statement for the
Kahana Valley State Park

I am pleased to accept the Final Supplemental Environmental Impact Statement for the Kahana Valley State Park as satisfactory fulfillment of the requirements of Chapter 343, Hawaii Revised Statutes.

This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the appropriate legislative bodies and governmental agencies to consider if the societal benefits justify the economic, social, and environmental impacts which will likely occur. These impacts are adequately described in the statement, and together with the comments made by reviewers, provide useful analysis of the proposed action.

John Waihee
JOHN WAIHEE

cc: Honorable John C. Lewin

- TO:
 - ADMINISTRATOR
 - ASST. ADMIN.
 - DEV. DIR.
 - PLAN. DIR.
 - RES. MGT. DIR.
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Ca: Gov	By: Bill burst		
Dept:	Phone #: 587-0293		
Fax #: 586-2452	Fax #: 587-0311		

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1992 - Oahu - FEIS -
Kahana Valley

SUPPLEMENTAL FINAL ENVIRONMENTAL
IMPACT STATEMENT

FOR

KAHANA VALLEY STATE PARK

SEPTEMBER, 1992

Division of State Parks,
Department of Land and Natural Resources

TABLE OF CONTENTS

	Page
Summary	
1. Purpose of this Supplemental EIS Document	1
2. Description of Project Changes	1
3. Alternatives to the Proposed Changes	4
4. Description of the Biophysical & Social Environment	4
5. Anticipated Environmental Impacts & Mitigation Measures	5
6. Other Environmental Questions	8

LIST OF FIGURES

1. Residential Area A
2. Residential Area B
3. Hydrologic Map

APPENDIX

- Appendix A. Comments Received and Responses for the Supplementary EIS Preparation Notice.
- Appendix B. Archalological Survey of Proposed Housing Areas.
- Appendix C. Persons, Organizations and Agencies Commenting on the Supplemental Draft Impact Statement

SUMMARY

PROJECT DESCRIPTION

The October, 1978 Revised Environmental Impact Statement for Kahana Valley State Park was approved by Governor Ariyoshi January 2, 1979. Because of the complexities of attempting to establish a "living park" concept this document only addressed the first increment of the proposed park development. It centered on opening the park for general recreation use, providing housing for some valley resident participants and initiating cultural programs. Two future development phase schemes were outlined in a two page future development section.

The 1978 EIS indicated up to 18 new homes would be developed in Phase I although the associated figure showed 14 dwellings. The 18 homes included all residences located in the old village and a few mauka of this area. All these existing homes were located in hazard prone areas and were in a substandard condition. Housing for the unspecified remainder of the the eligible families was scheduled for the second phase. This supplemental EIS addresses the housing needs of all 31 families now eligible to live in the park. Residential lots for these families has resulted in the following significant changes the 1978 EIS:

- o The original site was moved slightly mauka and extended from 950 feet to 1400 feet in length.
- o Sewage disposal was changed from cesspools to septic tanks with leach fields.
- o A second residential area of 14 lots will be located on the opposite side of the valley along Trout Farm Road to accommodate the remaining families.

The supplemental EIS only addresses housing requirements. Future development of the public park is scheduled for further planning which will again need to comply with EIS requirements.

ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

A major impact on the valley residents is that most residents will have to relocate from traditional home sites. This loss is partially compensated for by providing large, 10,000 square foot lots in flood free areas away from public use areas. These residents will be moving from substandard, flood prone, rented homes to new homes they will own with the assistance of low interest mortgages from the State.

The public will benefit by having the vacated residential areas along the estuary added to the developed park area. Removal of the village should also reduce water pollution on the estuary. A major value will be the use of resident families as interpreters of their lifestyle, history of the valley and Hawaiian culture in lieu of lease hold rent for the land.

Expanded public developed areas and public interpretive programs are expected to increase visitation. This inturn will require more staff to manage the program, preserve heritage values and maintain added developed areas.

ALTERNATIVES CONSIDERED

There is no known alternative to using Kahana Valley as the site for a "living park". There are no known available sites that encompass an entire ahupuaa that has natural and cultural features, areas of extensive wilderness, at least limited areas of agricultural opportunities and a residential community with ties to the valley for several generations.

The Board of Land and Natural Resources has clearly established a policy of providing 31 long term residential house lots, Thirty one families are eligible for these lots but there is flexibility in selecting immediate families from among the extended families with ties to Kahana Valley. The selection process is largely determined by the resident families. There is also some flexibility in selecting house lots.

UNRESOLVED ISSUES

The following issues have been identified:

- a. The "living park" concept is a new, experimental program which requires a trial and error period to determine long range program needs. This experience will help determine future park development.
- b. Conflicting recreation uses occur in the mauka, wildland areas of the park between hiking/nature appreciation and hunting. Hunting is also needed to control the pig population. The issue could be resolved by allowing incompatible uses at different times.
- c. The feasibility of commercial agriculture is undetermined although climate and/or soil conditions limit opportunities. Commercial agriculture should also be related to park program needs.

COMPATIBILITY WITH LAND USE PLANS AND POLICIES

There are no known conflicts with existing land use plans and policies except for the resident housing. The housing was justified because the long term valley residents, their lifestyle and knowledge are a major culture resource to be preserved for the park. Act 5 SIH 1987 authorized the residential subdivision.

PERMITS AND APPROVALS

The original 1978 plans received the following approvals:

- o Revised Environmental Impact Statement 1/02/79
- o Shoreline management Permit 3/06/79
- o Conservation District Use Application 6/26/79

Act 5 SIH 1987 exempts the residential subdivision from requirements relating to zoning and construction standards, land improvement and construction of units. However the housing infrastructure will meet minimal subdivision requirements for city services and health requirements. Homes are expected to meet county building code requirements.

1. PURPOSE OF THIS SUPPLEMENTAL EIS DOCUMENT

The October, 1978 Revised Environmental Impact Statement for Kahana Valley State Park was approved by Governor Ariyoshi January 2, 1979. Because of the complexities of attempting to establish a "living park" concept this document only addressed the first increment of the proposed park development. It centered on opening the park for general recreation use, providing housing for some valley resident participants and initiating cultural programs. Two future development phase schemes were outlined in a two page future development section.

A portion of the Phase I development was built in 1981-82 providing general recreation day use and facilities for cultural programs. The resident housing and public overnight facilities were not constructed and therefore residents have not been required to participate in cultural and education program activities. Long Term housing arrangements for all 31 families living in the valley is essential before a "Living Park" program can be established and related facility development can be fully determined and built. We are now planning to expand the Phase I development plan by providing house lots for 31 qualified Kahana Valley families. Thus the purpose of this supplemental statement is to address the environmental impacts of the expanded residential housing development.

Pilot interpretive programs are now being tested in existing park facilities and a development plan is being prepared which will replace the future development phase scheme in the EIS. The plan also includes the 8.4 acre beach park which was transferred from the County to the State in April 1992. Once this plan is completed the need to comply with Hawaii Revised Statutes, Chapter 343 provisions will again be reviewed.

Information contained in the 1978 Revised Environmental Impact Statement which remains valid, has not been included in this supplemental EIS document. However, copies of the approved Environmental Impact Statement can be made available on request.

2. DESCRIPTION OF PROJECT CHANGES

The 1978 EIS indicated up to 18 new homes would be developed in Phase I although the associated figure showed 14 dwellings. The 18 homes included all residences located in the old village and a few mauka of this area. All these existing homes were located in hazard prone areas and were in a substandard condition. Housing for the remainder of the eligible families was scheduled for the second phase,

2. DESCRIPTION OF PROJECT CHANGES - continued

but their housing location and number of families was not specified.

When the Kahana Advisory Board was established in May, 1984 one of its first tasks was to determine which families were eligible to remain in the valley. A Report on Residents of Kahana Valley prepared by the Kahana Advisory Board in March, 1985 was used as the only source of information to identify those families continuously living in Kahana Valley since the park was acquired in 1970. This report identified 31 dwelling units eligible for revocable permits and on June 24, 1988 the Board of Land and Natural Resources approved development policies which included keeping the total number of residential households at the current 31 for future long-term residential leases.

Possible home sites for all 31 families were reviewed and it was confirmed that the best, large site remains the general area selected for housing in the 1978 EIS. However some families prefer to live on the opposite side of the valley, so only a total of 19 house lots have been designated in the proposed Residential Area A. Two of these house lots are expected to remain vacant. In comparing the original residential area with the Residential Area A. The following difference are noted:

1. The original site was approximately 950 feet in length while the proposed site is over 1,400 feet in length. The proposed area extends further mauka, but about 350 feet of the two areas overlap (see map of Residential Area A).
2. All house lots in the original plan were located on the lower-side of the road. The proposed site includes 3 house lots on the upper side of the road.
3. Sewage disposal will be changed from individual cesspools to septic tanks, with leach fields for each dwelling unit as now required by the Department of Health. There are no known alternative systems which meet current Department of Health requirements.
4. The Original plan limited the paved road and public vehicular access to the existing Orientation Building. Recently the Board of Water Supply has used the road for a 42 inch water main easement and access road to a reservoir located about 2.3 miles inland from Kamehameha Highway, (EIS approved October 18, 1983). The steeper portions of this 12 foot wide access road are paved and can provide public vehicular access. However this access is being controlled by locked gates.

2. DESCRIPTION OF PROJECT CHANGES - continued

The proposed plan would provide a 20 feet wide paved road to the mauka end of Residential Area A. Public vehicular access would be allowed on this road and could continue to an established trail head. A locked gate just beyond the residential area would be used to control public access. A road bypassing the residential area is planned for future development. In keeping with the rural character of the park there will be no curbs, gutters or sidewalks. Street lights will be provided.

The remaining 14 families being added to Phase I are proposed to be located in a new village area, Residential Area B, on the opposite side of the valley. This includes at least four families who will not have to relocate from their existing house lots although some will need to build new homes or remodel their existing home to meet existing building codes.

This new or enlarged village is to be located along the eastern edge of the valley on Trout Farm Road. Five existing homes and a church are located on either side of the existing road within 700 feet from Kamehameha Highway. Three of the existing house lots and the church are to remain. A fourth house lot maybe reconfigured to allow a new home to be placed on the lot. The fifth house lot will only remain on an existing permit until it is no longer needed by a single, elderly permittee. The proposed development includes 10 additional house lots and extends the residential area 1080 feet from Kamehameha Highway. This includes a vacant lot in order to provide some flexibility. Five house lots would be placed between existing house lots (see maps).

One other existing house lot will remain in the valley. This lot has driveway access to Kamehameha Highway. It is located mauka of the highway about 1,000 feet east of Trout Farm Road.

Trout Farm Road will be improved as a paved, rural road with street lights through the residential area. No improvements are planned at this time beyond the residential area, but access will be retained for park management purposes and potential agricultural lessee activities. Park visitors will seldom use this road. Utilities will be provided to each house lot. Water will be supplied by the Board of Water Supply. Electric power may be transmitted by overhead lines rather than underground, since this is not a public area. Sewage disposal will be by individual septic tanks and leach fields. The road will also be designed to

2. DESCRIPTION OF PROJECT CHANGES - continued

allow access and a turn around area for fire trucks, school buses and rubbish collection. The road will have a locked gate beyond the last house lot.

All existing homes, except for one recently built house and two or three others located on existing house lots which will remain in the valley, are substandard and will be demolished. Exceptions may be also made for the former Kam Mon Store and one or two representative houses in the existing village area. This area could then be restored as an interpretive feature representing the plantation village era. A cemetery and railroad bed will also remain as village artifacts. The well would no longer be used as potable water, but would be available for irrigation or taro growing.

3. ALTERNATIVES TO THE PROPOSED CHANGES

The Board of Land and Natural Resources has clearly established a policy of providing 31 long term residential house lots in the park and have identified 31 families eligible to lease these lots. However, it is possible that some families may not meet mortgage requirements or may simply prefer to live somewhere else. Succession arrangements have been made to fill vacant leases and if necessary the state will help relocate families moving the from the park.

The Board has also indicated a willingness to consider exempting five families from having to relocate from their existing house lot locations. However, this consideration was made with the understanding these families would have to meet a number of conditions including all regulatory requirements. The families were told that based on staff experience in planning the housing project there seem to be too many obstacles to overcome, but each family may pursue this option. If any of these families are successful, some additional house lots being established would remain vacant.

4. DESCRIPTION OF THE BIO-PHYSICAL AND SOCIAL ENVIRONMENT

The Description of the Bio-Physical and Social Environment, in the original EIS was reviewed. Project planning continues to be based on the environmental and cultural research done for the original EIS and no significant changes were identified in the original 44 page description.

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

When housing development was canceled as part of the Phase I 1981-82 construction project, the residents understandably did not want to participate in cultural interpretive programs until their long-term resident status was assured. Act 5, Session Laws of Hawaii, 1987 authorized the Department of Land and Natural Resources to issue long-term residential leases to qualified persons residing in Kahana Valley on the condition these residents participate in the park's interpretive programs. The following year Act 5 was amended by Act 238 allowing residents to build their own homes with low-interest mortgage loans provided by the state. Lease arrangements then established that each resident lessee family is to provide 25 hours per month in interpretive services in lieu of leasehold rent payments. As part of these lease negotiations it was also determined that leases to all eligible families would be issued at the same time for their selected lots. This lease negotiation process involved long standing concerns regarding the housing project. The concerns that have been identified are being addressed in this section.

Relocation The relocation of residents from existing house lots has been a major concern. Many residents wish to stay where their family has lived for generations and some families feel they can provide better interpretive services by living in or near an interpretive site.

There were two main factors considered in relocating families in the Approved of Policies set by the Board of Land and Natural Resources, June 24, 1988 and amended March 27, 1992:

1. All residents living in the flood plain (including tsunami areas) or unable to meet current Department of Health sewage requirements will relocate.
2. All residents living in prime areas planned for intensive public park use will relocate.

Some families have lived with periodic flooding for years but modern building regulations make housing developments increasingly difficult. Since 1990 Department of Health regulations require septic tanks with leach fields rather than cesspools. Minimum lot sizes for these septic tanks system is 10,000 square feet and leaching fields require a minimum ground level of approximately 9 feet above sea level in order for the leach line to be a sufficient depth below the ground and at least 4 feet above the water table. The minimum distances required between the leach field and the ocean or streams is also a problem in many of

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES -
continued

the house lots. The existing house lots in the flood zone are 4 to 8 feet above sea level. If sewage problems are resolved new homes could be built with floor levels high enough above the ground to avoid floods. However, raising houses significantly will create access problems for elderly and/or handicapped people and may be more of a visual intrusion in the public park area. Even if flood impacts can be avoided, flood insurance is required at much higher rates. Self-help housing, the most affordable type of housing available for residents is not allowed on flood plains. Building homes in a flood plain would cost considerably more in order to meet local and federal codes. All of these increased costs could put some families beyond their ability to pay the mortgage.

Both Residential Areas A and B are located outside the flood plain according to the Flood Insurance Rate Map revised September 4, 1987. The original Phase I development plan included homes located between the existing 100 year base flood zone and the 500 year flood zone. But by moving the village further mauka all home are now located above 500 year flood zone. Another concern is the sheet flow of water and flows in normally dry channels from the valley's steep side hills. All watersheds related to the two housing areas were identified and flood flows were calculated.

This resulted in planned major increases in the size of drainage channels and road culverts. House lots above the access roads are also protected by terraces which divert sheet flows to nearby drainage channels.

The 1978 EIS allowed sewage disposal by means of cesspools in the proposed residential area. Current sewage treatment regulations require a septic tank with a leach field system for each dwelling. The minimum lot size for sewage treatment systems is 10,000 square feet. All proposed house lots meet the minimum standards.

The main area planned for intensive public park use is located behind the beach and along the western side of the estuary. This area is almost entirely in the flood area, so the majority of families had to relocate because of both flooding and public use needs. However, four homes expected to be relocated because they meet at least one main relocation factor. Two homes adjoining the beach are not in a flood area, but are not expected to meet Department of Health septic tank and leach field requirements since they are not high enough above sea level and are too close to both the ocean and estuary. Two other homes between the

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES -
continued

highway and the estuary are located on land of secondary value for park programs, but are in the floodway and are not expected to meet Department of Health sewage requirements.

One resident is expected to remain on an existing house lot if the house is relocated or replaced at a new site above the designated flood plain and Department of Health requirements are met. The resident will be eligible for a vacant lot if the existing lot does not meet building requirements.

Two other households have to relocate because the cost of extending the infrastructure is prohibitive. They are located at the end of Trout Farm Road four tenths of a mile beyond the end of the proposed residential area.

Resident Privacy Some privacy concerns remain for Residential Area A, since park visitors wishing to reach the proposed mauka campground, hunting areas and trails will be using the road through the village area. Most park visitors are expected to remain in the lower portion of the park near the beach or estuary but the mauka area may become more popular as it is developed. However, future development plans include a new public road to the mauka area which would bypass Residential Area A. The village would then be located on a dead end side road. Until such time as a bypass road is authorized and built, public access beyond the village will be controlled by a gate which can be locked when that portion of the park is not being used.

Very little park visitor use of Residential Area B is proposed. The road through this village is expected to provide access to any agricultural uses which may occur mauka of the village. Again the road will be gated just past the last house lot to control public access.

Distance to Highway Residents living in Residential Area A will be located approximately six tenths of a mile from Kamehameha Highway, about a half-mile further than their present location. This will cause unavoidable hardships for the relatively few residents who depend on bus transportation. An existing bus shelter has been renovated. There are paved turn around areas provided at the end of both residential roads for fire trucks, rubbish trucks and school buses.

5. ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES - continued

Resident Agricultural Plots A number of families have livestock and/or small garden plots. Residential garden plots or small livestock areas will be provided on request by those resident families interested in having some additional land beyond their 10,000 square foot house lot. These plots may adjoin with their house lots or be located as much as possible for the convenience of each family, providing no archaeological sites are damaged or threatened. The restoration of existing auwai or terraces could also be considered.

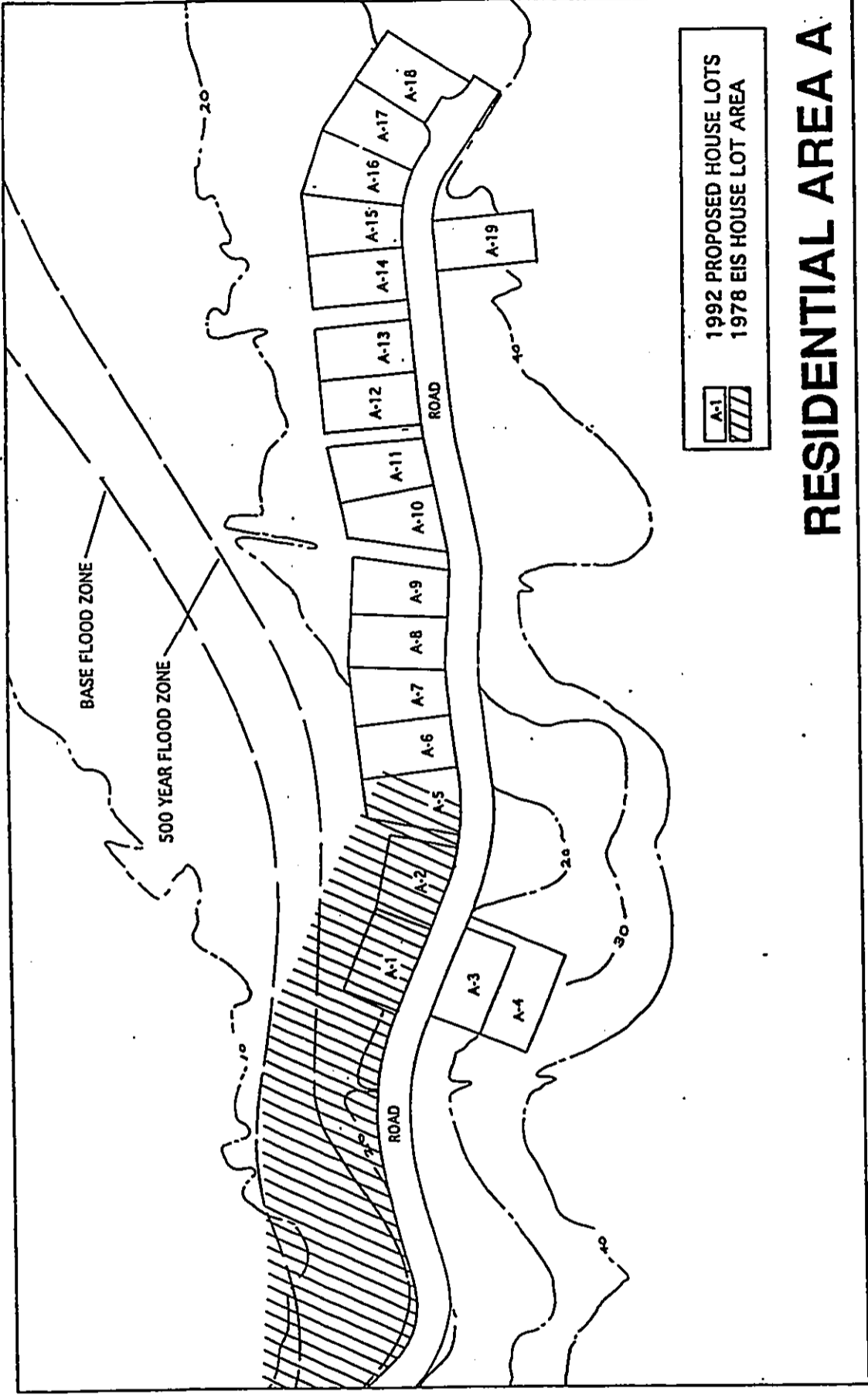
Archaeology The 29 proposed house lots have been surveyed for archaeological features by the State Park Archaeologist and a report dated June 1992 is attached as Appendix B. The report's summary indicates both residential areas show evidence of recent historic activities that may have destroyed earlier archaeological sites in the projects areas. No significant sites were found in the proposed residential areas, but several sites adjacent to the house lots are of value. Park staff should be sure the nearby residents are aware of these sites and the sites should be protected and monitored.

6. OTHER ENVIRONMENTAL QUESTIONS

Five Environmental Impact Questions addressed in the approved EIS were reviewed and it was determined there were no significant changes to the answers to this question as a result of the additional resident housing described in the project changes. These five questions are:

- Part 8 - Probable adverse impacts which can not be avoided.
- Part 10 - Relationship between local short term uses of man's environment and the maintenance and enhancement of long term productivity.
- Part 11 - Irreversible and irretrievable commitment of resources.
- Part 12 - An indication of what other interest and considerations or government policies are thought to offset the adverse environmental effects of the proposed actions.
- Part 13 - Summary of unresolved issues.

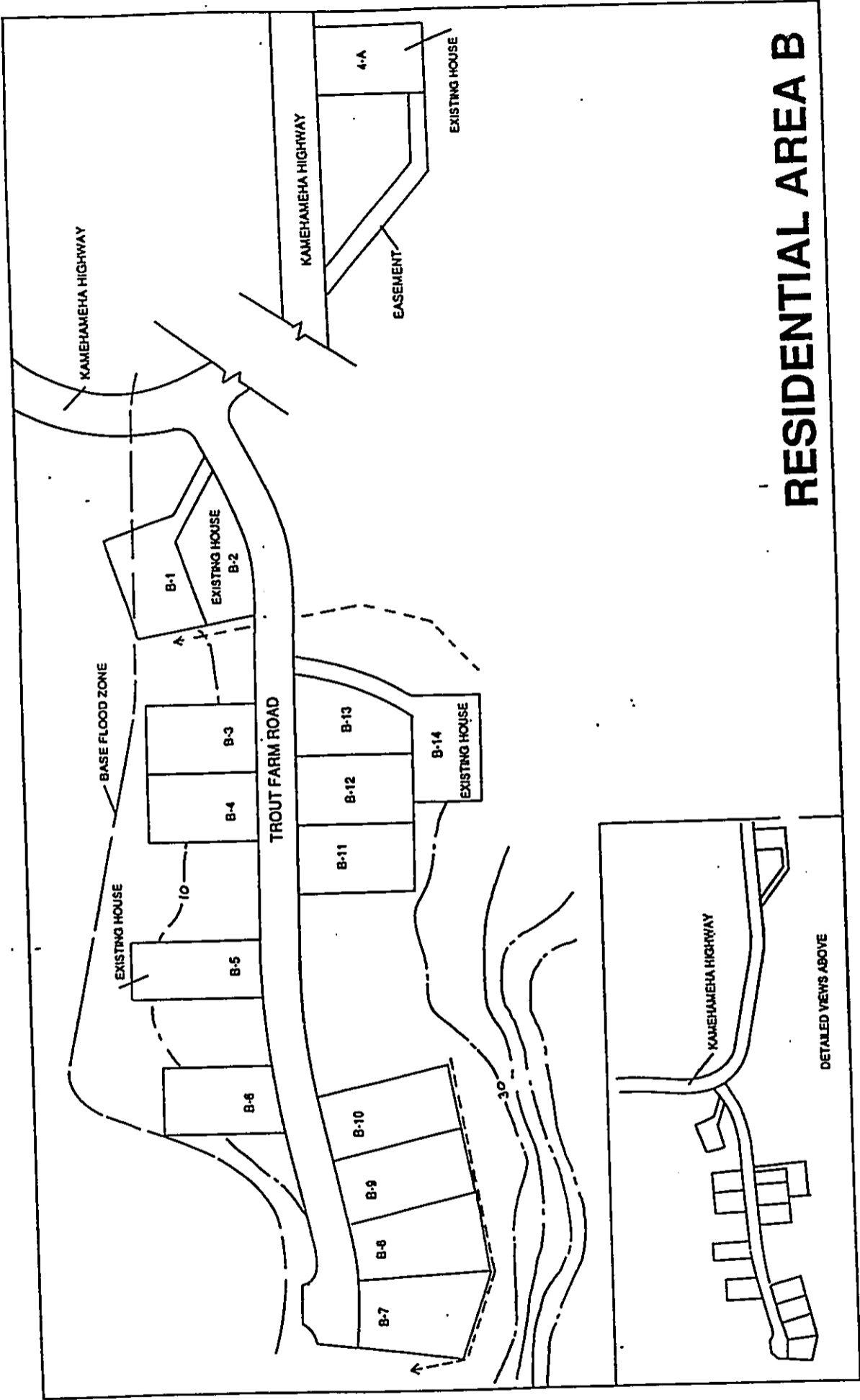
Answers to these questions may very well change when future development phases are determined. However, as indicated in the purpose of this supplemental EIS document, the approved EIS only addressed the first increment of the proposed park development.



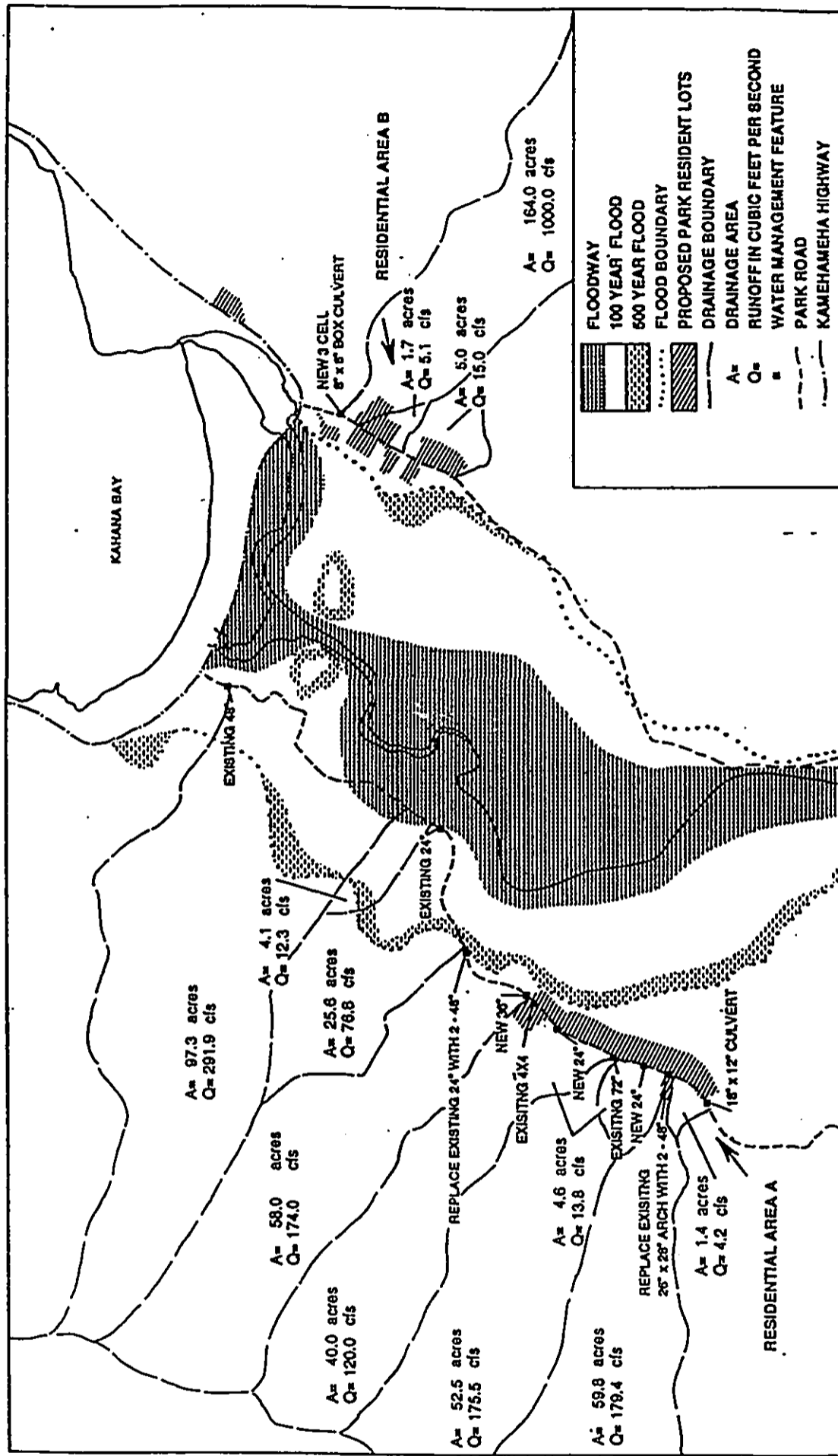

 1992 PROPOSED HOUSE LOTS

 1978 EIS HOUSE LOT AREA

RESIDENTIAL AREA A



RESIDENTIAL AREA B



HYDROLOGIC MAP

APPENDIX A

Comments Received and Response for the Supplementary EIS
Preparation Notice.

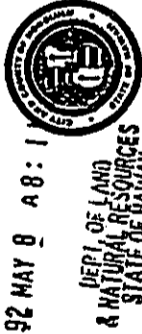
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DEPT. OF LAND
& NATURAL RESOURCES
STATE OF HAWAII

May 7, 1992

BENJAMIN LEE
CHIEF PLANNING OFFICER

HONOLULU, HAWAII 96809

ET 4/92-1426

JOHN WARD
CHIEF OF BUREAU



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P. O. BOX 471
HONOLULU, HAWAII 96809

JUL 14 1992

Honorable William W. Paty, Chairperson
Board of Land and Natural Resources
Department of Land and Natural Resources
State of Hawaii
P.O. Box 971
Honolulu, Hawaii 96809
Dear Mr. Paty:

Mr. Benjamin B. Lee, Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King St.
Honolulu, HI 96813

Supplemental Environmental Impact Statement
Preparation Notice for Kahana Valley
State Park, Koolauloa, Oahu

Subject: Supplemental Environmental Impact Statement
Preparation Notice for Kahana Valley State Park,
Oahu.

We have reviewed the subject Supplemental Environmental
Impact Statement Preparation Notice dated April 7, 1992 and have
no comments to offer at this time.

Thank you for the opportunity to comment. Should you have
any questions, please contact Eugene Takahashi of our staff at
527-6022.

Thank you for participating in the Environmental Impact Statement review
process for this project. This is to acknowledge receipt of your May 07, 1992
letter regarding the proposed improvements for Kahana Valley State Park.

Your letter and this response will be appended to the Supplemental Draft
and Final Environmental Impact Statements.

Sincerely,

Sincerely,

B. Lee
BENJAMIN B. LEE
Chief Planning Officer

R. Nagata
RANSTON H. NAGATA,
State Parks Administrator

BBL:lh

ADMINISTRATOR
ASST. ADMIN.
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RES. MGT. BR.
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WILLIAM W. PATY, CHAIRPERSON
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LAND MANAGEMENT
STATE HISTORIC PRESERVATION
STATE PARKS
STATE AND LAND DEVELOPMENT

WILLIAM M. PATY, Chairperson
 Board of Land and Natural Resources
 JAMES TURSE, Director
 Division of State Parks
 P. O. Box 621
 Honolulu, Hawaii 96809



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 P. O. BOX 621
 HONOLULU, HAWAII 96809

JUL 14 1992

JAMES TURSE
 Director

E. JAMES TURSE
 DIRECTOR
 DIVISION OF
 STATE PARKS

JUN 16 5 02 AM '92

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
 CITY AND COUNTY OF HONOLULU
 850 SOUTH KING STREET, 5TH FLOOR
 HONOLULU, HAWAII 96813
 PHONE: (808) 522-1237 / FAX: (808) 527-5488



DEPT. OF LAND
 & NATURAL RESOURCES
 STATE OF HAWAII

92 JUN 16 A 8: 26

June 9, 1992

Mr. William M. Paty, Chairperson
 Board of Land and Natural Resources
 P.O. Box 621
 Honolulu, Hawaii 96809

Attention: Mr. Bill Gorst
 Division of State Parks

Dear Mr. Paty:

Subject: Supplemental Environmental Impact Statement Preparation Notice
 Kahana Valley State Park
 Koolauloa, Oahu

We have reviewed the Supplemental Environmental Impact Statement for the subject project and have no comments to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

E. James Turse
 E. JAMES TURSE
 Director

- ADMINISTRATOR
- ASST. DIR. PLAN. DIV.
- RES. MGT. DIV.
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Mr. E. James Turse, Director
 Department of Housing and Community Development
 City and County of Honolulu
 650 South King St., 5th Floor
 Honolulu, HI 96813

Dear Mr. Turse,

Subject: Supplemental Environmental Impact Statement Preparation Notice for Kahana Valley State Park, O'ahu.

Thank you for participating in the Environmental Impact Statement review process for this project. This is to acknowledge receipt of your June 09, 1992 letter regarding the proposed improvements for Kahana Valley State Park.

Your letter and this response will be appended to the Supplemental Draft and Final Environmental Impact Statements.

Sincerely,

R. H. Nigata
 RALPHON H. NIGATA
 State Parks Administrator

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
 DIVISION OF
 STATE PARKS

490 SOUTH KING STREET
 HONOLULU, HAWAII 96813



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FRANK J. JAM
 MAYOR

WALTER M. OZAWA
 DIRECTOR
 ALYNE C. AU
 DEPUTY DIRECTOR

JOHN WAIHEE
 GOVERNOR OF HAWAII



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May 1, 1992

Governor John Waihee
 c/o Office of Environmental Quality Control
 State of Hawaii
 Central Pacific Plaza
 220 South King Street, Fourth Floor
 Honolulu, Hawaii 96813

Dear Governor Waihee:

Subject: Supplemental Draft Environmental Impact Statement
 Preparation Notice for Kahana Valley State Park
 Koolauloa, Oahu, Hawaii

We have reviewed the Supplemental Draft Environmental Impact
 Statement Notice for the proposed Kahana Valley State Park
 project and have no comment to offer.

Thank you for the opportunity to review this project.

Should you have any questions, please contact Lester Lai of
 our Advance Planning Branch at 523-4696.

Sincerely,

Walter M. Ozawa
 WALTER M. OZAWA, Director

WHO:ei

cc: DLNR (Bill Gorst)

- ADMINISTRATOR
- ASST. DIR.
- PLANNING
- RES. MGT. BR.
- PROJ. CONTROL
- SY. REC. PLAN.
- CLERICAL STAFF
- ADMIN. ASST.
- ARCHAEOLOGISTS
- FOR:
- CIRCULATE/POST
- COMMENTS & REC.
- DEPT. REPLY
- FILE
- FOLLOW UP
- INDEX
- RUSH IN/OUT
- SEE ME
- STENO

Mr. Walter M. Ozawa, Director
 Department of Parks and Recreation
 City and County of Honolulu
 Central Pacific Plaza
 220 South King St., 4th floor
 Honolulu, HI 96813

Dear Mr. Ozawa,

Subject: Supplemental Environmental Impact Statement
 Preparation Notice for Kahana Valley State Park,
 O'ahu.

Thank you for participating in the Environmental Impact Statement review
 process for this project. This is to acknowledge receipt of your May 01, 1992
 letter regarding the proposed improvements for Kahana Valley State Park.

Your letter and this response will be appended to the Supplemental Draft
 and Final Environmental Impact Statements.

Sincerely,

/s/ RALSTON H. NAGATA

RALSTON H. NAGATA,
 State Parks Administrator

WILLIAM W. PATT, Commissioner
 Office of Land and Natural Resources

JOHN A. BERTON, II
 DONALD W. HARRIS

PLANNING DEVELOPMENT
 PUBLIC AFFAIRS
 CONSTRUCTION AND
 UTILITIES DIVISION
 CONSERVATION DIVISION
 RECREATION DIVISION
 STATE POLICE
 STATE FIRE MARSHAL
 STATE AND LAND USE DEPARTMENT



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 P. O. BOX 471
 HONOLULU, HAWAII 96809

JUL 14 1992

Mr. Kazu Hayashida, Manager and Chief Engineer
 Board of Water Supply
 City and County of Honolulu
 630 South Beretania St.
 Honolulu, HI 96813

Dear Mr. Hayashida,
 Subject: Supplemental Environmental Impact Statement Preparation Notice for Kahana Valley State Park, O'ahu.

Thank you for participating in the Environmental Impact Statement review process for this project. Currently the majority of Kahana Valley residential have their own water supply system, but with the completion of the residential project all 31 residential units will be on the Board of Water Supply System. Those lessees that are new water users are expected to pay the Water System Facility Charges.

Your memo and this response will be appended to the Supplemental Draft and Final Environmental Impact Statement.

Sincerely,
 RALPH H. KAGAWA,
 State Parks Administrator

FRANK F. FASO, Mayor
 WALTER O. WATSON, JR., Chairman
 MAURICE H. YAMASATO, Vice Chairman
 SISTER M. DORIS, Secretary
 JOHN W. ANDERSON, JR.
 REED JOHNSON
 MELISSA T. LUM
 KAZU HAYASHIDA
 Manager and Chief Engineer



June 1, 1992

BOARD OF WATER SUPPLY
 CITY AND COUNTY OF HONOLULU
 630 SOUTH BERETANIA STREET
 HONOLULU, HAWAII 96813

Mr. William Gorst
 Division of State Parks
 Department of Land and Natural Resources
 State of Hawaii
 P.O. Box 621
 Honolulu, Hawaii 96809

Dear Mr. Gorst:
 Subject: Supplemental Environmental Impact Statement Preparation Notice, Dated April 1992, Regarding the Proposed Kahana Valley State Park, Living Park Program. TMK: 5-2-01 to 03

Thank you for the opportunity to review and comment on the proposed Living Park Residential Project in the Kahana Valley State Park. We have the following comments to offer:

1. We have no objections to the proposed 31-unit residential project. The construction plans for the project were approved on May 6, 1992.
2. All new water users will require a water allocation from the State Department of Land and Natural Resources. The new applicants will be required to pay our Water System Facilities Charges for transmission and daily storage.

If you have any questions, please contact Bert Kutoka at 527-5235.

Very truly yours,
 Kazu Hayashida
 KAZU HAYASHIDA
 Manager and Chief Engineer

To: ADMINISTRATOR
 ASST. TO ADM.
 DIV. BR.
 PLAN BR.
 RES. MGT. BR.
 PUBL. CONTROL
 SW. REC. PLAN
 CLERICAL STAFF
 ADMIN. ASST.
 ARCHITECTS

For: CALCULATE/POST
 COMMENTS & REC.
 DRAFT REPLY
 FILE
 FOLLOW UP
 MAIL ROOM
 TELETYPE UNIT

The Honorable John Waihee
June 22, 1992
Page 2

includes the Kahana Valley State Park (Public Water System No. 327) servicing 128 persons with 18 source connections.

- The EIS Preparation Notice states that water will be supplied by the Board of Water Supply. The DOH supports this idea of potable water to be provided by the Honolulu Board of Water Supply. The existing water system has low water pressure and the source is very susceptible to contamination. However, the notice fails to mention the fate of the existing Kahana Valley State Park water system.
- The Division of State Parks should be reminded that the Kahana Valley State Park will continue to be regulated as a public water system unless it meets all of the four conditions specified in DOH Administrative Rules, Chapter 11-20, "Potable Water Systems", Section 1.
 - It consists only of distribution and storage facilities (and does not have any collection and treatment facilities);
 - It obtains all of its water from, but is not owned or operated by, a public water system to which such regulations apply;
 - It does not sell water to any person; and
 - It is not a carrier which conveys passengers in interstate commerce.

Underground Injection Control

- The proposed project is situated above the Underground Injection Control (UIC) line. Land areas outside of the UIC line are considered to contain underground sources of drinking water. Thus, these areas should be protected against all sources of groundwater contamination.
- If the project plans to use drainage injection wells (drywells), it will be necessary to obtain a UIC permit from the DOH to authorize the construction and operation of these wells.
- The UIC rules prohibit sewage injection wells in areas above the UIC line.
- Injection wells cannot be sited within 1/4 mile of any drinking water source.

If you should have any questions, please contact Stuart Yamada (Drinking Water) or Chauncey Hew (Underground Injection Control) of the Safe Drinking Water Branch at 586-4258.

Solid Waste

In order to meet the State and County waste reduction goals (State: 25% by 1995 and 50% by 2000, County: 30% by 1995 and 75% by 2000), we feel the provision of alternative systems, focusing on separation mechanisms for recycling and composting, must be included within the plan design. This is especially important in regards to the generation of construction debris. Since the development is

8140
2



STATE OF HAWAII
DEPARTMENT OF HEALTH
P. O. BOX 289
HONOLULU, HAWAII 96813

June 22, 1992

TO: ADMINISTRATOR
 ASST. DIR. ENV. H. HEALTH
 ASST. DIR. COMM. H. HEALTH
 ASST. DIR. PLAN. H. HEALTH
 ASST. DIR. RES. MGMT. H. HEALTH
 ASST. DIR. SW. REC. PLAN. H. HEALTH
 ASST. DIR. ADMIN. H. HEALTH
 ASST. DIR. ARCHITECTURE H. HEALTH
 ASST. DIR. HEALTH SERVICES H. HEALTH
 ASST. DIR. COMMUNITY RELATIONS H. HEALTH
 ASST. DIR. LEGAL COUNSEL H. HEALTH
 ASST. DIR. FIN. MGMT. H. HEALTH
 ASST. DIR. INFORMATION SYSTEMS H. HEALTH
 ASST. DIR. OFFICE MGMT. H. HEALTH
 ASST. DIR. PUBLIC AFFAIRS H. HEALTH
 ASST. DIR. SAFETY H. HEALTH
 ASST. DIR. TRAINING H. HEALTH
 ASST. DIR. QUALITY CONTROL H. HEALTH
 ASST. DIR. LABOR RELATIONS H. HEALTH
 ASST. DIR. HUMAN RESOURCES H. HEALTH
 ASST. DIR. RESEARCH H. HEALTH
 ASST. DIR. SPECIAL SERVICES H. HEALTH
 ASST. DIR. STATE RELATIONS H. HEALTH
 ASST. DIR. TECHNICAL SERVICES H. HEALTH
 ASST. DIR. UTILITIES H. HEALTH
 ASST. DIR. WATER SUPPLY H. HEALTH
 ASST. DIR. WASTE MANAGEMENT H. HEALTH
 ASST. DIR. ZONING H. HEALTH

92-156/epo

JUN 29 1992

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

TO: The Honorable John Waihee
Governor, State of Hawaii

cc: Jo Director, Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, Hawaii 96813

FROM: John C. Lewin, M.D. *John C. Lewin*
Director of Health

SUBJECT: SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT PREPARATION
NOTICE FOR KAHANA VALLEY STATE PARK, OAHU (APRIL 1992)

Thank you for allowing us to review and comment on the subject document. We have the following comments to offer:

Wastewater

The subject project is located in the "Pass" Zone, below the Underground Injection Control (UIC) Line, and in the critical wastewater disposal area as determined by the Oahu Wastewater Advisory Committee. Consequently, no new cesspools will be allowed in the subject area.

Because infrastructure improvements will not be completed in the near future and there is no existing sewer service system in the area, the Department of Health (DOH) recommends that a treatment individual wastewater system (IWS) with leach fields be utilized for wastewater treatment and disposal for each dwelling unit, as stated on page 3 in the preparation notice.

All wastewater plans must conform to applicable provisions of the DOH Administrative Rules, Chapter 11-62, "Wastewater Systems." We reserve the right to review these plans.

If you should have any questions on this matter, please contact Ms. Lori Kajiura of the Wastewater Branch at 586-4290.

Drinking Water

- The Environmental Impact Statement (EIS) should state where the current residents obtain their drinking water. The Safe Drinking Water Branch's inventory of public water systems

STATE PARKS
JUN 30 1 56 PM '92

JOHN WAIHEE
GOVERNOR OF HAWAII

Jo
copy sent 7/1/92

The Honorable John Waihee
June 22, 1992
Page 3

within Honolulu County, and the County has adopted more stringent diversion goals, the County goals would take precedence in this case.

At a minimum, we recommend the following activities to meet these goals:

1. Plans for waste reduction during demolition and construction should be developed and implemented, including the potential for reuse of concrete rubble and asphalt paving.
2. The use of local compost as soil amendment or mulch for the landscaped areas to help reduce the need for lawn watering during the dry months, and thus reduce the burden on the County water supply.
3. The specifications for the road paving, which will occur as a result of this development, specify the use of materials that include a percentage of recycled content, such as crushed glass in asphalt or asphalt-treated base course.

If you should have any questions on this matter, please call Ms. Ceia Hildebrand at 586-4227.

Noise

1. Construction activities must comply with the provisions of DOH Administrative Rules, Chapter 11-43, "Community Noise Control for Oahu."
 - a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels in the rules.
 - b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers.
 - c. The contractor must comply with the requirements specified in the rules and conditions issued with the permit.
2. Traffic noise from heavy vehicles travelling to and from the construction site must be minimized near existing residential areas and must comply with the provisions of DOH Administrative Rules, Chapter 11-42, "Vehicular Noise Control for Oahu."

If you should have any questions on this matter, please contact Mr. Jerry Haruno of the Noise and Radiation Branch at 586-4701.

- c: Wastewater Branch
Safe Drinking Water Branch
Office of Solid Waste Management
Noise and Radiation Branch
- c: Bill Forst, Dept. of Land & Natural Resources

JOHN WALKER
DIRECTOR OF HEALTH



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P. O. BOX 121
HONOLULU, HAWAII 96801

WILLIAM W. PAIS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

MEMBER
JOHN WALKER, I
CONYL HANAU

AGRICULTURE DEVELOPMENT
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CONSERVATION
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CONSERVATION AND
RESTORATION
RECREATION DEVELOPMENT
LAND MANAGEMENT
STATE AND LOCAL PARTICIPATION
PLANNING
WATER AND LAND DEVELOPMENT

JUL 17 1992

Mr. C. Lewin, M.D.
Director of Health
Department of Health
P.O. Box 3378
Honolulu, HI 96801

Mr. C. Lewin, M.D.
Director of Health
Page -2-

JUL 17 1992

Dear Mr. Lewin,

Subject: Supplemental Environmental Impact Statement Preparation
Notice for Kahana Valley State Park, O'ahu.

Thank you for participating in the Environmental Impact Statement review process for this project with your June 22, 1992 response.

Plans for the development of the housing area have been coordinated with the Department of Health and the housing infrastructure construction plans were approved by the Environmental Management Division. We offer the following comments to your areas of concern.

Wastewater - Each of the 31 lessee families is expected to comply with your individual wastewater system requirements. This will be done as part of the building permit process for each home.

Drinking Water - Once the planned residential development is completed all potable water will be provided by the Board of Water Supply and the existing water system servicing some of the residents will be terminated. This existing system will be retained as an interpretive feature related to the village and will be used for irrigation and agricultural purposes only. The existing state park facilities in the village area are currently on the Board of Water Supply system.

Underground and Infiltration Control - This sewage disposal method is not being considered.

Solid Waste and Noise - The housing infrastructure construction contract requires the contractor to comply with Department of Health administrative rules, including solid waste disposal and noise requirements. Kahana Valley residents wastes are currently collected by City and County and this service is expected to continue. Local compost can be made available for residents' yards and agricultural plots. Irrigation is not normally needed in Kahana Valley at anytime of the year, except for wetland taro which will not come from the Board of Water Supply system.

Your memo and this response will be appended to the Supplemental Draft and Final Environmental Impact Statement.

Sincerely,

PALMYRA H. MCGATA,
State Parks Administrator

WILLIAM R. PATY, CHAIRPERSON
 Board of Land and Natural Resources

MEMBERS

JOHN A. BOWEN, II
 DONALD L. HARRIS

AGRICULTURE DEVELOPMENT
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 CONSERVATION AND
 ENVIRONMENTAL AFFAIRS
 CONSTRUCTION AND
 CONTRACTS
 CONTRACTS
 FORESTRY AND WILDLIFE
 HISTORIC PRESERVATION
 LAND MANAGEMENT
 STATE PARKS
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STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 P. O. BOX 51
 HONOLULU, HAWAII 96809

JOHN WANKEL
 Director of Parks

JOSEPH S. CONANT
 Executive Director



STATE OF HAWAII
 DEPARTMENT OF BUDGET AND FINANCE
 HOUSING FINANCE AND DEVELOPMENT CORPORATION
 SEVEN WATERFRONT PLAZA, SUITE 300
 500 ALA MOANA BOULEVARD
 HONOLULU, HAWAII 96813
 TEL (808) 537-0000

DIVISION OF STATE PARKS
 MAY 6 2 15 PM '92

IN REPLY REFER TO:
 92:PPE/1873jt

May 6, 1992

TO: Mr. Bill Gorst
 Department of Land and Natural Resources,
 Division of State Parks

FROM: Joseph S. Conant
 Executive Director

SUBJECT: Supplemental Environmental Impact Statement
 Preparation Notice for the Kahana Valley State Park

Thank you for the opportunity to review the subject report. While we have no comments to offer at this time, we would appreciate receiving the supplemental EIS upon completion.

Mr. Joseph Conant,
 Executive Director
 Housing Finance and Development Corporation
 Seven Waterfront Plaza Suite 300
 500 Ala Moana Blvd.
 Honolulu, HI 96813

Dear Mr. Conant,

Subject: Supplemental Environmental Impact Statement
 Preparation Notice for Kahana Valley State Park,
 Oahu.

Thank you for participating in the Environmental Impact Statement review process for this project. This is to acknowledge receipt of your May 06, 1992 letter regarding the proposed improvements for Kahana Valley State Park. We will be glad to keep you informed, particularly regarding the mortgage funding needs being administered by your agency.

Your letter and this response will be appended to the Supplemental Draft and Final Environmental Impact Statements.

Sincerely,
 /s/ RALSTON H. NAGATA
 RALSTON H. NAGATA,
 State Parks Administrator

TO: ADMINISTRATOR
 ASST. ADMIN.
 PLAN. BR.
 RES. MGT. BR.
 PROJ. CONTROL
 SVY. REC. PLAN.
 CLERICAL STAFF
 ASST. ASST.
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 CH. BOUKE
 5/6/92 2:15 PM

WILLIAM W. MITT, CHAIRPERSON
 BOARD OF LAND AND NATURAL RESOURCES

JOHN P. DEYERLE, II
 DONALD L. WARRICK

AGRICULTURE DEVELOPMENT PROGRAM
 AQUATIC RESOURCES CONSERVATION DIVISION
 CONSTRUCTION AND REPAIRS DIVISION
 CONTRACTS AND PERMITS DIVISION
 LAND MANAGEMENT DIVISION
 PLANNING AND LAND DEVELOPMENT DIVISION



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF STATE PARKS
 P. O. BOX 61
 HONOLULU, HAWAII 96813

JOHN WARRICK
 DIVISION OF STATE PARKS

6/14/85

Department of Land and Natural Resources
 DIVISION OF AQUATIC RESOURCES
 1151 Punchbowl Street
 Honolulu, Hawaii 96813

DATE: 5/21/92

Suspenses:

TO: _____

FOR: _____

1. State Parks _____

2. Signature(s) _____

3. Approval _____

4. Approval as to Form _____

5. Review and Comments _____

6. Appropriate Action _____

7. Return to _____

8. _____

9. _____

10. _____

Remarks: We have no comments at this time on the Kahana Valley State Parks EISPN.

However, we would like to review the DEIS when it is completed.

Mr. Henry M. Sakuda
 Department of Land and Natural Resources
 Division of Aquatic Resources
 1151 Punchbowl Street
 Honolulu, HI 96813

Signature: *Henry M. Sakuda*

Date: 5/21/92

Contact Person: M. Devick

Phone: 7-0110

Dear Mr. Sakuda,

Subject: Supplemental Environmental Impact Statement Preparation Notice for Kahana Valley State Park, O'ahu.

Thank you for participating in the Environmental Impact Statement review process for this project. This is to acknowledge receipt of your May 21, 1992 memo regarding the proposed improvements for Kahana Valley State Park.

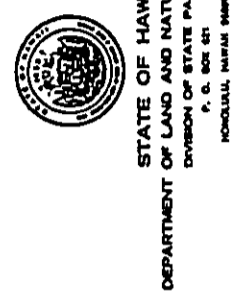
Your memo and this response will be appended to the Supplemental Draft and Final Environmental Impact Statements.

Sincerely,
 /s/ RALSTON H. KAGATA
 RALSTON H. KAGATA,
 State Parks Administrator

WILLIAM W. MITZ, CHAIRPERSON
 BOARD OF LAND AND NATURAL RESOURCES

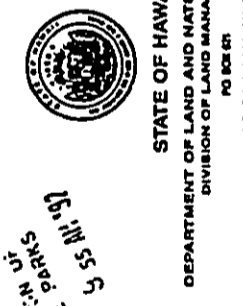
JOHN P. DEWELER, II
 DONALD L. HANAUER

AGRICULTURE DEVELOPMENT
 ADULTIC RESOURCES
 CONSERVATION AND AFFAIRS
 ENVIRONMENTAL AFFAIRS
 LAND MANAGEMENT
 NATURAL RESOURCES
 PLANNING AND DEVELOPMENT
 RECREATION AND TOURISM
 STATE PARKS
 WATER AND LAND DEVELOPMENT



JOHN DEWELER, II
 DIRECTOR OF PARKS

AGRICULTURE DEVELOPMENT
 PROGRAMS
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 ENVIRONMENTAL AFFAIRS
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 NATURAL RESOURCES
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 RECREATION AND TOURISM
 STATE PARKS
 WATER AND LAND DEVELOPMENT



JOHN DEWELER, II
 DIRECTOR OF PARKS

MAY 19 5 55 AM '92
 STATE PARKS

MEMORANDUM

TO: Mr. Raiston Magata
 Division of State Parks

FROM: W. Mason Young
 Land Management Administrator

SUBJECT: Application for Supplemental Environmental Impact
 Statement Preparation for Kahana Valley State Park

Land Management has no objections as long as all necessary
 permits and licenses are obtained.

cc: Ms. S. Himeno
 Mr. T. C. Yim

W. Mason Young
 W. MASON YOUNG

Mr. W. Mason Young
 Department of Land and Natural Resources
 Division of Land Management
 P.O. Box 621
 Honolulu, HI 96809

Dear Mr. Young,

Subject: Supplemental Environmental Impact Statement
 Preparation Notice for Kahana Valley State Park,
 O'ahu.

Thank you for participating in the Environmental Impact Statement review
 process for this project. This is to acknowledge receipt of your May 19, 1992
 memo regarding the proposed improvements for Kahana Valley State Park.

We are in the process of getting the necessary building permits in
 addition to obtaining long term residential leases for each house lot to be
 occupied.

Your memo and this response will be appended to the Supplemental Draft
 and Final Environmental Impact Statements.

Sincerely,
 /s/ RAISTON MAGATA
 RAISTON H. MAGATA,
 State Parks Administrator

- TO: ADMINISTRATOR
- ASST. ADMN.
- DEV. BR.
- PLAN BR.
- RES. MGT. BR.
- PROJ. CONTROL
- SW. REC. PLAN
- CLERICAL STAFF
- ADMN. ASST.
- ARCHAEOLOGISTS
- LINE
- CIRCULATE/POST
- COMMENTS & REC.
- DRAFT REPLY
- FILE
- REVIEW UP
- NOTES
- 21, 21F
- 11-42
- 2:00 COPY TO



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS

P. O. BOX 511
HONOLULU, HAWAII 96809

July 14 1992

Mr. Warren M. Lee
State Conservationist
U.S. Department of Agriculture
Soil Conservation Service
P.O. Box 50804
Honolulu, HI 96850

WILLIAM W. MITCHELL, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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COMMISSIONER OF SOCIAL SERVICES
COMMISSIONER OF THE ATTORNEY GENERAL
COMMISSIONER OF THE DEPARTMENT OF TRANSPORTATION

Mr. Warren M. Lee
State Conservationist
Page -2-

Dear Mr. Lee,

Subject: Supplemental Environmental Impact Statement
Preparation Notice for Kahana Valley State Park,
O'ahu.

Thank you for participating in the Environmental Impact Statement review process for this project with your June 8, 1992 response.

A major concern in designing the infrastructure for the two housing areas was adequate drainage and possible flooding from the steep, small watersheds draining into lower Kahana Valley from ridges which form both sides of the main valley. The additional and enlarged storm water culverts planned as part of the infrastructure will allow the natural storm water flows to continue, rather than be blocked by the access road as it crosses the various small watersheds within the valley. The roads in both residential areas have existed for many years. The road in the residential area A was recently improved by the Board of Water Supply to provide road and pipe line access to a 6 million gallon water reservoir.

It should also be noted that while Kahana Valley is currently in stable, undeveloped condition its land use history includes various intensive agricultural activities in the lower valley. A December 1990 dissertation, Kahana Valley, Hawaii, a Geomorphic Artifact: A study of the Interrelationships among Geomorphic Structures, Natural Processes, and Ancient Hawaiian Technology, Land Use, and Settlement Patterns by Patricia Price Beggally indicates Kahana Bay extended much further inland at the time the Hawaiians originally inhabited the valley. Today's marsh is apparently the result of deforestation and various agricultural practices.

The construction contract for the housing infrastructure requires compliance with the state Department of Health administrative rules including erosion and sediment and landscape preservation.

Your memo and this response will be appended to the Supplemental Draft and Final Environmental Impact Statement.

Sincerely,

ROBERT H. ADGATE,
State Parks Administrator

A P P E N D I X B

**ARCHAEOLOGICAL SURVEY:
PROPOSED HOUSING AREAS IN KAHANA VALLEY STATE PARK,
KAHANA, KOOLAULOA, OAHU**

**Prepared by:
Martha Yent, Archaeologist
Division of State Parks
Department of Land and Natural Resources**

**Prepared for:
Division of State Parks
Department of Land and Natural Resources**

June, 1992

INTRODUCTION

Kahana Valley is an *ahupua'a* situated along the windward coast of Oahu in the district of Koolauloa (Fig. 1). The valley is bounded by Kaaawa Valley to the east and Punaluu Valley to the west. Kahana Valley is approximately 4 miles in length with a north-south orientation. Within the valley, there are two major streams, Kawa on the Kaaawa or eastern side and Kahawainui on the Punaluu or western side. These two streams meet about 1.2 miles inland to form Kahana Stream which meanders across a broad, swampy floodplain to the bay. The deeply indented Kahana Bay includes Huilua Fishpond located along the eastern side of the bay.

Kahana Valley State Park was established in 1970. As part of the park plan, residents will be permitted to live in the valley in return for participating in the interpretive programs. Four housing areas were originally proposed in 1978 but this plan was altered and two housing areas were proposed in 1990 with a total of 29 new houselots. Housing Area A is located on the western side of the valley, approximately 3/4 mile inland of the coast, and includes 19 lots (Fig. 2). Housing Area B is located on the eastern side of the valley along Trout Farm Road and includes 10 lots.

The initial construction work involved the grubbing and grading of the houselots in preparation for development of the infrastructure and future house construction. Prior to the grubbing and grading, an archaeological survey was conducted in the two housing areas to determine the presence/absence of archaeological resources, to assess the significance of sites located in the project area, and to evaluate the impact of this project of any identified sites.

HISTORICAL OVERVIEW

Kahana is an *ahupua'a* that encompasses the valley slopes and ridges, the valley floor, small tributary streams and perennial Kahana Stream, and the coastal area surrounding Kahana Bay, including Huilua Fishpond. As an *ahupua'a*, Kahana Valley contains a range of economic resources from the mountains to the sea. It is assumed that Kahana supported a permanent population and was a center for economic, social, political, and religious activities in the prehistoric period.

Much of our current understanding about the early settlement pattern and land use in Kahana is based on the journals of early travellers, the Mahele documents, Handy's 1940 description of the agricultural fieldsystems in Kahana, and the 1971 archaeological survey by Bishop Museum that encompassed much of the valley. These sources suggest that Kahana conformed in part to the generalized *ahupua'a* settlement-subsistence pattern but also differed in several ways.

In the generalized *ahupua'a* model, a large portion of the settlement occurred on the coast with scattered habitation in the *mauka* areas. Agricultural fieldsystems were developed on the lower slopes and valley floors and often consisted of both irrigated fieldsystems alongside streams and dryland systems on the slopes. This agricultural subsistence would have been supplemented by fishing, the collection of marine resources, and the raising of pigs and dogs. Based on the 1970 archaeological survey, the following interpretations were made regarding the prehistoric/early historic settlement-subsistence pattern in Kahana Valley (Hommon and Barrera, 1971)(Fig. 3):

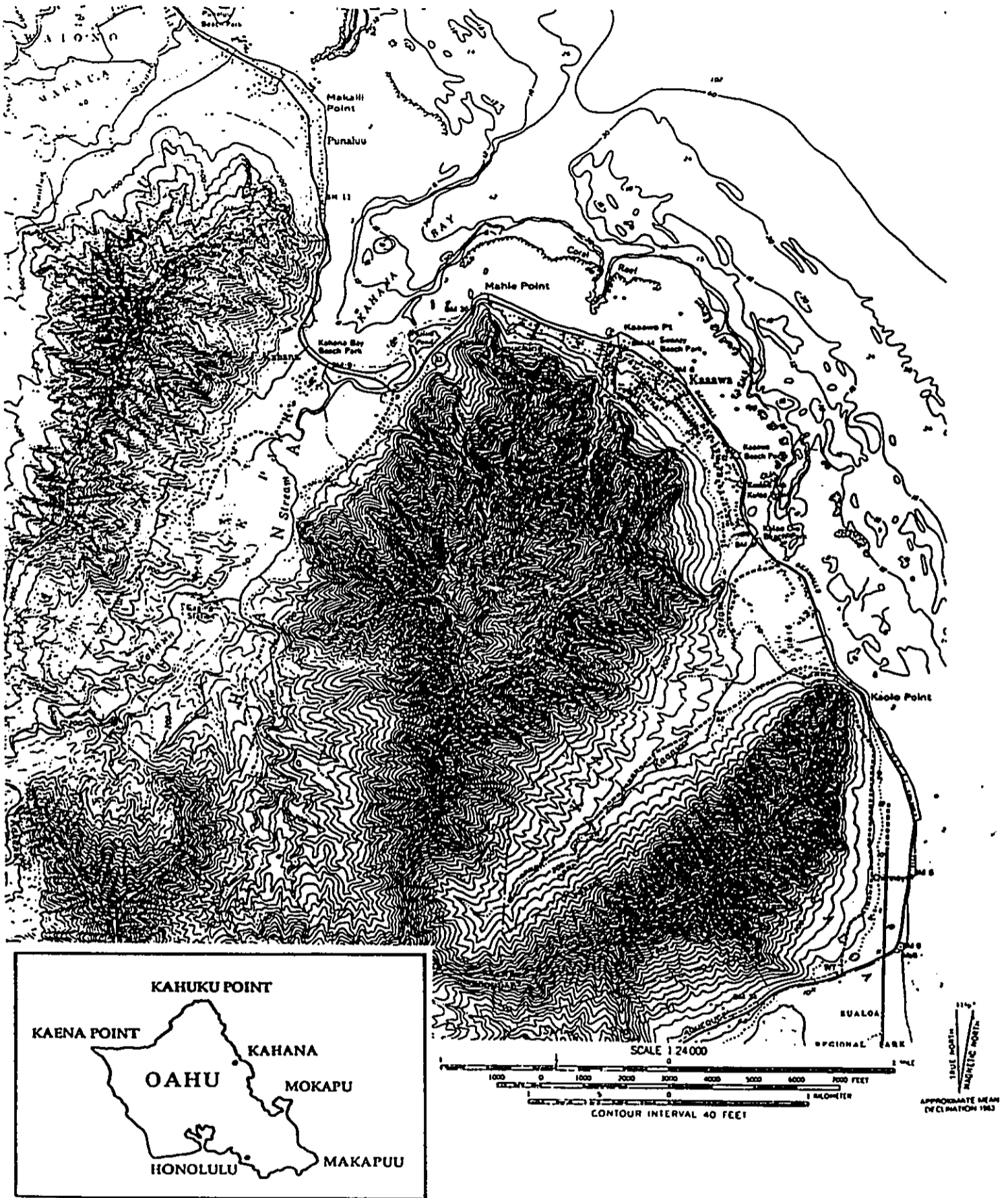


FIG. 1 - Location of Kahana Valley, Koolauloa, Oahu. 1983 USGS Kahana quad, reduced scale.

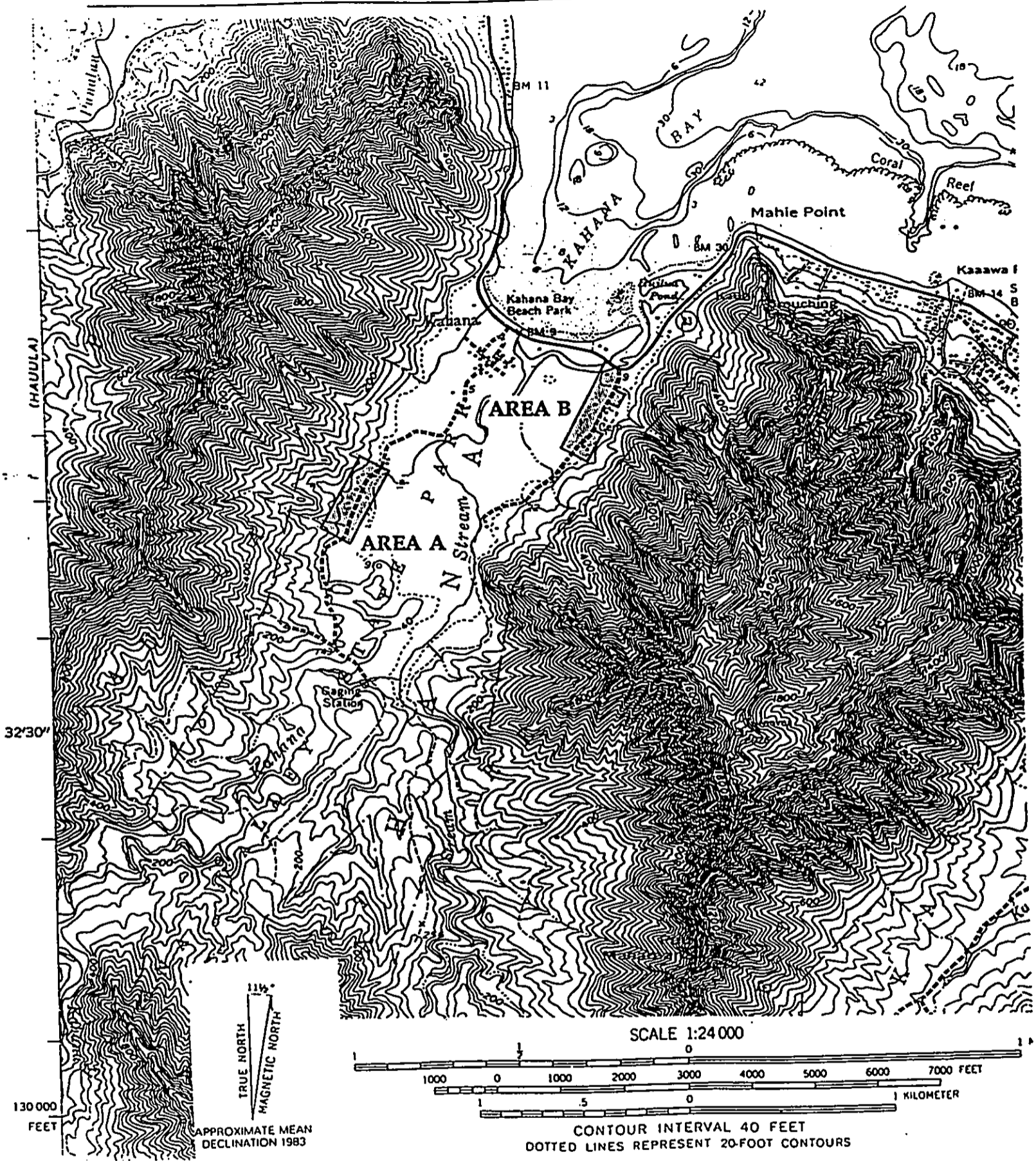


FIG. 2 -- Housing Areas A and B proposed in Kahana Valley in 1990.

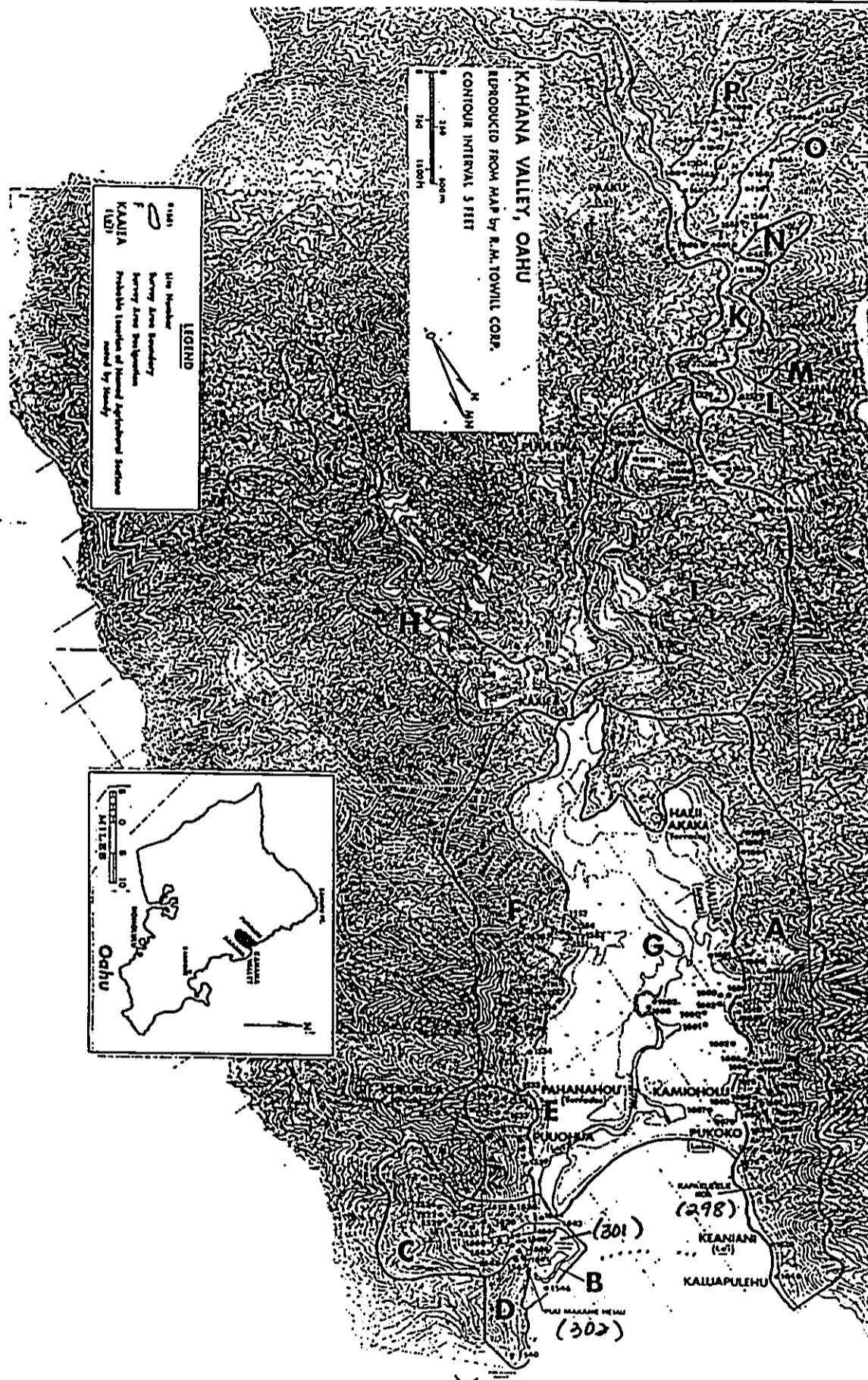


FIG. 3 - Archaeological survey area and sites located during the 1970 survey conducted by Bishop Museum (Taken from Hommon and Barrera, 1971).

- The archaeological remains suggest that only a small percentage of the total valley area was utilized for agriculture. It was calculated that approximately 2.7 acres were developed as irrigated fieldsystems and approximately 0.9 acres were terraced for dryland agriculture (ibid: 43). However, it was recognized that some of the fieldsystems may be covered by alluvium slopewash. It is also possible that a large portion of the alluvial plain on the valley floor was not used for agriculture because of flooding and erosion.
- The majority of the irrigated fieldsystems are found along the upper tributary streams of Kahawainui Valley (Punaluu side of the valley) where water was diverted from the tributary streams rather than the main stream. This use of these relatively small, *mauka* areas may reflect the expansion of the fieldsystems or perhaps, the fact that these areas were not as susceptible to flooding and erosion.
- A total of 12 *'auwai* or ditches used to divert water from the streams to the fieldsystems, were inventoried. All are short in length, except for Wailua which runs *mauka-makai* along the Punaluu side of the valley. Half of the *'auwai* are found in association with the tributary systems and the other half are in association with the *lo'i* and terraces at the edge of the alluvial plain. Several of these are modified drainages which channel water downslope to the floodplain. The age of these *'auwai* has not been determined.
- Dryland agricultural features are most common on the lower slopes in the lower valley. These features consist of terraces, clearings, and possibly the mounds as well.
- Many of the habitation structures are found scattered in the lower valley. However, platforms were also recorded in the upper tributaries in association with the agricultural fieldsystems. Limited testing of sites 1529, 1555, and 1594 in 1973 did not indicate the presence of extensive cultural deposits in association with these possible habitation features (Hommon and Bevacqua, 1973). There has been insufficient archaeological testing to determine if these were permanent habitation sites.
- The religious structures are located at the mouth of the valley. The identified religious sites are Puu Makane Heiau on the Kaaawa side and Kapa'ele'ele *ko'a* on the Punaluu side.
- The presence of three fishponds in Kahana Valley suggests a diversified economic base. Huilua Fishpond is a coastal pond (*loko i'a kuapa*, stone wall enclosed) while the other two are inland, freshwater ponds (*pu'uone*) in the lower valley.

The earliest written description of Kahana Valley was made by Levi Chamberlain in 1826. He described the mountain slopes as brown, barren, and destitute of trees but the head of the valley was described as being covered with vegetation. He stated that little cultivation was evident and the stream was not utilized to irrigate the valley to "any great extent" (Chamberlain, 1826:16-17). Most of the agricultural activity involved taro and bananas being grown at the base of the western slopes of the valley where springs were utilized to water the plants. Chamberlain also noted wild sugarcane and *halia* growing at the base of the mountain slopes. He visited the school in Kahana and noted 50 students. A missionary census in 1831-1832 recorded 233 people living in Kahana. By 1835, the population had dropped to 203. Oral informants indicated that the agricultural system in Kawa Valley was probably abandoned around 1800-1850.

When Chamberlain visited Kahana in 1826, he stated that the valley belonged to Naihe. This may have been the same Naihe who was son of Keawe a Heulu, chief counselor to Kamehameha I. During the Great Mahele of 1848, chiefess Annie Keohokalole claimed the *ahupua'a* of Kahana (5,050 acres). She was the great-granddaughter of Keawe a Heulu and mother of King Kalakaua and Queen Liliuokalani. In addition, 35 *kuleana* awards were registered to native tenants with the Kahana *ahupua'a*. Many of these *kuleana* are located along the western side of the valley and adjacent to the major *'auwai* (Stauffer, 1990).

In the 1930s, Handy described and mapped the agricultural fieldsystem in Kahana Valley (Handy and Handy, 1972:445). He records extensive wet taro *lo'i* in Kahawainui with taro planted in mounds (*pu'epu'e*) in the swampy areas of Kawa and Kahawainui Streams. He states that the flat valley bottom and hillsides were all in *lo'i* with breadfruit and bamboo in the interior. Coconut was found on the *maka'i* flatlands and sweet potato was being grown on the coastal sandy areas near the bay. In addition, the two fishponds, Huilua alongside Kahana Bay and the inland pond, were flanked by taro terraces. Handy goes on to speculate that prior to sugarcane cultivation, there would have been banana, *wauke*, and *ti* planted on the banks of the *lo'i*, *wauke* and *oIona* would be planted in the interior areas, and yams would have been grown on the valley slopes.

In 1857, a Chinese gentleman named Ah Sing purchased 3,000 plus acres in Kahana from A. Keohokalole for \$2,500.00. The "land, sea, and fishponds" were sold twice to other Chinese men in 1868 and 1872. It appears that the fields on the east side of the valley were converted to rice cultivation during this time while the west side stayed in taro cultivation. These lands were deeded to the Mormon Church Members Land Co. in 1874. The Mormon religion was also introduced in Kahana in the 1870s.

Photographs of Kahana in 1880 suggest a dispersed but clustered pattern of both thatched and wooden houses along the coast and along both the western and eastern slopes of the lower valley. The lower valley appears deforested while the coastal slopes and upland portions of the valley are barren. Cattle, goat, and sheep became feral in Kahana in the late 1800s and may account for some of the vegetation loss.

In 1881, there were 150 occupants of Kahana Valley and habitation was primarily along the coastline west of Kahana Stream. This settlement consisted of 6 houses, a school house, and a church (Beggerly, 1990:83). Additional housing was located alongside Huilua Fishpond and the eastern slope of the lower valley. A 1901 map indicates that most of the agricultural fields were alongside the stream in the *mauka* portion of the floodplain and along the western slopes of the lower valley (Monsarrat, 1901)(Fig. 4). These fields were probably a mix of rice, taro, and sweet potato.

Around 1900, Mary Foster established Kahana Ranch Co. and initiated acquisition of lands in Kahana Valley. Other lands in Kahana were being purchased by L.L. McCandless. Kahana in the early 1900s was farmed by a diversity of ethnic groups growing a diversity of crops, including pineapples and sugarcane. The Koolau Railroad Co. was built in 1902 from Kahuku to Kahana. This section of railroad ran across the mouth of Kahana Valley and carried both passengers and sugarcane. The railroad connected with the Oahu Railroad and Land Co. lines that ran from Kahuku, around Kaena Point, to the leeward side of the island. In 1931, the Koolau Railroad Co. merged with the Koolau Plantation Co. and was only used for hauling sugarcane.

The taro cultivation in Kahawainui Valley is believed to have been abandoned in the 1930s. This is about the time that Kahana was used as a military training area. The camp was located on the lower western slopes of the valley near the coastline while most of the valley was used for training activities.

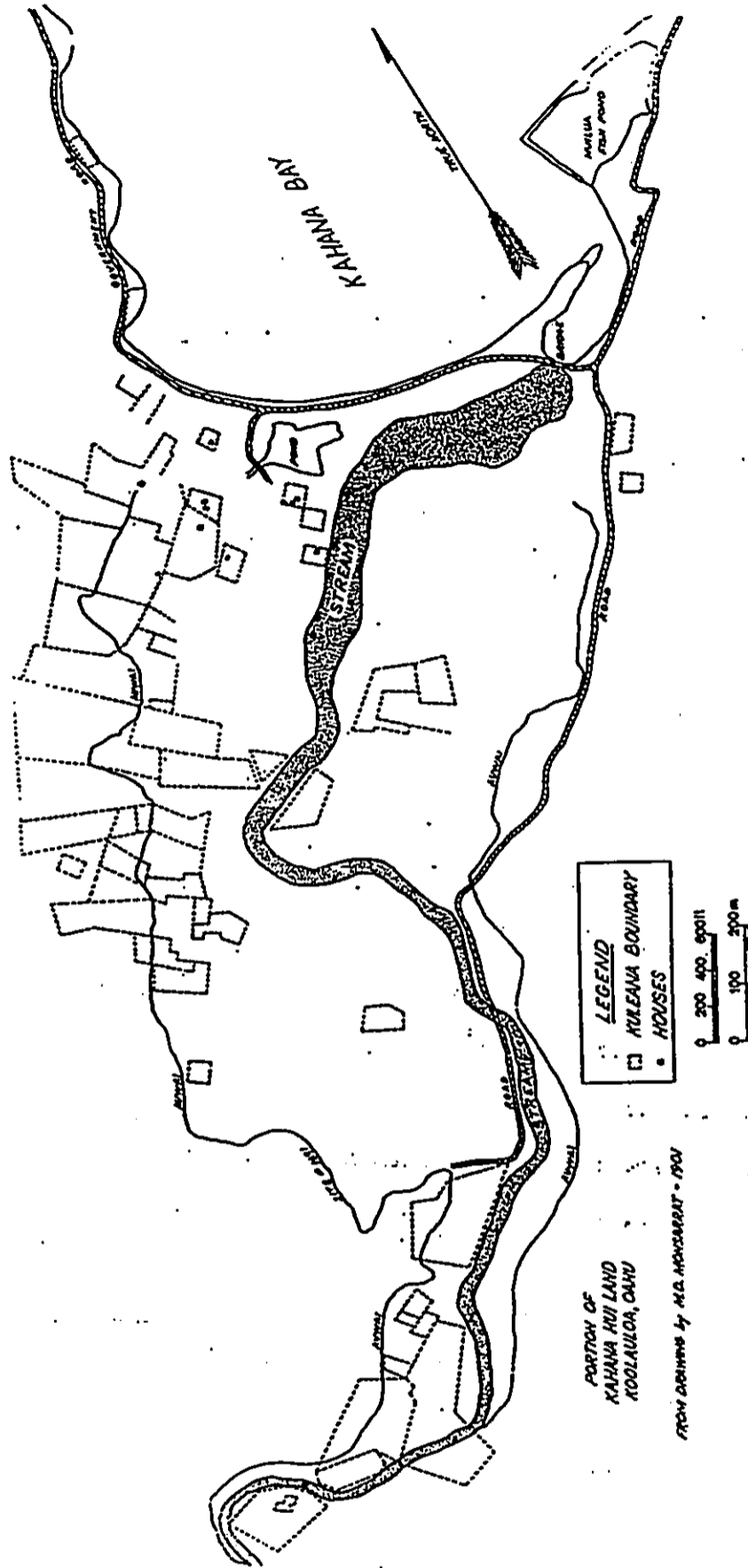


FIG. 4 - Map of lower Kahana Valley showing *Muleana* boundaries from 1901 Monsarrat map. Note the concentration along west side the lower valley and upper Kahana Stream.

Summary. From the historical overview, it appears that agricultural pursuits on the alluvial plain may not have been extensive in the prehistoric and early historic periods. Instead, the fieldsystems appear to have been concentrated along the lower slopes of the lower valley at the edge of the floodplain with extensive use of the small tributary valleys. It has been proposed that the limited agricultural use of the alluvial plain reflects the susceptibility of the area to flooding and alluviation (filling in from slopewash and erosion of the hillsides)(Hommon and Barrera, 1971). It has also been suggested that the low-gradient alluvial plain hampered the movement of water that is required for wet taro cultivation (Beggerly, 1990:98). Other factors that might influence the movement of water include alluviation and the build up of sand at the mouth of the stream. The control of these environmental constraints would require a high-expenditure of labor.

Fishponds offered a diversity in the subsistence base but the maintenance of the fishponds was also labor intensive. Huilua Fishpond was used until 1960 but it is uncertain when the two inland ponds were abandoned and/or partially silted in. The settlement pattern suggested by the distribution of possible habitation sites is a scattering of occupation in both Kahawainui Valley and lower Kahana Valley during the prehistoric/early historic period. During the historic period, this settlement shifted more *maka'i* with a concentration in the lower valley and along the coast.

PREVIOUS ARCHAEOLOGY

The earliest survey of archaeological sites in Kahana was conducted by McAllister in 1930 who identified 5 sites within Kahana Valley (McAllister, 1933)(Fig. 3):

- Site 298: Kapaeleele fishing shrine on W side of Kahana Valley.
- Site 299: Kauninio fishing shrine near W shore of Kahana Bay (not relocated).
- Site 300: Hilo Laau, a cave in Kahana Valley (not relocated).
- Site 301: Huilua Fishpond on E side of Kahana Bay.
- Site 302: Puu Makane Heiau on the E side of Kahana Bay above Huilua.

An extensive archaeological survey to locate and describe the sites in Kahana Valley was conducted by Bishop Museum in 1970 (Hommon and Barrera, 1971). A total of 114 additional sites were located within the 16 survey areas that encompassed the lower valley floor, the upper tributary valleys (Kawa and Kahawainui), and the lower slopes in the lower valley. The inventoried sites include agricultural features (terraces, 'auwai, mounds, and clearings), housesites, enclosures, walls, wells, midden deposits and scatters, and possible graves. Sites were located on a small-scale base map of the valley (Fig. 3).

A survey of the originally proposed four housing areas for the park along the west side of the valley was conducted by the State Parks archaeologists in 1978 (Yent and Griffin, 1978)(Fig. 5). Survey area IV in 1978 was a large area that encompassed the northern portion of the currently proposed Housing Area A. The 1978 survey located sites in survey areas I and IV and relocated the sites in the area that had been inventoried during the 1970 survey (#1591, #1688, and #1689).

Survey Area I:

Several sites in survey area I were located during the 1971 survey (#1591, #1688, and #1689)(Fig. 6). Four new sites were inventoried during the 1978 survey and assigned state site numbers (#4151, #4152, #4153, #4154).

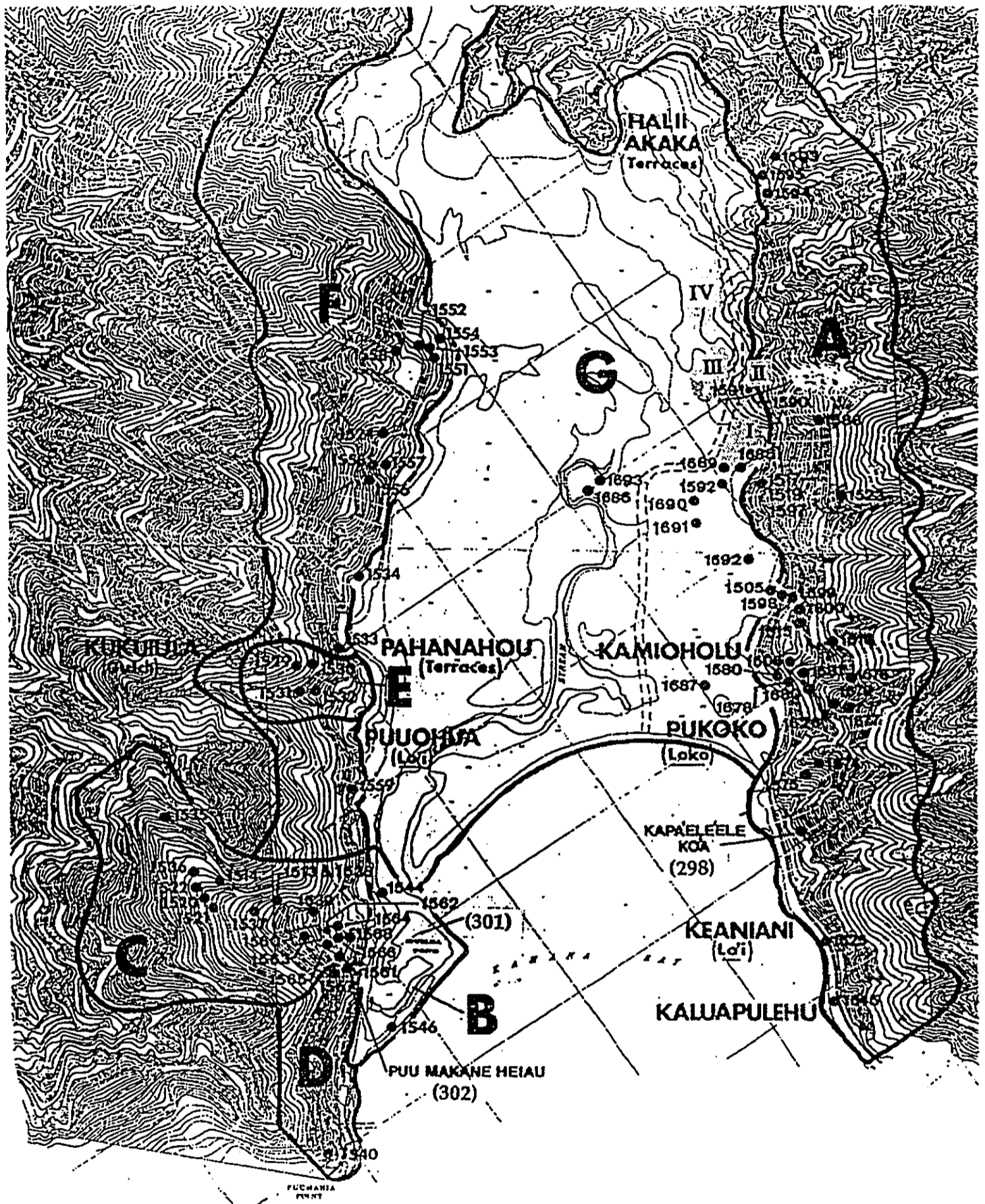


FIG. 5 - Survey areas I through IV in 1978.

- #50-80-06-1591 - Complex of platforms and walls.
 #50-80-06-4151 - Complex of platforms and walls (36m W of #1591).
 #50-80-06-4152 - Series of 3 retaining walls (10m in length).
 #50-80-06-4153 - Retaining wall (2m high) with paved area on upslope side of wall (10m by 5m).
 #50-80-06-4154 - Retaining wall (11m long and 90cm high), mound (7m by 2m and 80cm high), and terrace wall (65m long).
 #50-80-06-1688 - Mound (4m in diameter and 80cm high) at intersection of 2 'auwai on the floodplain.
 #50-80-06-1689 - Mound (8m by 5m and 1.5m high) on floodplain.

Survey Area IV:

The survey of area IV was conducted as an addendum to the 1978 survey. Three sites were inventoried in area IV, including site #1590 that was located during the 1970 survey.

- #50-80-06-1590 - 'Auwai that runs E-W onto the floodplain.
 #50-80-06-4501 - Walled depression (2m in diameter and 80cm deep).
 #50-80-06-4502 - Series of 2 parallel retaining wall running *mauka-makai* along the 12-13 foot contour. Walls 15m apart and 1-2 small boulders high. Mounds in association with walls are either stacked rock (3-5m in diameter and 50cm high) or earthen.

TABLE 1
CORRELATION OF SITE NUMBERS, KAHANA VALLEY HOUSING PROJECT

STATE SITE #	SURVEY AREA	FIELD #	SITE DESCRIPTION
#1590	I ¹	1590	'auwai
	A ²		
#1591	II ¹	#1, #2, #3	platforms/terraces
#1688	I	-	mound
#1689	I	-	mound
#4151	I	#4	platforms, walls
#4152	I	#5	retaining walls
#4153	I	#6	retaining wall
#4154	I	#7	retaining wall, mound
#4501	IV ¹	no #	walled depression
	A	#2	
#4502	IV	no #	terraces
	A	#3	
#4503	A	#4, #5	retaining wall, cement box, mound
#1533	B ²	#6	retaining walls
#4504	B	#7	agricultural complex
#4505	B	no #	mound

¹ - Referenced in Yent and Griffin, 1978.

² - Referenced in Yent, 1991.

In 1990, Dr. Patricia Beggerly completed her research on the geomorphology of Kahana Valley and the implications for Hawaiian settlement and archaeological research. She hypothesizes that the formation of the alluvial plain was initiated by the early Polynesian settlers in Kahana who brought about accelerated natural erosion and alluviation through a practice of swidden technology, ie. cutting and burning of forest for agricultural plots (Beggerly, 1990:355). She suggests that this alluviation, along with the formation of the sand dune at the mouth of the valley, modified the drainage patterns which in turn created constraints on agricultural expansion. Therefore, during the historic period, and perhaps earlier, the Hawaiians grew their crops on the lower slopes of the lower valley, the higher elevations of the alluvial plain, and in the upper tributary valleys because the alluvial plain was susceptible to regular flooding and required a high labor investment to maintain (ibid:99). Agricultural pursuits in the lands surrounding the alluvial plain required less labor and engineering. This hypothesis supports the pattern of archaeological sites noted during the 1971 survey which shows a concentration of sites along the lower slopes and upper alluvial plain on the west and east sides of the lower valley.

ARCHAEOLOGICAL SURVEY

Because of the variations in the boundaries of the housing areas on the west side of the valley proposed in 1978 and 1990, an additional fieldcheck was conducted in September, 1990 (Fig. 6). In addition, a survey was conducted at the new houselots in Area B on the east side of the valley in 1990. The grubbing and grading work was carried out between February and May, 1991 and the project was monitored for the presence of any cultural remains exposed on the surface during the removal of vegetation.

Housing Area A: Punaluu Side

Housing Area A is located about 4000 feet (1200 meters) inland of the coastline and along the dirt road that runs along the road on the Punaluu side of the valley. A total of 19 houselots are located in Area A, including 16 lots on the east side of the road and 3 lots on the west side (Fig. 7). The area on the east side of the road measures approximately 1500' (457 meters) (N-S) by 155' (47 meters) (E-W) or 7.4 acres. At the time of the survey, the project area had a dense growth of Java plum and hau with a ground cover of honohono grass. The ground surface on the east side of the road is relatively flat but subject to slopewash and wet soil conditions during heavy rains. The site is located along the upper limit of the flood zone. The lots on the west side of the road have a gradual slope upwards to the west and correspond to the lower slopes of the Punaluu ridge.

The historical records indicate that this western portion of the lower valley was utilized for agriculture, mostly taro and banana. The fields on the edge of the alluvial plain were irrigated with water from the 'auwai running along the base of the slope as well as the springs. The 1970 archaeological survey indicated the presence of numerous terraces for dryland agriculture along the lower slopes adjacent to the alluvial plain. Habitation sites were found scattered amongst the terraced sites. A 1952 aerial photograph of lower Kahana Valley indicates that proposed housing area A was planted with papaya trees (Fig. 8). The photograph also shows an historic residential complex of several structures located just north of the proposed housing area and on the east side of the road.

The sites identified during the previous surveys conducted in 1970 and 1978 are discussed below in relationship to the proposed houselot boundaries (Fig. 7):

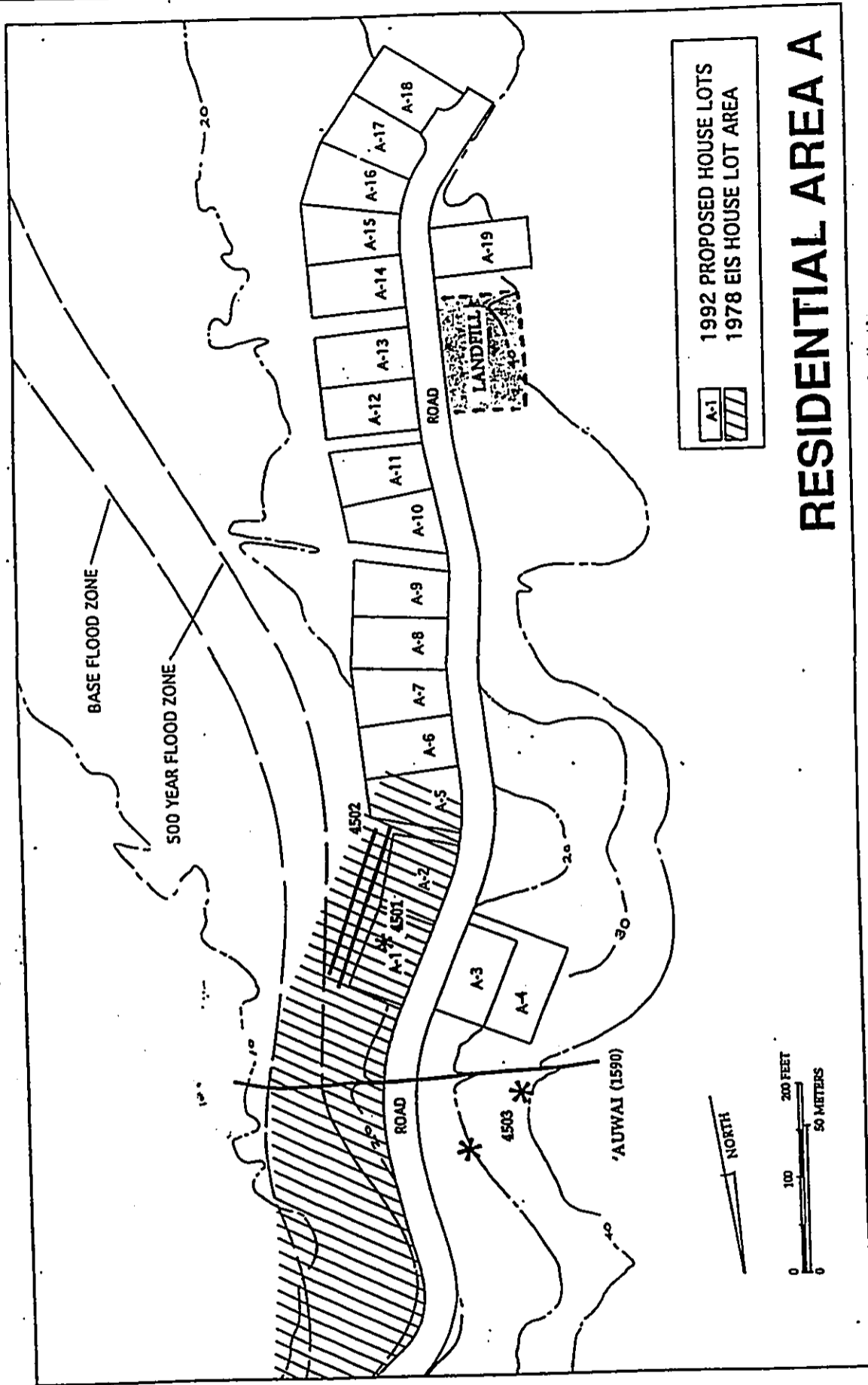


FIG. 7 - Plan for Housing Area A showing the location of archaeological sites relative to the houselots.

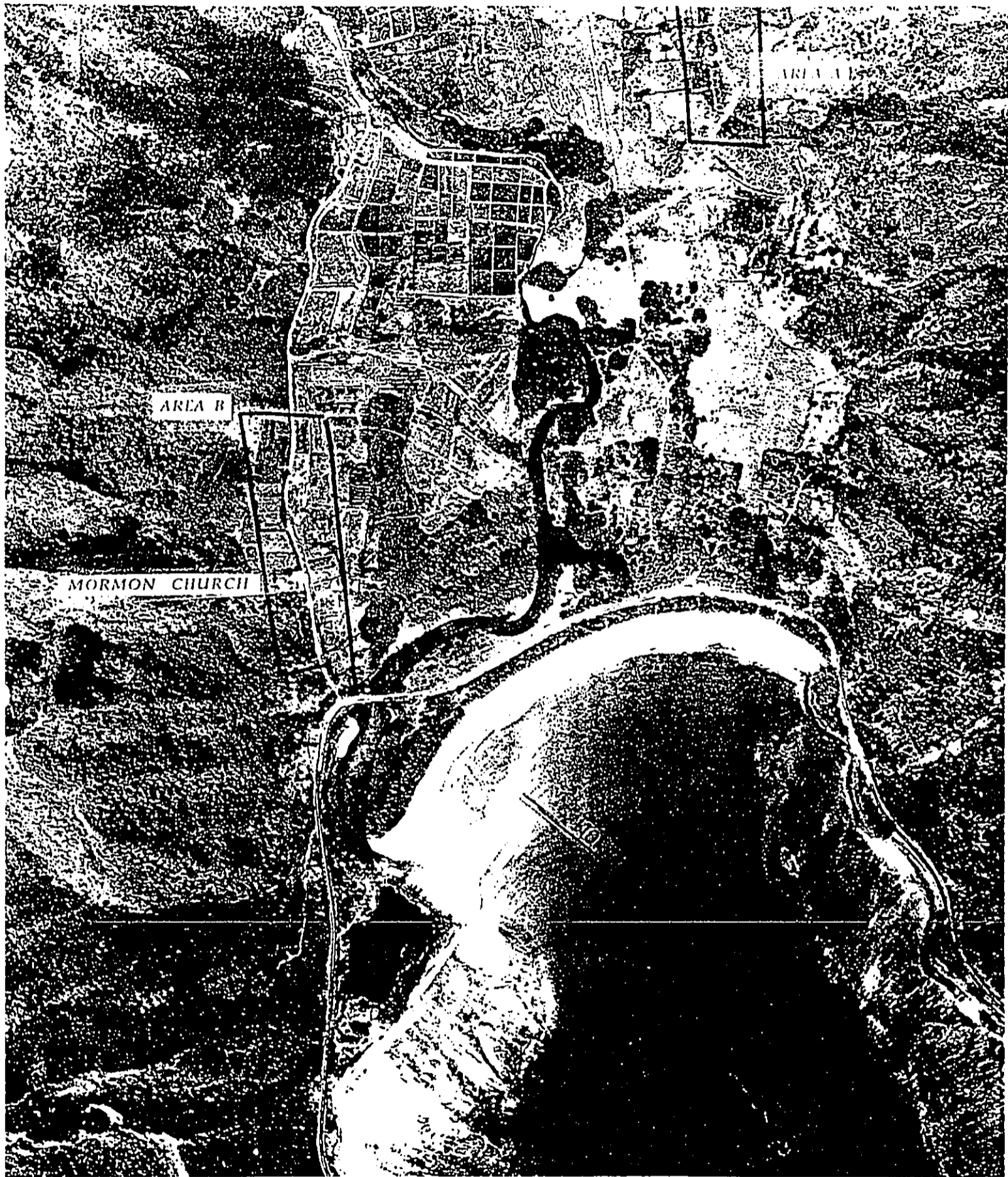


FIG. 8 - 1952 aerial photograph of Kahana Valley showing historic land use in proposed housing areas.

Site #50-80-06-1590

The north end of Housing Area A is approximately 50m (165') south of an 'auwai that runs east-west to the floodplain. This rock-lined 'auwai was first recorded during the 1970 survey. The 'auwai is lined with 1m high stacked rock walls. The ditch is 1m wide and runs for a distance of at least 150 meters. The presence of mortar in the construction indicates that the 'auwai has been modified historically. The 'auwai has been impacted by construction of the roadway and a culvert was installed under the road where it crosses the 'auwai. It is possible that the 'auwai will be subject to impact from road repair and maintenance and installation of the infrastructure for the houselots. Despite the fact that this 'auwai has been modified historically, it is perhaps the best example of an 'auwai existing in the lower valley.

Site #50-80-06-4501

This is a depression with rock-lined walls constructed of basalt boulders and mortar. The depression measures 2m in diameter and 80cm in depth. The site is approximately 110m (360') south of the 'auwai (site #1590) and 30m (100') east of the dirt road. This feature was relocated in 1990 and may be a water collection feature in conjunction with the use of the area for pasture. This site is within houselot 2 (Fig. 7)

Site #50-80-06-4502

During the 1978 survey, a complex of two terraces and mounds was recorded about 30m (100') south of the 'auwai and running north-south along the 12-13 foot contour. The two terraces were 15m apart and defined by retaining walls 1-2 cobbles high. The mounds of stacked rock averaged 3-5m in diameter and 50cm in height. The 1990 survey located an alignment of boulders along the eastern edge of housing project that corresponds to the upper terrace (Fig. 7). These boulders separate the drier ground to the west from the wetter floodplain to the east. The mounds and lower terrace identified in 1978 are east of the grading limits and approximately 5 meters outside the current area designated for the houselots.

Site #50-80-06-4503

This historic period site is located on the north side of the 'auwai (site 1590) and was located during the survey of Lots A-3 and A-4 (Fig. 7). The site is located about 50m (150') west of the road and along the northern edge of the 'auwai. Therefore, the site is outside the boundaries for Housing Area A.

The site consists of a concrete-lined box set into the ground. A wooden roof was constructed over the top and pipes from the box to the 'auwai suggest a water catchment feature. The box measures approximately 5m (N-S) by 2m (E-W) and is 110cm deep inside. Adjacent to the box on the north is an L-shaped retaining wall constructed with subangular to rounded basalt boulders (Fig. 9). This wall measures 160cm high, 100cm wide, about 5m in length on the E-W face, and turns to the north on the east end for a length of about 3m. A secondary retaining wall of stacked cobbles, about 50cm high, runs south of the west end of the main retaining wall. A bulldozed boulder pile was also recorded on the north side of the 'auwai and about 25m (75 feet) west of the road. This pile measures about 7m in length and 2m in height. The Board of Water Supply well and pump station are located to the north of this historic site.

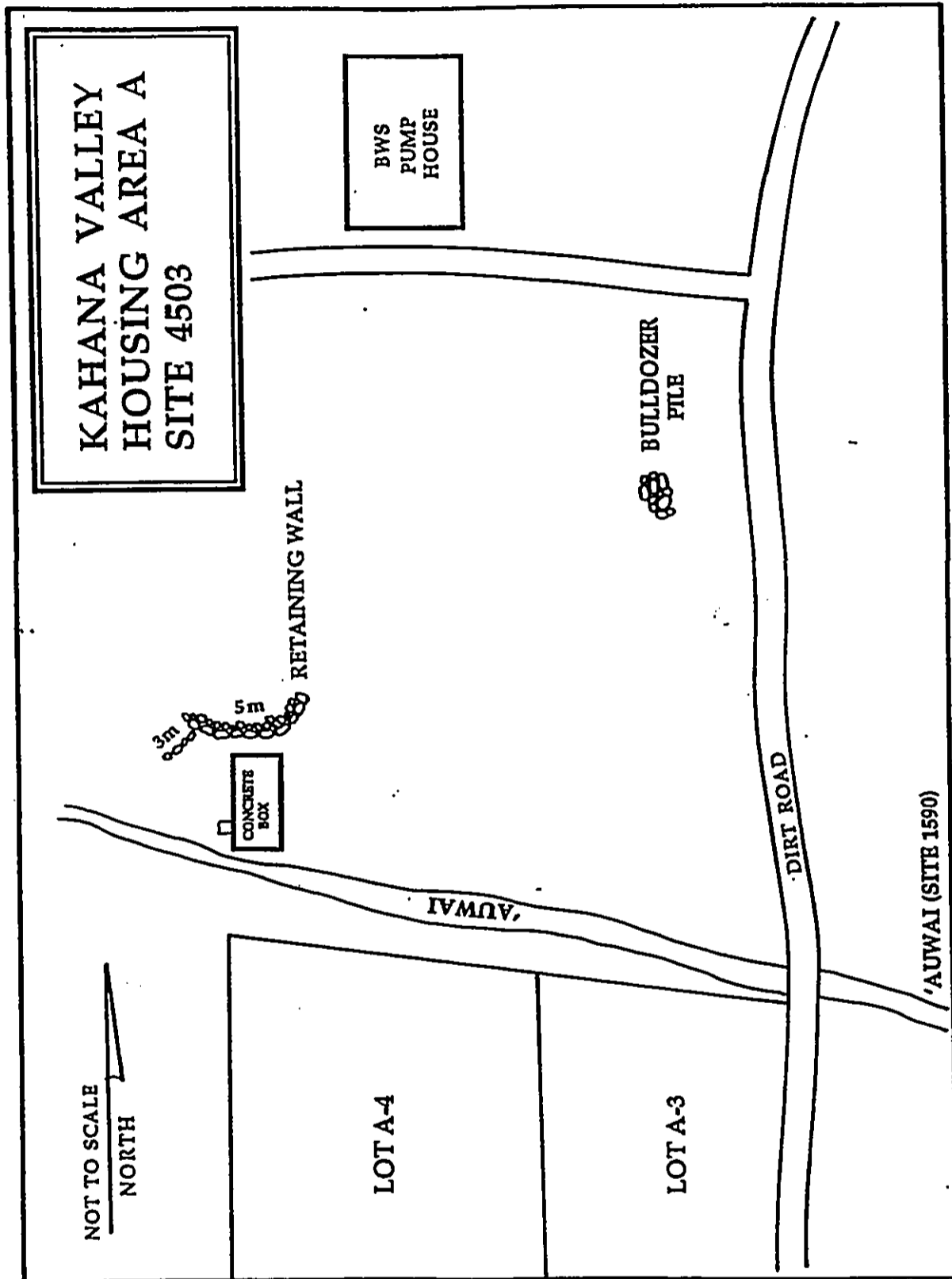


FIG. 9 - Schematic plan-view of site 4503 to the north of Houselots A-3 and A-4.

Landfill

There were no sites located in Lot 19, although, historic materials were noted on the surface. For future reference, it should be noted that the area north of Lot 19, across from Lots 12 and 13, has recently been used as a landfill, mostly for vegetation (Fig. 7).

Housing Area B: Kaaawa Side

Housing Area B contains a total of 10 new houselots, including 7 new houselots along the east side of Trout Farm Road and 3 new houselots on the west side (Fig. 10). There are 3 existing houselots that have house structures and these lots were not included in the survey.

The *maka*i area on the east side of Trout Farm Road includes 3 new houselots adjacent to the road and one existing houselot. A survey of houselots B-11 through B-13 indicated historic disturbance, probably grading adjacent to the roadway, and a lack of archaeological sites. The other 4 houselots on the east side of the road (B-7 through B-10) are located about 60 feet south of the Mormon Church and these 4 lots measure approximately 47m (155') wide (E-W) by 107m (350') long (N-S) or 1.2 acres. The 4 lots are located at the base of a ridge that defines the Kaaawa side of the valley and the steep slope of the ridge marks the eastern edge of the lots. The houselots are relatively level with a gradual slope upwards on the south end. The southern edge is marked by a drainage channel and several Hawaiian plants, including *ti*, banana, and *haia*. The eastern limit of the grading area corresponds roughly to the 25 foot contour.

At the time of the survey in 1990, the site was covered by a dense growth of *hau* with scattered Java plum, octopus, and mango trees. No surface sites were located in the project area during this survey. The 1952 aerial indicates that this area was also used for agriculture, mostly papaya, with one house on the east side of Trout Farm Road (Fig. 8).

Site 50-80-06-1533 (?)

Monitoring during the grubbing of Area B in May, 1991 located a series of terraces along the eastern edge of the project area (Fig. 10). The terraces are oriented north-south and parallel the contour. The lowest (westernmost) terrace runs along the base of the slope at the 25 foot contour. The wall measures about 50m in length and the southern end abuts the drainage channel. The retaining wall averages 30-50cm in height and 1.5m in width. The wall of subangular basalt boulders and cobbles appears piled and lacks a vertical, stacked face. The terrace is very close to the edge of the grubbing and corresponds to the current tree line. Only the northernmost end of the wall was impacted during the current grading and grubbing project. The historic use of the area is evident in the presence of ceramic plates, metal, thread-top glass jars, and linoleum tile on the surface. This earlier use of the area may have collapsed the wall.

A second terrace is located about 7m upslope of the first terrace along a steeper portion of the slope. This second terrace is in better condition with a more vertical retaining wall that measures 70cm in height and 80cm in width. The wall is 20m in length and the southern end is 10m north of the drainage channel.

The uppermost terrace is about 3m upslope of the second terrace and constructed on the steep slope. The retaining wall is in poor condition as a result of slopewash. This wall is only about 10m in length and 50cm in height.

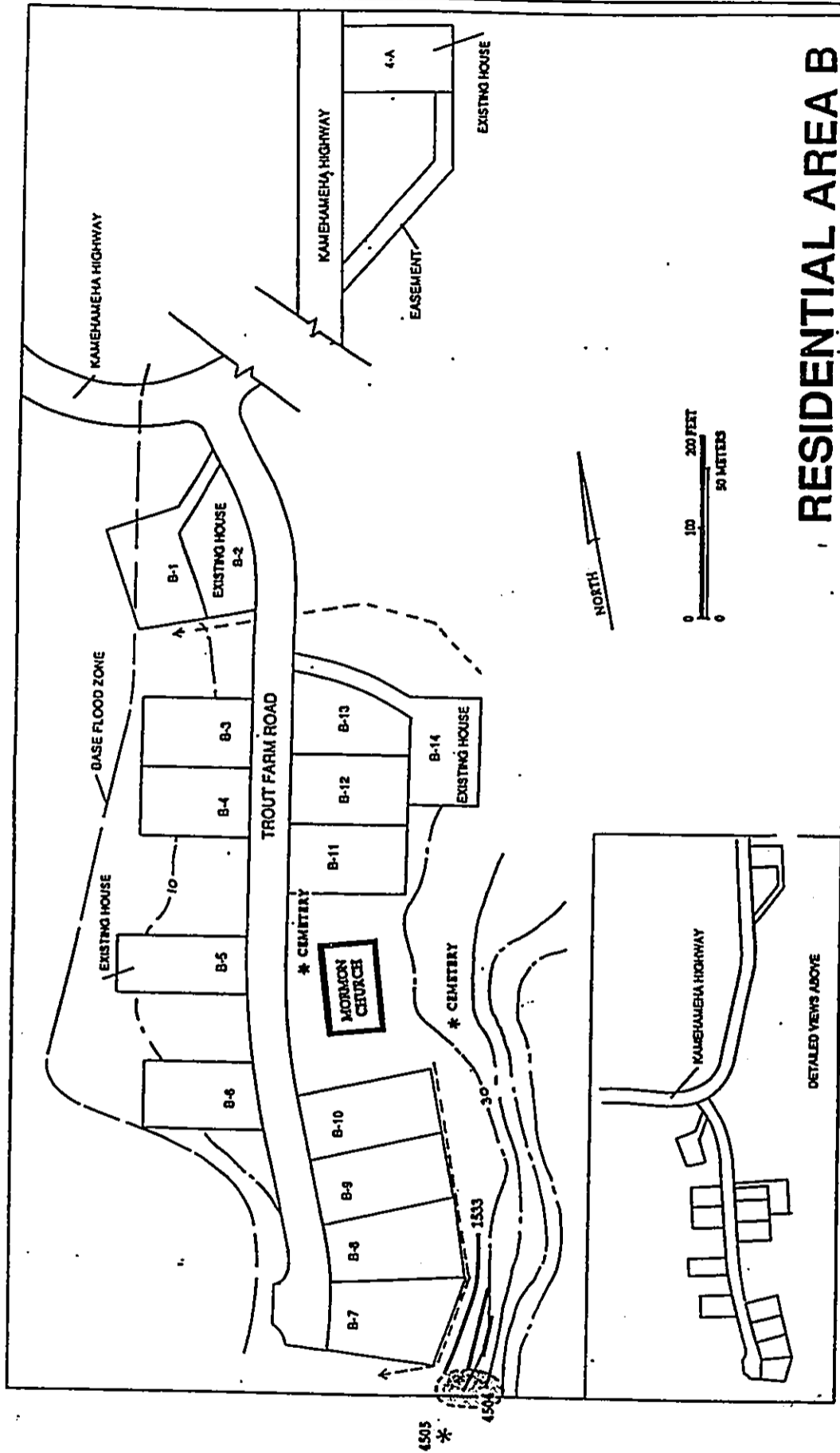


FIG. 10 - Housing Area B on the east side of Kahana Valley showing location of archaeological sites.

Site 1533 inventoried during the 1971 survey is described as three terraces on the hillside to the south of the Mormon Church. The terraces are 4.5-7m long, 1.3 to 1.6m wide and 30 to 40cm high (Hommon and Barrera, 1971:23) (Fig. 11). The length of the upper terrace wall was 10m. There is no mention of the drainage channel or the distance from the Church. Therefore, it is difficult to determine if the site recorded in Housing Area B is the same as site 1533.

#50-80-06-4504

Along the north side of the drainage channel, there is a series of at least twelve (12) low linear rock mounds running N-S and parallel to each other (Fig. 9). The mounds are about 80cm wide and 50cm high and separated by 50cm wide areas without rock. The length of these mounds varies from 5-10m. The mounds cover an area about 10m (N-S) by 15m (E-W). This complex resembles *kuaiwi* or traditional planting areas. A small mound, about 1m in diameter, was noted along the north edge of the drainage channel in association with this site.

#50-80-06-4505

A large mound was recorded about 10m south of the drainage channel and outside the project area. This mound measures approximately 10m (N-S) by 2m (E-W) and 70cm in height. The surface of the area is marked by a lot of historic debris and this may be a historic clearing mound.

SITE SIGNIFICANCE EVALUATION

Each of the sites in located within the boundaries or in close proximity to Housing Areas A and B were assessed for significance using the criteria established for the National Register of Historic Places.

TABLE 2
SIGNIFICANCE ASSESSMENT

SITE NUMBER	SIGNIFICANCE ¹	RECOMMENDATION ²
Area A:		
50-80-06-1590	C, D	R, P
50-80-06-4501	D	R
50-80-06-4502	D	R, P*
50-80-06-4503	D	R, P
Area B:		
50-80-06-1533	D	R, D, P*
50-80-06-4504	D	R, D, P
50-80-06-4505	D	D

¹ - Significance Criteria:

- A - Associated with events.
- B - Associated with lives of persons significant in our past.
- C - Distinctive characteristics of a type, period, or construction.
- D - Has yielded or likely to yield important information.
- E - Traditional cultural values.

² - R - Recordation (mapping, photographing)

- D - Data recovery (excavation)
- P - Preservation (with interpretive options)
- P*- Preservation is recommended but not required after data recovery.

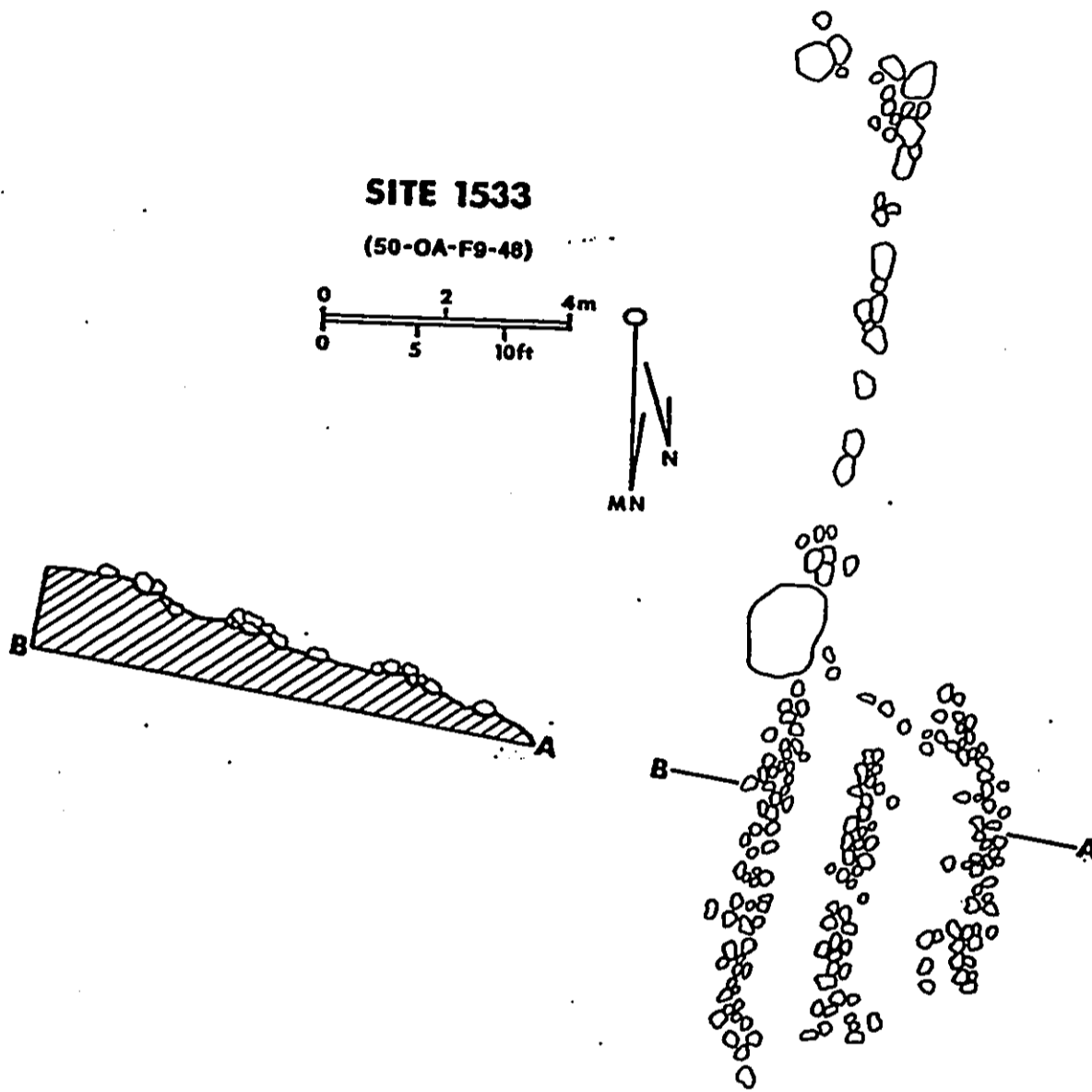


FIG. 11 - Site 1533, a complex of three terraces. Taken from Hommon and Barrera, 1971: 55.

SUMMARY AND RECOMMENDATIONS

Both Housing Areas A and B showed evidence of recent historic activities, including prior housesites and papaya cultivation, that may account for the general lack of archaeological sites in the project areas. The only site within the boundaries of the project area for Housing Area A was the circular, rock-lined depression feature (site #4501). This site was recorded for its information content but was not judged significant for preservation. It is believed that this site was filled during the grubbing and grading activities.

There are several sites adjacent to the project limits for Housing Area A. The 'auwai along the northern edge of Area A has been recommended for preservation during previous projects. Although the 'auwai has been modified historically, the site is significant for its structural form and research value to promote understanding and interpretation of the larger agricultural system within Kahana Valley. There has been some impact on both the north and south sides of the 'auwai during various construction activities in Kahana Valley. Presently, there is a layer of gravel on the surface adjacent to the north wall of the 'auwai. Likewise, the small agricultural complex (terraces and mounds) along the eastern edge of Area A should be researched further and considered for preservation. Residents might be asked about the historic site to the north of Lot A-3 as it appears to be a relatively recent construction. It is recommended that the residents of Area A be informed about these sites to avoid inadvertent damage once the houselots are in use.

In Area B, the terrace complex along the eastern edge of the houselots has been subject to disturbance during construction and occupation of the previous house in the 1950s. Again, it is recommended that the residents of Area B be informed about the presence of the sites to avoid inadvertent damage. The site has been recorded for structural information in the event that there is damage or destruction in the future. However, no archaeological testing was conducted which might assist in determining the age and function the terraces and the linear rock mound complex adjacent to the drainage channel.

Site #4504, a complex of linear agricultural mounds and clearings, is outside the immediate project area for Housing Area B. However, this site is significant for its research potential and the information it may yield regarding the variety of agricultural systems developed in Kahana Valley. Therefore, preservation is strongly recommended for this site along with some testing.

The presence of these archaeological sites adjacent to the residences indicates that it is unlikely they will be used in the interpretive program in the park. However, they should be considered for 'archaeological banking' with an option for future research. Additional discussion with the residents may also assist in determining the significance of these sites.

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- Stauffer, Robert
1990 Land Tenure in Kahana, Hawaii, 1846-1920. Dissertation for Doctorate in American Studies, University of Hawaii at Manoa, Honolulu.
- Yent, Martha and Agnes Griffin
1978 "Results and Recommendation of the Walk-Through Reconnaissance Conducted at Kahana Valley, Koolauloa, Oahu, Hawaii". Memorandum on file at Department of Land and Natural Resources, Division of State Parks. May 1, 1978.
- Yent, Martha
1991 "Archaeological Survey: Proposed Housing Areas in Kahana Valley State Park, Kahana, Koolauloa, Oahu". Draft report prepared for Division of State Parks, August 1991.

APPENDIX C

Persons, Organizations and Agencies commenting on The Supplemental Draft Impact Statement.

1. List of Respondents.

Federal Agencies

- o Department of the Navy
Commander, Naval Base Pearl Harbor
Pearl Harbor, Hawaii
- o U.S. Department of the Interior
Geological Survey
Water Resources Division
Honolulu, Hawaii
- o U.S. Department of the Army
U.S. Army Engineer District
Honolulu, Hawaii
- o U.S. Department of Agriculture
Soil Conservation Service
Honolulu, Hawaii

State Agencies

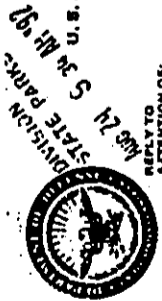
- o Department of Business Economic Development and Tourism
Director's Office
- o Department of Business Economic Development and Tourism
Land Use Commission
- o Department of Defense
- o Department of Budget and Finance
Housing Finance and Development Corporation
- o Department of Land and Natural Resources
Office of Conservation and Environmental Affairs
Division of Boating and Ocean Recreation
Commission on Water Resource Management
Division of Forestry and Wildlife
Division of Aquatic Resources
State Historic Preservation Division
Division of Land Management

City and County of Honolulu Agencies

- o Department of Public Works
- o Department of Housing and Community Development
- o Police Department
- o Fire Department
- o Department of Parks and Recreation
- o Board of Water Supply
- o Department of Transportation Services
- o Department of General Planning
- o Department of Land Utilization

2. Comments of significant environmental content and responses for the Supplementary Final Draft EIS.

- o Department of The Army
U.S. Army Engineer District, Honolulu
- o Commission on Water Resource Management
- o Department of General Planning
- o Fire Department
- o U.H. Environmental Center - (response to comments on EIS Preparation Notice)
- o U.S. Soil Conservation Service



DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96856-5440

August 20, 1992

Planning Division

Mr. Brian J. N. Choy, Director
Office of Environmental Quality Control
220 South King Street, Fourth Floor
Honolulu, Hawaii 96813

Dear Mr. Choy:

We have reviewed the Draft Supplemental Environmental Impact Statement for Kahana Valley State Park, Oahu. The following comments are provided pursuant to Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1960 and to issue Department of the Army (DA) permits under the Clean Water Act, the Rivers and Harbors Act of 1899, and the Marine Protection, Research and Sanctuaries Act.

a. A DA permit may be required. If there are questions, please contact Operations Division at 438-9258.

b. According to the Federal Emergency Management Agency's Flood Insurance Rate Map (FIRM), Panel 150001-0030-B, dated September 4, 1987 (copy enclosed), the project site is located in the following zones: Zone AE and the floodway (areas inundated by the 100-year flood, with base flood elevations ranging from 8 to 20 feet above mean sea level); Zone X - shaded (areas inundated by the 500-year flood); and Zone X - unshaded (areas determined to be outside of the 500-year flood plain).

OK

Sincerely,

Kisuk Cheung, P.E.
Director of Engineering

Enclosure
Copies Furnished:
Division of State Parks
Attn: Mr. Bill Gorst
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

TO: _____
ADMINISTRATIVE _____
ASST. ADM. _____
DEV. BR. _____
PLAN BR. _____
PROJ. CONTROL _____
SW. REC. PLAN _____
CLERICAL STAFF _____
ADMIN. ASST. _____
ARCHITECTS _____
FOR: _____
CIRCULATE/POST _____
COMMENTS & REC. _____
DRAFT REPLY _____
FILE _____
FOLLOW UP _____
MAIL _____
RUSH PUE _____
SEE ME _____
SEND COPY TO: _____

September 8, 1992

Kisuk Cheung, P.E.
Director of Engineering
Department of the Army
U.S. Army Engineer District, Honolulu
Building 230
Ft. Shafter, HI 96856-5440

Dear Mr. Cheung:

SUBJECT: Supplemental Draft Environmental Impact Statement for Kahana Valley State Park, Park, Oahu

Thank you for participating in the Environmental Impact Statement review process for this project with your August 20, 1992 response.

Flood hazards were a major concern in selecting new houselots and relocating existing homes away from flood areas. The 1987 Flood Insurance Rate Map was consulted in selecting the two houselot areas and we will comply with all regulations under the jurisdiction of your agency.

Your letter and this response will be appended to the Supplemental Final Environmental Impact Statement.

Sincerely,
/s/ RALSTON H. NAGATA
RALSTON H. NAGATA
State Parks Administrator

WG:rn

9/19/92

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Commission on Water Resource Management
Honolulu, Hawaii

AUG 12 1992

MEMORANDUM

TO: Roger C. Evans, Administrator
Office of Conservation and Environmental Affairs

FROM: Rae M. Loui, Deputy *Rae M. Loui*
Commission on Water Resource Management

SUBJECT: Supplemental EIS for Kahana Valley State Park, Oahu

The following are our comments on the above subject:

About twenty-nine households are planned for relocation in the park. Because sewage disposal will be via individual septic tanks and leach fields, we would recommend that the Honolulu Board of Water Supply review this EIS with respect to the possible effect such sewerage systems might have on the Board's drinking-water wells in Kahana Valley.

PH:ky

September 3, 1992

MEMORANDUM

TO: Rae M. Loui, Deputy
Commission on Water Resource Management

FROM: Ralston H. Negata, State Parks Administrator *RALSTON H. NEGATA*

SUBJECT: Supplemental EIS for Kahana Valley State Park,
Oahu re your 8/12/92 response

OK!

The subject project has been coordinated with the Honolulu Board of Water Supply. They signed the housing infrastructure construction plans May 6, 1992 and responded to the EIS Preparation Notice on June 1, 1992.

There are two operating BWS wells in Kahana Valley. Two houselots located near one of these wells were placed in an area which drains away from the wells and their sewage systems will be located further away from this well.

WG:rn

RECEIVED
- '92 AUG 13 AM 10:32
PLANNING
OCEA

9/9/92

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU, HAWAII 96813

DIVISION OF
STATE PARKS



RECEIVED
GENERAL PLANNING OFFICE
HONOLULU, HAWAII
GENERAL PLANNING OFFICE

ET 8/92-2274

August 26, 1992

The Honorable John D. Waihee, III
Governor of Hawaii
c/o Office of Environmental Quality Control
State of Hawaii
220 South King Street, 4th floor
Honolulu, Hawaii 96813

Dear Governor Waihee:

Supplemental Draft Environmental Impact
Statement (SDEIS) for Kahana Valley State Park

In response to the subject SDEIS dated July, 1992 for the
Kahana Valley State Park, we have the following comments.

The area being proposed for residential development is
designated "Preservation" on the Koolauloa Development Plan Land
Use Map. The development plan discourages urbanization of
preservation designated land.

The SDEIS should address the manner in which future
residential development and growth in the area will be controlled
or curtailed. How will the number of residents be limited? Will
vacated lots be reclaimed?

Thank you for the opportunity to comment on the matter.
Should you have any questions, please contact Eugene Takahashi of
our staff at 527-6022.

Sincerely,

B. Lee
BENJAMIN B. LEE
Chief Planning Officer

BBL:js

cc: Department of Land and Natural Resources

September 8, 1992

Mr. Benjamin B. Lee
Chief Planning Officer
Department of General Planning
City & County of Honolulu
650 South King St.
Honolulu, HI 96813

Dear Mr. Lee:

SUBJECT: Supplemental Draft Environmental Impact Statement
for Kahana Valley State Park, Oahu

Thank you for participating in the Environmental Impact
Statement review process for this project with your August 26,
1992 response.

Kahana Valley has been designated as a "living park" in order
to preserve an earlier culture or life style by allowing
existing residents to remain in the valley. The 31 existing
families who resided in the valley in 1970 when the State
acquired the land, are being allowed to stay with the
stipulation in their leases that each family will provide 25
hours per month in interpretive services to the park in lieu of
leasehold rent. We do not anticipate any expansion of the
residential areas although it would be feasible for some
limited expansion of these areas if park program needs
justified additional families.

As the original EIS indicated, most of the vacated lots will be
incorporated into developed park areas. The remainder will be
reclaimed as park open space.

Your letter and this response will be appended to the
Supplemental Final Environmental Impact Statement.

Sincerely,

/s/ RALSTON H. NAGATA

RALSTON H. NAGATA
State Parks Administrator

WG:EN

9/10/92

TO: ADMINISTRATOR
ASST. ADMIN.
DEV. BR.
PLAN BR.
RES. MGT. BR.
PROJ. CONTROL
SW. REC. PLAN
CLERICAL STAFF
ADMIN. ASST.
ARCHAEOLOGISTS

FOR: CIRCULATE/POST
COMMENTS & REC.
DRAFT REPLY
FILE
FOLLOW UP
INFO.
RUSH DATE
SEE ME
SEND COPY TO:



University of Hawaii at Manoa



Environmental Center
A Unit of Water Resources Research Center
Campus 317 • 2355 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361

Mr. Bill Corst
June 19, 1992
Page 2

Thank you for the opportunity to comment on this document. Please do not hesitate to contact me if further questions arise.

Sincerely,

John T. Harrison, Ph.D.
Environmental Coordinator

cc: OEGC ✓
Roger Fujioke
Bill Cameron

File # 259981C 25
RI: 0082
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

Mr. Bill Corst
Division of State Parks
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Corst:

Preparation Notice Supplemental Environmental Impact Statement Kahana Valley State Park Koolauloa, Oahu

The referenced Supplemental Environmental Impact Statement (EIS) addresses the expansion of the residential housing development in response to the increased number of Kahana Valley residents.

The Environmental Center reviewed this Preparation Notice with the assistance of staff member, Bill Cameron.

We have some reservations concerning questions of landform stability in relation to soil structure and foundation stability. Residential area B soils indicate a high shrink swell potential. These types of soils can have adverse impacts on the planned long-term occupancy of the residential units. A very careful analysis on soil structure, slope and foundation stability is needed. We are also concerned that information, specifically water quality data from the 1978 EIS is implicitly incorporated in this Supplemental EIS. Over the intervening years, both advances in analytical techniques and patterns of land use have rendered existing stream and estuarine water quality data obsolete. Because of the potential impact of the proposed project on water quality in both the stream and the bay, we suggest that a seasonally integrated series of baseline water quality data be assembled prior to project implementation to provide a benchmark against which future water quality trends may be compared.

OK/0



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS

P. O. BOX 47
HONOLULU, HAWAII 96822

September 16, 1992

Dr. John T. Harrison, Ph.D.
Environmental Director
Environmental Center
University of Hawaii, Manoa
Crawford 317, 2550 Campus Rd.
Honolulu, HI 96822

Dear Dr. Harrison:

SUBJECT: Supplementary Environmental Impact Statement
Preparation Notice for Kahana Valley State
Park, Oahu

We recently received a copy of your June 19, 1992 response for this project. Unfortunately, your original letter never reached its final destination but we do appreciate your participation in the Environmental Impact Statement review process and take this opportunity to address your concerns.

Residential Area B includes five homes and a church which have been in the valley for many years without having foundation stability problems. The two foot contour map for the housing area indicates maximum slopes are less than 8%. Therefore, no landform stability problems are anticipated.

We would be interested in compiling a series of seasonally integrated baseline water quality data in the stream and estuary to monitor water quality trends but have not budgeted funds for this purpose. However, we do expect water quality to improve. No additional residential use of the valley is planned. Many of the existing homes are located along the estuary and rely on outhouses and cesspools for sewage disposal. These homes are being relocated out of the flood plain and will be required to have septic tanks with leach fields.

Your memo and this response will be appended to the Supplementary Final Environmental Impact Statement.

Very truly yours,

RALSTON H. NAGATA
State Parks Administrator

WILLIAM W. PAITY, CHAIRMAN
Board of Land and Natural Resources

DEPUTY CHAIRMAN
DORIS L. YOUNG

ADJUTANT GENERAL
OFFICE OF THE ATTORNEY GENERAL
CONSTITUTIONAL AFFAIRS
COMMISSION AND
RELATIONS EMPLOYMENT
COMMISSION AND
LAND MANAGEMENT
STATE HISTORIC PRESERVATION
DIVISION
PLANNING AND LAND DEVELOPMENT