

MARYANNE W. KUSAKA
MAYOR



MATILDA A. YOSHIOKA
HOUSING ADMINISTRATOR

KENNETH N. RAINFORTH
EXECUTIVE ASSISTANT

COUNTY OF KAUAI
HOUSING AGENCY

4193 Hardy Street
Lihue, Hawaii 96766
Development (808) 241-6444
CDBG/V-TDD (808) 241-6455
Section 8 (HUD) (808) 241-6440
FAX (808) 241-6456

RECEIVED

'97 SEP 15 P4:15

OFF. OF ENVIRONMENTAL
QUALITY CONTROL

September 11, 1997

Gary Gill, Director
State of Hawaii
Office of Environmental Quality Control
220 South King Street, Suite 400
Honolulu, Hawaii 96813

Attn: Nancy

Dear Mr. Gill:

SUBJECT: FINAL ENVIRONMENTAL ASSESSMENT (EA) FOR THE
KALAHEO SELF-HELP PROJECT, KALAHEO, KAUAI

Per your request, enclosed please find four copies of the Final Environmental Assessment for the Kalaheo Self-Help Project. We would greatly appreciate publication of a final environmental assessment (negative declaration) in the September 23, 1997 OEQC Bulletin.

Should you have any questions, please contact me at 241-6865.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary A. Mackler".

Gary A. Mackler
Development Coordinator

enc.

cc: Claudia Shay



AN EQUAL OPPORTUNITY EMPLOYER

100

1997-09-23- KA-PEA-

Kalaheo Self-Help

FILE COPY

SEP 23 1997

FINAL

ENVIRONMENTAL ASSESSMENT

for

KALAHEO SELF-HELP HOUSING PROJECT

TMK: (4) 2-3-14:001
Kalaheo Homesteads, Koloa, Kauai, Hawaii

Submitted by:
Applied Planning Services
P.O. Box 1724
Lihue, Kauai, Hawaii 96766

For:
Self-Help Housing Corporation of Hawaii
1427 Dillingham Boulevard, Suite 305
Honolulu, Oahu, Hawaii 96817
ATTN: CLAUDIA SHAY, EXECUTIVE DIRECTOR

August 1997



SELF-HELP HOUSING CORPORATION OF HAWAII

1427 Dillingham Blvd., Suite 305

Honolulu, Hawaii 96817

Telephone (808) 942-7111

Toll-Free 1-800-336-4035

August 22, 1997

Gary Gill, Director
Office of Environmental Quality Control
236 South Beretania St., Ste. 702
Honolulu, Hawaii 96813

Dear Mr. Gill:

The Self-Help Housing Corporation of Hawaii, as the applicant submitting the environmental Assessment for the Kalaheo Self-Help Project (TMK 2-3-14:01) is responding to your letter of June 4, 1997 to Matilda Yoshioka of the Kauai County Housing Agency.

In response to your inquiries please review the following:

1) The correspondence from state and county agencies who were contacted about the project is included in the final EA. Correspondence includes letters from: the Department of Water, March 12, 1996; the Department of Land & Natural Resources, November 18, 1996; and the Department of Public Works, November 7, 1996.

On July 18, 1996 SHHCH staff met with Maxine Correa, a longtime resident of Kalaheo, to apprise her of the project. Ms. Correa was very supportive of the project and suggested that I make a presentation to the Kalaheo Senior Citizens Group.

On September 11, 1996 SHHCH made a presentation on the Kalaheo Self-Help Project to about 30 members of the Kalaheo Senior Citizens Group at the Kalaheo Neighborhood Center. Attendees asked questions and wanted to refer applicants to the project. There was no written agenda, nor minutes. A calendar noting the presentation is included in the final EA.

On December 30, 1996 there was a newspaper article in the "The Garden Island" discussing the Kalaheo Self-Help Project as well as other self-help projects on the island. The general public was notified through this article. This article is included in the final EA.

Comments from the abutting neighbors are included in the final EA

2) A district designation is included in the State Land Use District Map as shown in the final EA.

3) SHHCH will assist the families in building two models:

Model 1104

3 bdrm/1.5 bth
Douglas fir, doublewall
1104 s.f.
carport 400 s.f.

Model 1248

4 bdrm/2 bth
Douglas fir, doublewall
1248 s.f.
carport 400 s.f.

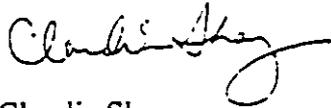
SHHCH will vary the roof lines including gable, hip, and Dutch hip roofs: thereby, creating a more aesthetic appearance in the subdivision. Neither the house plans nor site plans are finalized as of yet.

4) A discussion of findings and reasons according to the significance criteria in Title 11-200-12(HRS) is included in the final EA.

The final EA includes a discussion of these issues.

Thank you.

Sincerely,



Claudia Shay
Executive Director

Cc: Matilda Yoshioka
Kauai County Housing Agency

FINAL
ENVIRONMENTAL ASSESSMENT
for
KALAHEO SELF-HELP HOUSING PROJECT

SELF-HELP HOUSING CORPORATION OF HAWAII
1427 DILLINGHAM BOULEVARD, SUITE 305
HONOLULU, OAHU, HAWAII 96817

August 1997

REPORT DOCUMENTATION PAGE

TITLE of PROPOSED ACTION: Kalaheo Self-Help Housing Project

TAX MAP KEY: (4) 2-3-14 : 001
Grant 6780 of File Plan 420

DISTRICT: Kalaheo Homesteads, Koloa, Kauai

APPLICANT: Self-Help Housing Corporation of Hawaii
1427 Dillingham Boulevard, Suite 305
Honolulu, Hawaii 96817
Contact: Claudia Shay
1-800-336-4035

CONSULTANT: Applied Planning Services
P.O. Box 1724
Lihue, Hawaii 96766
Contact: Roland D. Sagum III
808-246-0399

APPROVING AGENCY: Kauai County, State of Hawaii
4193 Hardy Street
Lihue, Hawaii 96766
Contact: Matilda Yoshioka
808-241-6444

DEADLINE: August 1997

ABSTRACT: This Final Environmental Assessment (FEA) represents a record of results after scientific analysis of the potential and magnitude of impacts resulting from the Kalaheo Self-Help Housing Project.

Executive Summary

This Final Environmental Assessment (FEA) report for the Kalaheo Self-Help Housing Project (KSHHP) was prepared in accordance with the State of Hawaii Environmental Quality Control laws. These include Chapter 343 Hawaii Revised Statutes (HRS), Chapter 200 of Title 11, Hawaii Administrative Rules and the National Environmental Policy Act (NEPA).

The preparation of an EA is a statutory requirement prior to or in anticipation of the expenditure of State and Federal funds. Its purpose is to assess the environmental impacts that a project may have, should the action be implemented, and to serve as a clearinghouse for collection and dissemination of information. This review process is a mechanism to evaluate a project's consistency and compliance with State and Federal environmental programs and to propose where possible, appropriate mitigation measures.

The environmental review of KSHHP consists of a Draft followed by this Final Report. The Draft EA was released for public and agency review in January 1997. Comments received during the 30-day review period have been incorporated into this report. The Final EA is set for release in August 1997. The comments contained herein were received through the OEQC Bulletin, as well as direct solicitation, in order to obtain a representative response from the public sector. Based on the information provided in the Draft EA and followed by the responses provided herein it can now be concluded that a Findings Of No Significant Impact (FONSI) is justified and appropriate.

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1.0 BACKGROUND

The Self-Help Housing Corporation of Hawaii (SHHCH), a non-profit Hawaii Corporation organized under Section 501(c)(3) of the IRS Code and Chapter 415B (HRS), is committed to developing affordable housing units to families who build their own homes through the self-help method. SHHCH has engaged local government leaders on issues which have hindered home construction for lower income families. In addition, they have created a public/private initiative which has proven successful in developing affordable homes in smaller numbers. In the 13 year history of this organization, approximately 194 families, on all islands have benefited from the self-help method.

At KSHHP, SHHCH proposes to develop 19 residential units on an existing 5 acre parcel of land located at 2330 Puu Road in Kalaheo, approximately 1000 feet west of its intersection with Papalina Road, and further identified as Tax Map Key 2-3-14 : 1 (Exhibit A). The size of the residential lots is 10,000 sq.ft.

SHHCH will amend the boundaries of lots 9 and 10 by cutting in with a hammerhead turn-around for the interior road. Through this revision and negotiations with the Department of Planning, Department of Water, Department of Public Works, and the Department of Health, SHHCH proposes a 30' wide interior road approved for public dedication with 201E exemptions (affordable housing). If the roadway is not accepted for public maintenance, SHHCH will establish a homeowner's association as a legal incorporated entity to maintain the roadway, and assess utility costs to the homeowners.

Two (2) different model offerings will be made available for selection. These are:

- a. Model 1104 - Three bedroom and one and one-half bath unit with 1,104 square feet of living space. Total costs are \$58,595 including a septic tank system.
- b. Model 1248 - Four bedroom, 2 bath unit with 1,248 square feet of living space. Total costs are \$59,607 including a septic tank system.

Homes are customized through a choice of colors for roofing, exterior and interior painting, floor tiles, etc.

2.0 RESPONSES TO COMMENTS

This chapter provides responses to comments gathered from public sources and government agency review. This section is organized with the comment listed first, followed by the response and/or mitigation.

1. OEQC letter dated June 4, 1997 (Exhibit B)

QUESTION: Include copies of correspondence from any state or county agencies contacted; notify the nearest neighbors or neighboring landowners and document your contacts.

RESPONSE: The following comments were made from neighboring landowners:

- A. Clement Soares - Puu Road Resident
Believes that this is a much needed project to create affordable housing for Kauai residents, particularly in the Kalaheo area.
- B. Robin Correa - Puu Road Resident
Does not see a problem with the project.
- C. Chason Manoi - Puu Road Resident
Commented that the project area has been neglected for awhile; that it needed to be cleaned. Generally supports the project and its opportunities.
- D. Joseph Soares - Puu Road Resident
Concerned about the shoulder section of Puu Road, fronting lot #1 (TMK: 2-3-14:2); ponding occurs after each rain, eventually becoming a deep mud trough, making for dangerous road and driving conditions.

MITIGATION: As part of the Hale Kupuna Center's off-site improvements, Puu Road's pavement was resurfaced and widened, beginning from the Puu Road and Papalina Road intersection to an area just before the KSHHP's entrance. During construction of the interior roadway and driveway approach serving KSHHP, minor grading of Puu Road's shoulders and the application of asphaltic concrete should improve the road conditions.

Kalaheo Self-Help Housing Project

- E. Rashel Washburn - Maka Road Resident
Great idea, because people would prefer to work for themselves. They don't have the money to pay out to other people to do the work.
- F. Cookie Walto - Manager, Hale Kupuna on Puu Road
Wonderful! Good opportunity for local people and their families.
- G. On September 11, 1996, Ms. Claudia Shay met with the Kalaheo Senior Citizens Association to present the project (Exhibit C).
2. OEQC letter dated June 4, 1997
QUESTION: Include a district designation on Exhibit D, the State Land Use District Map.
RESPONSE: See Exhibit D.
3. OEQC letter dated June 4, 1997
QUESTION: Include drawings or diagrams of the proposed buildings and any proposed landscaping that show the final appearance of the project.
RESPONSE: Final design and engineering maps not currently available since SHHCH is currently working with the County in resolving design issues relating to the interior roadway.
4. OEQC letter dated June 4, 1997
QUESTION: A discussion of findings and reasons, according to the significance criteria listed in HRS Title 11-200-12, that support the anticipated Finding of No Significant Impact (FONSI) determination.
RESPONSE: See Section 3.0

3.0 DETERMINATION AND REASONS SUPPORTING THE
DETERMINATION OF FONSI

It can be concluded that the proposed KSHHP's development and use will not have a significant negative effect on the affected environment, therefore, the preparation of an Environmental Impact Statement (EIS) has not been triggered. To assist in this determination, the "significance criteria", Section 12 of the Hawaii Administrative Rules, Title 11, Chapter 200, were reviewed within the context of the project. After careful analysis, the following was concluded:

1. The proposed project will not involve an irrevocable commitment to loss or destruction to any natural or cultural resources.

RESPONSE: The project site is currently overgrown with weeds, grasses, and introduced species of plants. The site was previously in residential use consisting of a residence, fishpond, and appurtenant structures. The site is not known to contain cultural resource materials or to be the habitat for endangered species.

2. The proposed project will not curtail the range of beneficial uses of the environment.

RESPONSE: Construction of Kalaheo Self-Help Project is consistent with the property's current General Plan (GP) and zoning designations. The development of existing urban and residential lands and infilling are consistent with good land use and planning principles.

3. The proposed project will not conflict with the State's long-term environmental policies.

RESPONSE: The proposed activity does not impact or degrade significant natural resources. Upon build-out, the project will contribute to improving the areas appearance, discourage loitering, and minimize erosion, run-off, and non-point source of pollution.

Kalaheo Self-Help Housing Project

4. The proposed project will not substantially adversely affect the economic welfare, social welfare, or public health of the community.

RESPONSE: KSHHP increases the inventory of affordable housing units in the Kalaheo area and improves the economic and social welfare of the community by:

- a. Infilling on existing zoned lands, many of which are either vacant, overgrown, or abandoned.
- b. Providing clean, safe and aesthetic designed units.
- c. Improving the opportunity for motivated low-income families to qualify and participate in fee title home ownership.

Furthermore, the proposal does not involve hazardous wastes or noxious materials. Wastewater will be disposed through a septic system which is constructed to Department of Health standards.

5. The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.

RESPONSE: KSHHP goals seek to increase the inventory of affordable housing units throughout the State of Hawaii. SHHCH policies give priority to residents currently residing in the area.

KSHHP is located within an existing service area for schools, police, fire and emergency services. The proposal does not create further pressures to increase public services.

6. The proposed project will not involve a substantial degradation of environmental quality.

RESPONSE: The project area is not situated within or adjacent to areas of significant resources. Construction program elements (lot coverage, building codes, wastewater disposal, etc.) should adequately protect current environmental quality and protect low-lying areas from non-point source of pollution.

Kalaheo Self-Help Housing Project

7. The proposed project will not have cumulative impacts or involve a commitment for larger actions.

RESPONSE: The project design has been presented in detail throughout both the Draft and Final EA, and where necessary, mitigations were also presented. KSHHP does not represent a portion of a larger project. It is located within an existing urbanized area which currently is serviced by government agencies.

8. The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.

RESPONSE: The project area does not contain any rare, threatened or endangered species of flora or fauna or their habitat.

9. The proposed project will not detrimentally affect air or water quality or ambient noise levels.

RESPONSE: The earth excavation contractor shall be required to perform equipment service and maintenance to reduce equipment exhaust emissions. Also, the erection of dust screens and overhead sprinklers will reduce airborne particles. The project is not expected to affect the water quality or inland and marine environments since it is not located near to or along a stream or ocean. Furthermore, the compromising of work hours and days shall reduce ambient noise levels during the construction phase.

10. The proposed project is not located in an environmentally sensitive area (e.g., flood plain, tsunami zone, coastal area).

RESPONSE: The project area is outside the flood study by the Federal Emergency Management Agency (FEMA) and the National Flood Insurance Program (NFIP). The site is not within Special Management Area (SMA) boundaries.

Kalaheo Self-Help Housing Project

11. The proposed project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.

RESPONSE: The proposal does not interfere or detract from the line of sight towards the sea from the State highway nearest the coast, or from existing public views to and along the shoreline.

12. The proposed project will not require substantial energy consumption.

RESPONSE: This is a small single-family residential project where the energy demands only require single-phase/220 voltage power. There will be no need for specialized power equipment and the current utility facilities and infrastructure in the area are sufficient.

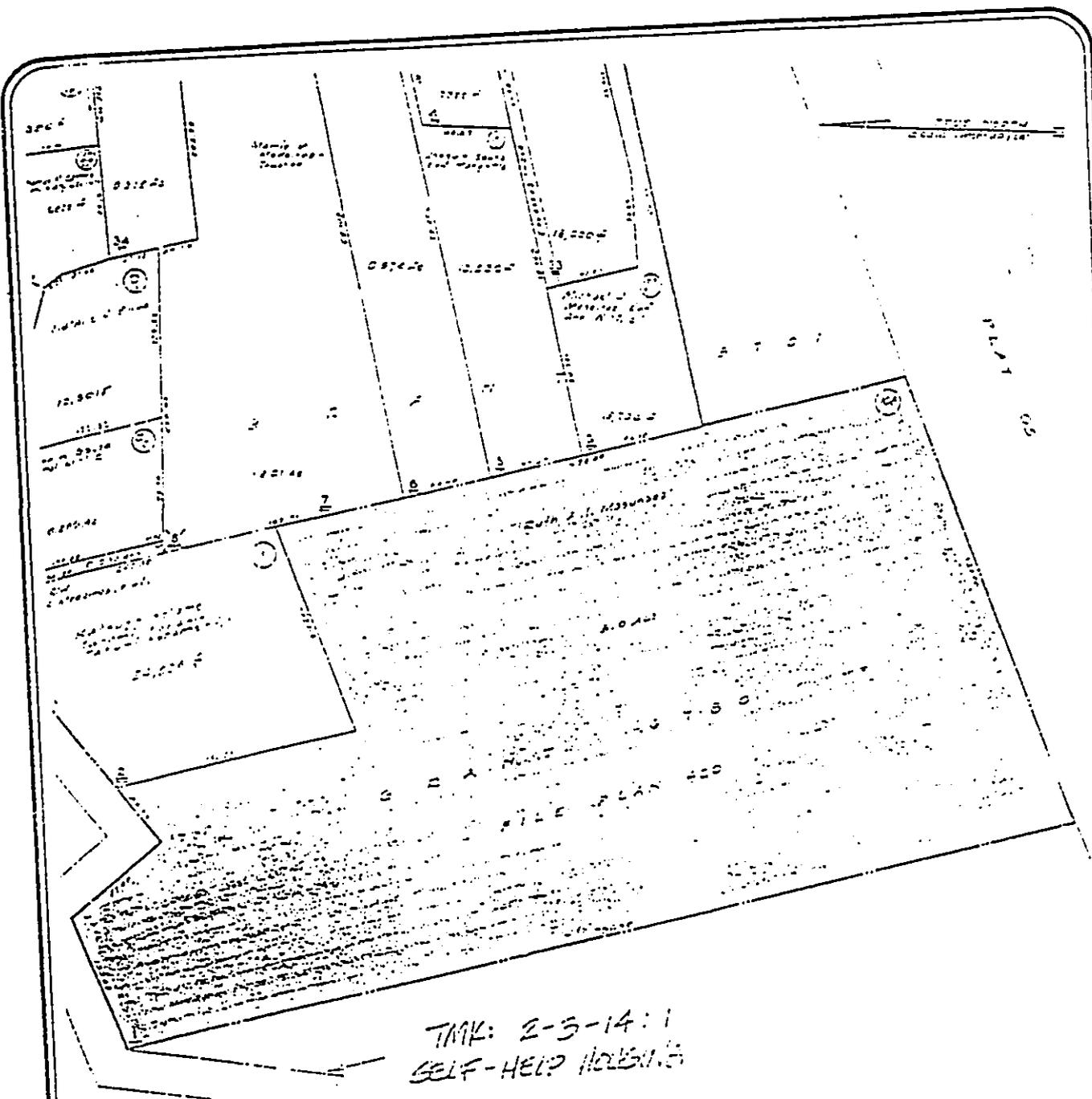
4.0 CONCLUSION

Having examined all of the evidence gathered for the Draft and Final EA reports, it can be concluded that the proposed action will not create cumulative environmental impacts pursuant to the significance criteria of Section 11-200-12 (HRS) and will not have a significant negative effect upon the natural resources of the area. All cultural concerns have been mitigated with the issuance of a 106 compliance letter from the DLNR-SHPD. The facilitation of a pre-construction meeting will inform all participants of the importance and process for treating cultural material discoveries uncovered during construction. Inadvertent burials will be treated under chapter 6E (HRS) procedures in conjunction with DLNR-SHPD programs.

Impacts to the area caused by increased noise and fugitive dust during construction will be temporary and will return to normal conditions. These impacts can be mitigated by restricting work hours, installing dust screens, and periodic watering of the site.

It can be further concluded that the release of County funds will not constitute an action negatively affecting the quality of the human environment, therefore a Finding of No Significant Impact (FONSI) determination is appropriate.

EXHIBITS



TAX MAP KEY: (4) 2-3-14:1

EXHIBIT A

BENJAMIN J. CAYETANO
GOVERNOR



GARY GILL
DIRECTOR

STATE OF HAWAII '97 JUN -6 09:00
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

236 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4186
FACSIMILE (808) 586-4186

June 4, 1997

Matilda Yochicka
Kauai Housing Agency
4493 Hardy Street
Lihue HI 96766

Attn: Gary Mackler

Dear Ms. Yochicka:

Subject: Draft Environmental Assessment (EA) for Kalaheo Self-Help Housing Project,
Kalaheo

Please include the following in the final EA:

1. Include copies of correspondence from any state or county agencies contacted; notify the nearest neighbors or neighboring landowners and document your contacts.
2. Include a district designation on Exhibit D, the State Land Use District Map.
3. Include drawings or diagrams of the proposed buildings and any proposed landscaping that show the final appearance of the project.
4. A discussion of findings and reasons, according to the significance criteria listed in HRS Title 11-200-12, that support the anticipated Finding of No Significant Impact (FONSI) determination. You may use the enclosed sample as a guideline.

if you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gary Gill".

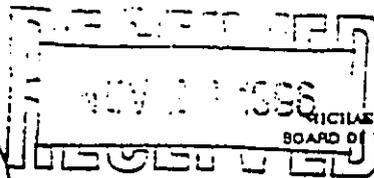
Gary Gill
Director

enc.

c: Claudia Shay
Applied Planning Services

EXHIBIT B

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
DEPUTIES

Gilbert Coloma-Agaran

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813

NOV 18 1996

REF:HP-AMK

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

LOG NO: 18484 ✓
DOC NO: 9611NM06

Ms. Claudia Shay, Executive Director
Self-Help Housing Corp. of Hawaii
1427 Dillingham Blvd., Suite 305
Honolulu, Hawaii 96817

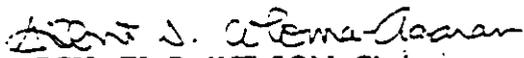
Dear Ms. Shay:

SUBJECT: National Historic Preservation Act Review.
Section 106 Compliance - TMK: 2-3-14: 01
Kalaheo, Koloa, Kauai

Our review is based on historic reports, maps and aerial photographs maintained in our office; no field inspection was made of the subject parcel. A review of our records show that there are no known historic sites at the project location. Since the parcel had one house on the property, it is highly unlikely significant historic sites still exist. The area has been highly developed. We concur with your determination that this project will have "no effect" significant historic sites.

If you have any questions, please call Nancy McMahon 742-7033.

Aloha.


MICHAEL D. WILSON, Chairperson and
State Historic Preservation Officer

NM:amk

EXHIBIT B-1

MARYANNE W. KUSAKA
MAYOR



STEVE OLVER
COUNTY ENGINEER
TELEPHONE 241-4600

EDMOND P.K. RENAULT
DEPUTY COUNTY ENGINEER
TELEPHONE 241-4600

AN EQUAL OPPORTUNITY EMPLOYER
COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS
111 RICE STREET
MOHEHA BUILDING, SUITE 117
LILUOEA, KAUAI, HAWAII 96766

November 7, 1996

Mr. Clyde Kodani
Kodani & Associates, Inc.
3145 Akahi Street
Lihue, Hawaii 96766

Dear Mr. Kodani:

RE: KALAHEO SELF HELP HOUSING
TMK: 2-3-14: 01

Reference is made to your letter dated October 25, 1996 regarding the development of affordable housing and a County dedicable roadway. We would like to offer our comments and make the following recommendation.

We concur with your allegation that certain County roadways do not meet our present roadway standards. However, these roadways were developed and accepted in the past under standards that are no longer applicable. These roadways upon the availability of funds should be upgraded.

We are concerned with an easement proposal. The lot owner will own a portion of the roadway and the County would have the easement for use as a roadway. You may wish to investigate the legal ramifications and liabilities on the proposal.

We are recommending that you submit your request to the Kauai County Housing Agency. The Agency works directly with the Mayor and the Council in the development of affordable housing. The Agency will solicit comments from other County Agencies and make recommendations including waiver from road requirements to the Council. The County Council, as you may know, is the legislative body that makes the final decision for accepting roadway dedication.

EXHIBIT B-2

Mr. Clyde Kodani
Kodani & Associates, Inc.
November 7, 1996
Page 2, 1996

Please contact Kenneth Kitabayasni at 241-6622 if there are questions.

Very truly yours,

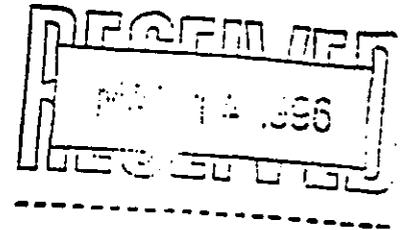


STEVE OLIVER
County Engineer

KK/cu

DEPARTMENT OF WATER

County of Kauai
P. O. Box 1706
Lihue, HI 96766-5706
Phone No. (808) 245-5400 — FAX No. (808) 245-5813



March 12, 1996

Ms. Claudia Shay
Executive Director
Self-Help Housing Corporation of Hawaii
1427 Dillingham Blvd., Suite 305
Honolulu, HI 96817

Dear Ms. Shay:

RE: Water availability for (19) single family dwellings to be constructed on Parcel 1, which was previously subdivided into (19) lots; Proposed construction of one(1) dwelling on each lot, TMK: 2-3-14:1, Puu Road, Kalaheo, Kauai.

Thank you for inquiring about the subject parcels for your proposed development. Comments from the Department of Water are as follows:

Any actual subdivision or development of this area will be dependent on the adequacy of the source, storage and transmission facilities existing at that time. At the present time, the source and storage facilities are adequate. The existing transmission facilities are not adequate for the proposed domestic and fire flow demands of this project.

Prior to the Department of Water recommending final subdivision approval, the developer will be required to:

1. Prepare and receive the Department of Water's approval of construction drawings for necessary water system facilities and either construct said facilities or post a performance bond for construction. These facilities shall include but not be limited to:
 - a. An extension of a main 6-inches in diameter, approximately 600 feet in length.
 - b. The domestic service connection.
 - c. The fire service connection.
 - d. The interior plumbing plans with the appropriate backflow preventer if applicable.
2. Pay the applicable charges in effect at the time of receipt. At the present time, these charges shall include:

Ms. Claudia Shay
March 12, 1996
page two

- a. The Facilities Reserve Charge of \$2,600 per single family dwelling and/or each 5/8-inch water meter. The exact amount of this charge will be dependent on the approved construction drawings.

The developer is also made aware that the Kalaheo Elderly Housing Project Developers were given the same requirement as in '1.a.' above. In the event that the 6-inch waterline is installed by the developers of the Kalaheo Elderly Housing Project, then the developers of this proposed 19-dwelling subdivision will be required to pay their share of the cost of the newly installed waterline, all in accordance with the Department of Water's rules and regulations.

Should you have any questions or need further assistance, please contact Edward Doi at 245-5417.

Sincerely,



Murl T. Nielsen
Manager and Chief Engineer

ED/ls

CORR1 Shay2:ls

Sweat-equity homebuilders on the rise

By WILLIAM LEGRO
Staff Writer

LIHUE—It says something about changing times on Kauai when sweat-equity contractors are among the biggest homebuilders on the island.

Kahe, Honolulu-based Self Help Housing Corp. of Hawaii, it has about a dozen projects going in various stages around the state, has spearheaded construction of 44 self-built houses on Kauai so far, and has plans in the works for 52 more single-family homes from Hanapepe to Kapa'a.

The developer is still taking applications for all of them.

The final price tag for the self-builders is about half what they would have to pay if they didn't pitch in. That probably has something to do with why SHHCH has more than 300 Kauai families on its waiting list.

SHHCH Executive Director Claudia Shay said that more than half of them want to live in Kapa'a.

That's plenty of competition for the 10 single-family houses planned for the 1.3-acre site at the intersection of Kawailani and Nunu roads near Kapa'a School.

SHHCH plans to buy the five-lot parcel, one 1/2 acre in front, 10 lots, and help buyers put up two- and three-bedroom, two-bath houses of 965 to 1,101 square feet.

At about \$110,000, it's a deal for self-builders, who put out sweat instead of cash for about half that price.

"The lenders look at that and say, 'Well, the house is worth twice the loan I'm giving you,' so there's no down payment, which is the big obstacle you have to overcome in Hawaii because who's got that kind of savings?" Shay said.

Lenders like the fact that even as buyers move in, they have tens of thousands of dollars in equity, Shay said. "And that's how I'm able to target low-income people."

The buyers build more than houses. They build a small community.

In Kapa'a, for example, the 10 families will build their own and each others' houses over the 10-month construction period.

"They all build as a team together. It's a team self-help project. Each family puts in about 32 hours a week of labor," Shay said, after work and on weekends.

"We do all the excavation for all 10 houses first, we pour the footings for all 10 houses, then we do all the framing, and so on until all 10 houses are finished."

And at the end of 10 months, the 10 families move in and become instant neighbors, neighbors who have poured mite and poured concrete together, and together

have learned not only how to build a house but how to work as a team.

Shay said she's aiming for a May groundbreaking in Kapa'a. That's also when she hopes construction will begin in Hanapepe.

The Hanapepe project is farthest along. Site work has already begun on the oceanfront parcel across the street from the Kapa'a Veterans Cemetery.

It will be a 23-unit subdivision, complete with cul-de-sac and sewer hookups.

"Right now it's a blighted area," Shay said, full of weeds and junk cars and hurricane debris. Twelve families living there had to move out to enable site preparation, and

they will be coming back as team self-builders, along with 11 new families—upon completion, another instant neighborhood.

The Hanapepe subdivision is somewhat different than the one in Kapa'a. It will have returning residents, and because of larger lots, larger homes, more infrastructure, and site work cleaning up the debris, it will have higher prices.

Still, three- and four-bedroom fee-simple oceanfront houses on lots measuring 5,000 to 6,000 square feet yet costing less than \$140,000 are bargains.

Another difference is that the Hanapepe development will have two teams of self-builders.

As in all the self-builder projects, a paid construction supervisor with plenty of experience teaches the buyers the building skills they need. SHHCH uses this type of multi-team effort in larger projects such as Hanapepe so all the houses can go up at once in the same amount of time as the smaller projects, and all the families move in at the same time.

"That is a beautiful project," Shay said.

The Kalaheo project is a little different still, she said—five acres, 19 lots, each 10,000 square feet.

These big lots will hold three- and four-bedroom houses for prices averaging about \$150,000. In Kalaheo, that's unheard of in recent

years.

"This project is still in its infancy," Shay said, still in design thanks to a grant from the Federal Home Loan Bank of Seattle. She declined to reveal the exact location of the project because negotiations for the site purchase are ongoing and she's still raising money.

But again, the team self-help practice will rule, and the 19 families could begin building as soon as the later part of 1997.

Applications for all of these projects are still available, Shay said. How does SHHCH decide who among the hundreds of applicants get the chance to build?

"We take the applications, and we also put out a notice to

everybody on our waiting list. Then we go out and interview every family who's interested in the project. We look at their employment, their credit history, their income."

A family can earn no more than 80 percent of the Kapa'a median income (\$51,500 for a family of four), and can't have any excessive debts, judgments against them or bankruptcies.

SHHCH then sends a list of all the people who qualify by these criteria and to a screening committee for further winnowing, this time based on need. The committee members come from the lender, the SHHCH board and the community.

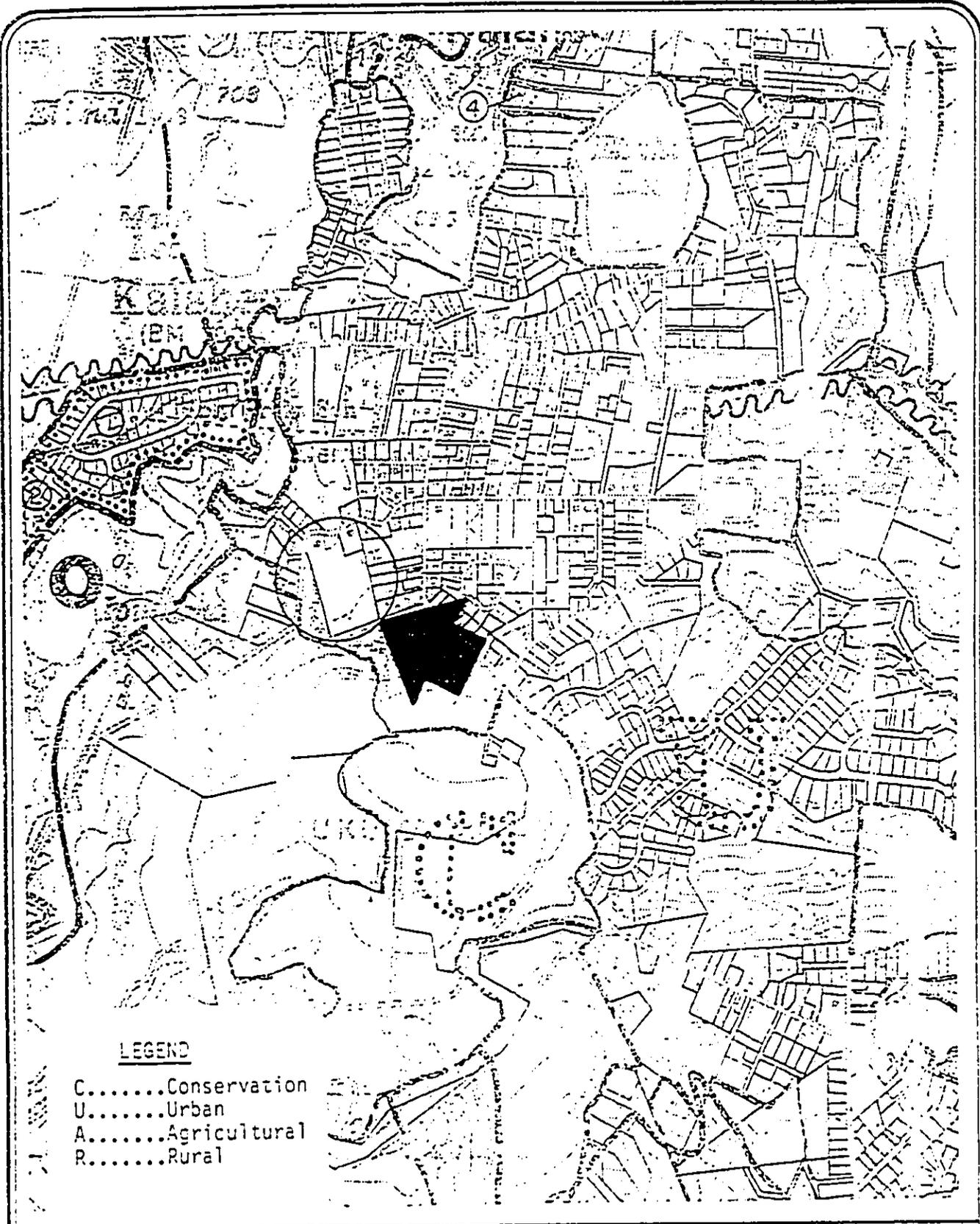
"The screening committee makes the final choice. Based on which families are most in need," Shay said, "So of those eligible by the lender's criteria, we would take, for example, those of the lowest income, those living in substandard housing, or those who are homeless."

The team self-building concept has a compelling logic. From the beginning, families are selected for things they have in common: Income, reliability. Each family has a stake in each house. "You build a community that bonds together," Shay said.

It's not easy, but it pays off, for a house, pride of accomplishment and ownership, and security of community.

CENTRE PAVAO SENIORS ACTIVITY

| MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SAT/SUN |
|--|---|--|---|---|---|
| | 3 WELLNESS 8-9 URULELE: MARYANNE FERREIRA 9-11 | 4 9-11 general assembly BETHO & SPECIALIZING HUIA: 9-11 KAIKO JOANNELL PAVAO | 5 OUTREACH: WILCOX DAY CENTER HUIA: 9-11 KAIKO JOANNELL PAVAO | 6 STAFF MTG. 8:30-10:00 WELLNESS 8-9 BOWLING 9-11 HAT CENTERPIECES CRAFT | 1 1 |
| HOLIDAY!!!! LABOR DAY | | | | | |
| WELLNESS 8-9 XMAS ORNAMENTS (HAWAIIAN L.A. 11-12) | 10 WELLNESS 8-9 URULELE: MARYANNE FERREIRA | 11 9-11 GENERAL ASSEMBLY PRESENTATION: "SENIOR HELP HOUSING" CLAUDIA SHAW KALAIHE JOANNELL PAVAO | 12 HUIA: KAIKO JOANNELL PAVAO | 13 WELLNESS 8-9 BOWLING 9-11 HAT CENTERPIECES CRAFT | 14 15 |
| WELLNESS 8-9 XMAS ORNAMENTS (HAWAIIAN L.A. 11-12) | 17 WELLNESS 8-9 URULELE: MARYANNE FERREIRA | 18 9:00-9:30 GENERAL ASSEMBLY CONDUCTED TOUR WILCOX HOSPITAL BY: BETTY MEASELS 10-11-30 | 19 HUIA: KAIKO JOANNELL PAVAO | 20 WELLNESS 8-9 BOWLING 9-11 HAT CENTERPIECES CRAFT | 21 22 |
| WELLNESS 8-9 XMAS ORNAMENTS (HAWAIIAN L.A. 11-12) | 24 WELLNESS 8-9 URULELE: MARYANNE FERREIRA 9-11 | 25 9:30 GENERAL ASSEMBLY WASHINGTON DANCE CO. PERFORMANCE JUANAPETE SENIORS BIRTHDAY RECOGNITION | 26 HUIA: KAIKO JOANNELL PAVAO | 27 WELLNESS 8-9 BOWLING 9-11 HAT CENTERPIECES CRAFT | 28 "ADOPT A DUCK 10:00-3:00 WAIMEA RIVER 9-29 |



STATE LAND USE DISTRICT MAP

EXHIBIT D

DRAFT

ENVIRONMENTAL ASSESSMENT

for

KALAHEO SELF-HELP HOUSING PROJECT

TMK: (4) 2-3-14:001
Kalaheo Homesteads, Koloa, Kauai, Hawaii

Submitted by:
Applied Planning Services
3116 Hoolako Street, Bay B
Lihue, Kauai, Hawaii 96766

For:
Self-Help Housing Corporation of Hawaii
1427 Dillingham Boulevard, Suite 305
Honolulu, Oahu, Hawaii 96817
ATTN: CLAUDIA SHAY, EXECUTIVE DIRECTOR

January 1997

DRAFT
ENVIRONMENTAL ASSESSMENT
for
KALAHEO SELF-HELP HOUSING PROJECT

SELF-HELP HOUSING CORPORATION OF HAWAII
1427 DILLINGHAM BOULEVARD, SUITE 305
HONOLULU, OAHU, HAWAII 96817

January 1997

REPORT DOCUMENTATION PAGE

TITLE of PROPOSED ACTION: Kalaheo Self-Help Housing Project

TAX MAP KEY: (4) 2-3-14 : 001

DISTRICT: Kalaheo Homesteads, Koloa, Kauai

APPLICANT: Self-Help Housing Corporation of Hawaii
1427 Dillingham Boulevard, Suite 305
Honolulu, Hawaii 96817

CONSULTANT: Applied Planning Services
3116 Hoolako Street, Bay B
Lihue, Hawaii 96766

APPROVING AGENCY: Kauai County, State of Hawaii

DEADLINE: January 1997

ABSTRACT: This Environmental Assessment represents a record of results after scientific analysis of the potential and magnitude of impacts resulting from the Kalaheo Self-Help Housing Project.

Executive Summary

This Environmental Assessment (EA) was prepared for the Kalaheo Self-Help Housing Project for submittal to the County of Kauai and other appropriate agencies. A detailed search of existing records were made to examine the impacts the project may have on the Hawaiian environment.

The Kalaheo Self-Help Housing Project will be developed by the Self-help Housing Corporation of Hawaii (SHHCH) as an affordable housing venture featuring 19 single family units. This project is an example of a public-private partnership, or in other words, a union between government and private interests together striving to attain a common goal.

The Self-Help Housing Corporation of Hawaii is applying for Self-Help Housing Opportunity Program (SHOP) Funds under the U.S. Department of Housing and Urban Development. The Federal Home Loan Bank of Seattle has provided startup funds. SHHCH, as developers, brings a wealth of experience to the relationship - including planning, design and implementation.

The SHHCH is a Hawaii Corporation organized under Section 501(c)(3) of the IRS code and Chapter 415B HRS. The activities of SHHCH involve the organization and development of affordable housing units for island residents who typically fall within 50% and 80%, or below, the median family income. Qualified families are required to contribute 32 hours each week to the program, until all of the homes in the project are complete. The concept of "sweat equity" results in reduce construction costs and in a real sense is traded in lieu of a cash down payment. This is a very important feature since it has been shown time and again that the greatest barrier to home ownership on Kauai is coming up with the down payment versus making the monthly mortgage.

The success of this organization to date is the result of relentless efforts to engage government agencies and private parties to pool resources and "make things happen".

Prior to construction of the homes, the physical preparation of the property will include excavation for utilities, and minor grading for building foundations, driveways, drainage and landscaping. Anticipated project impacts include interim noise disturbances and fugitive dust associated with the construction phase of the project, both of which will temporarily reduce the air quality of the area. Conversely, the long-term impacts of the project will yield positive results with the creation of affordable homes - which may be considered as an endangered specie.

Executive Summary

An Environmental Assessment (EA) is a statutory requirement for the expenditure of State and Federal monies. The purpose of an EA is to inventory and assess the environmental consequences pursuant to Chapter 343 HRS and Chapter 200 of Title 11, Department of Health Administrative Rules and the National Environmental Policy Act (NEPA). This review process is a mechanism to evaluate a project's consistency and compliance with State and Federal environmental programs, and to propose where possible, appropriate mitigation measures. A 30-day comment period commences from the first date of publishing in the OEQC's The Environmental Notice. No further environmental review of the project is anticipated prior to the request for release of County funds.

After examining all of the evidence gathered for the EA, it can be concluded that the proposed actions to design, build and operate the Kalaheo Self-Help Housing Project will not create substantial cumulative environmental impacts and does not have a significant negative effect upon the resources of the area. It can also be concluded that the release of SHOP funds will constitute a positive action significantly affecting the quality of the human environment and therefore, a Finding of No Significant Impact (FONSI) determination is appropriate and necessary.

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Exhibits

Appendix

1.0

DESCRIPTION OF PROPOSED ACTION
and
ALTERNATIVE

1.0 DESCRIPTION of PROPOSED ACTION and ALTERNATIVE

The Office of Environmental Quality Control (OEQC) regulates the State's Environmental Quality Laws as stated in Chapter 343 Hawaii Revised Statutes, Chapter 200 of Title 11 Department of Health Administrative Rules, and Act 241 Session Laws of Hawaii 1992. According to the OEQC, the purpose of preparing an Environmental Assessment (EA) is to determine if the impacts of a proposed action are significant enough to warrant the preparation of an Environmental Impact Statement (EIS). An EA was required for the Kalaheo Self-Help Housing Project (KSHHP) since it involves the expenditure of Federal funds. Therefore, this document is submitted in compliance to these Environmental Quality Laws.

Section 1.0 of the Assessment describes the background, purpose and need for the action, and alternatives - including the no-action alternative. Section 2.0 will describe the affected environment. Section 3.0 assesses the potential environmental consequences of the proposed activity on the components studied, as well as the measures that would be taken to mitigate any potential impacts.

1.1 BACKGROUND

The KSHH Project is initiated through the efforts of the Self-Help Corporation of Hawaii (SHHCH). The SHHCH is a non-profit housing corporation providing technical assistance to low-moderate income families throughout the State, enabling them to build their own homes through the self-help method. SHHCH has successfully completed projects with the State Housing Finance and Development Corporation, City and County of Honolulu, County of Maui, County of Kauai, private employers for employee housing, and with native Hawaiians through the Department of Hawaiian Homelands.

Under the Self-Help Method, the 19 families will be organized into two (2) teams. Team members are required to assist their team members in building the homes. Each family contributes 32 hours a week of labor to build all the homes. No skills are necessary. An experienced construction supervisor teaches all skills needed to build the homes. The homes are built through a mass construction technique, thereby completing all units at the same time. No one moves in until all homes are completed, and no payment is made until after the homes are completed and occupied.

Kalaheo Self-Help Housing Project

Buying a home - not stock, bonds, or Treasury bills - is still the best and safest investment for the vast majority of U.S. households, according to Kent W. Colton, executive vice president of the National Association of Home Builders (NAHB). He went on to say that, "Buying a home gives Americans a unique investment opportunity: steady appreciation in the value of the property, lucrative tax deductions for mortgage interest and property taxes, and a place to live."

The conclusion of a national poll conducted by *The New York Times* was summed up in the following statement, "The prospect of owning and living in a freestanding house on its own land is an enduring element in American aspirations."

Undoubtedly, housing issues are of great concern nationwide. It is a very basic and fundamental requirement in the hierarchy of human needs. This issue has taken top priority in businesses such as SHHCH, and is producing tremendous positive responses statewide. In its 12 year history, approximately 188 families have benefited through the efforts of this organization.

The goals and objectives of this project are consistent with the National Affordable Housing Act of 1990 which sets out to "reaffirm the long-established national commitment to decent, safe, and sanitary housing for every American by strengthening a nationwide partnership of public and private institutions."

1.2 PROPOSED ACTION

The SHHCH proposes to develop 19 residential units on an existing 5 acre parcel of land located at 2330 Puu Road in Kalaheo. It is further identified as Tax Map Key 2-3-14, parcel 1 (Exhibit A).

The subject parcel is very unique in that it is a "paper" 19-lot subdivision of record serviced by a private and substandard roadway lot (Exhibit B). SHHCH will amend the boundaries of lots 9 and 10 by cutting in with a hammerhead turn-around for the interior road. Through this revision and negotiations with the Departments of Planning, Water, Public Works, and Health, SHHCH proposes to have the 30' wide interior road approved for public dedication with 201E exemptions (Affordable Housing).

Kalaheo Self-Help Housing Project

If the roadway is not accepted for public maintenance, SHHCH will establish a homeowner's association as a legal incorporated entity to maintain the roadway and assess utility costs to the homeowners.

1.2.1 DESIGN

Participating families will be able to select the floor plan suited to their needs from two (2) different model offerings. According to SHHCH representatives, the two (2) model selections are:

- a. Model 1104 : Three bedroom and one and one-half bath unit with 1,104 square feet of living space. Total costs are \$58,595 including a septic tank system.
- b. Model 1248 : Four bedroom, 2 bath unit with 1,248 square feet of living space. Total costs are \$59,607 including a septic tank system.

Homes are customized through a choice of colors for roofing, exterior and interior painting, floor tiles, etc.

1.2.2 CONSTRUCTION

Each of the homes consist of 2 X 4 wood stud framing for double-wall construction design. In addition, all units come with a single vehicle carport measuring 400 square feet. These models promote designs and construction methods which minimize material waste. Floor plans maximize living spaces, allow for privacy, and encourage energy conservation.

These homes employ the latest engineering and construction techniques to resist hurricane strength winds. The use of metal straps and connectors provide the building with vertical stability from uplifting pressures created during periods of intense wind pressures.

A typical home will consist of a Douglas Fir wooden frame built over a monolithic slab on-grade concrete foundation. All lumber on the project will be pressure treated with Wolmanizing solution. In addition, each building will be treated for sub-terranean termites prior to pouring the concrete pad. Pressure treated lumber carries a twenty (20) year warranty, whereas ground termite

Kalaheo Self-Help Housing Project

treatment only carries a five (5) year warranty. The walls are covered with 5/8-inch wood siding on the exterior, and 1/2-inch sheetrock on the interior. The roof will be covered with 30 pound felt and composition mineral roofing shingles over a 5/8-inch plywood sheathing. The final painting scheme will be done in earth-tone colors. Painting typically consists of one (1) coat of oil based primer and two (2) coats of latex paint.

1.2.3 TIMELINE

| | |
|------------------------|---|
| January 1997 | <ul style="list-style-type: none">• Submittal of the Draft Environmental Assessment |
| April 1997 | <ul style="list-style-type: none">• Submittal of the Final Environmental Assessment• Submittal of Construction Plans |
| September 1997 | <ul style="list-style-type: none">• SHHCH acquires property• Completion of reviews (Construction Plans) |
| October 1997 | <ul style="list-style-type: none">• RFP for infrastructure construction |
| November 1997 | <ul style="list-style-type: none">• Recruitment of applicants commences• Construction of on-site infrastructure commences• Applicant interviews begin |
| January 1, 1998 | <ul style="list-style-type: none">• Completion of interviews |
| January-April 1, 1998 | <ul style="list-style-type: none">• Submit loan applications |
| February-April 1, 1998 | <ul style="list-style-type: none">• Homeownership courses |
| March 1998 | <ul style="list-style-type: none">• Completion of infrastructure improvements |
| April 1998 | <ul style="list-style-type: none">• Construction of residential units begin |
| March 1999 | <ul style="list-style-type: none">• Construction of all units complete• Owners occupy homes |

1.3 PURPOSE AND NEED FOR THE ACTION

The purpose of the KSHHP is to serve as the vehicle for carrying the project message through the regulatory process, and to act as the lead for generating affordable homeownership. In supporting SHHCH principles and development efforts, the KSHHP will add 19 affordable housing units to the west-side community of Kauai. SHHCH advocates strongly believe that homeownership stimulates pride, self-esteem and economic growth for the family unit.

Based on the County of Kauai's Post-Iniki Housing study which was published in the Spring of 1994, approximately 1,121 additional affordable housing units are needed on Kauai. All applicants are subject to a pre-qualification review by a screening committee to determine consistency with the Home Investment Partnership (HOME) Program. The KSHHP will be made available primarily to qualified candidates who currently reside in the Kalaheo area.

Those fortunate for selection into the program are required to participate in a mandatory homeownership course which explains the Self-Help principles, informs of the legal and financial responsibilities, and educates on both the short- and long-term rewards of owning a home.

1.4 ALTERNATIVE CONSIDERED BUT NOT CARRIED FORWARD

In evaluating project development alternatives for the property, up-zoning was considered to maximize residential density. Upon closer examination, it was determined that the deficiencies in physical infrastructure, such as drainage, wastewater disposal and potable water systems would require considerable upgrading resulting in higher development costs. SHHCH prefers to develop single family detached units, which tend to be more homeowner friendly.

The construction of multifamily buildings would not be with the in keeping of the rural character of the surrounding residential community. Multifamily projects carry with them regulatory baggage which traditionally increases long-term maintenance costs.

Kalaheo Self-Help Housing Project

1.5 NO-ACTION ALTERNATIVE

Development of KSHHP would significantly improve the visual, social, and economic condition of the immediate area.

To not implement the KSHH Project would defy all State and County goals, as outlined, pertaining to affordable housing. Furthermore, the objective of SHHCH would not be met.

1.6 REQUIRED ACTIONS

An Environmental Assessment (EA) is a procedural requirement when the use of County, State, or Federal funds are anticipated. Upon acceptance of the Draft EA, and the issuance of a Findings of No Significant Impact (FONSI), the SHHCH will purchase the fee title of the property.

An SMA Use Permit will not be required since the subject property is not situated within the Special Management Area (SMA) of the County of Kauai.

Should the project be developed as-is, a Class III Zoning Permit must be obtained from the Planning Department. A Building Permit is also required for each structure.

2.0

AFFECTED ENVIRONMENT

2.0 AFFECTED ENVIRONMENT

The Construction and use of the KSSH Project will undoubtedly carry some degree of impact. However, with proper analysis, measures can be taken to minimize both the physical and biological impacts and assure integration with the surrounding community. This section will review the physical and operational characteristics of the project.

The subject parcel is located within the Kalaheo Homesteads in the Koloa District. It is approximately .8 miles south of Kaunualii Highway's intersection with Papalina Road. The site is appropriately located in relation to commercial, recreational and eleemosynary services. The property is within close proximity to Eleele Town, Port Allen, and Hanapepe Town. Nearby public facilities include:

Retail: The Bread Box, G & N Variety Store, Steve's Mini Mart, Say Hey Sportscards Comics & Collectibles, Medeiros Farms, Westside Fast Foto, Harvey's Flooring, Taba Auto Parts, and Menehune Food Mart.

Restaurants: Kalaheo Steakhouse, Camp House Grill, Kalaheo Coffee Company, Pomodoro's Italian Restaurant, and Brick Oven Pizza.

Services: Kauai Video, Kalaheo Laundromat, Kalaheo Clinic, Kalaheo Post Office, Chevron, Shell and Parraga's Service Stations, Kalaheo Dental Group, Turtle Cove and Kauai Realty, Paradise Animal Clinic, Aaron Kakinami Attorney-at-Law, Scott Shimabukuro Dentistry, The Magic Touch Hair & Nail Salon, Miyazaki Electrical Contractor, Kalaheo Fire Station, and GTE Hawaiian Tel.

There are two schools in the area, Kalaheo Missionary Preschool and Kalaheo Elementary School. There are also six churches, Christian Kauai Fellowship, Marantha Fellowship, Kalaheo Missionary Church, The Church of Jesus-Christ of Latter-Day Saints, Iglesia Ni Cristo - Church of Christ, and the Holy Cross Catholic Church. Three well visited resources in the area include the Pacific Tropical Botanical Garden, Kukuiolono Golf Course, and Olu Pua Gardens.

The planned development sits within a older neighborhood consisting of long-time residents, many who are descendants of original settlers and plantation families.

Kalaheo Self-Help Housing Project

According to the Department of Finance, Real Property Division, the original residence was built in January 1950. It consisted of 8 rooms and 1-1/2 stories all within 2,152 square feet. The building was demolished in 1996 due to unsafe structural conditions.

2.1 CLIMATE

The average annual rainfall recorded near the site is approximately 22 inches. October through April are considered "winter" months. The average temperature is 65 degrees fahrenheit, and rain is more frequent. May through September are typically the driest months, where the average temperature is 80 degrees fahrenheit, and where rainfall is less frequent and brief.

2.2 SOILS

According to the United States Department of Agriculture Soil Conservation Service, Soil Survey of the Island of Kauai, soils on the subject parcel have a dual classification: Ioleau silty clay loam 20 to 35 percent slopes (IoE2) and Ioleau silty clay loam 12 to 20 percent slopes (IoD2) (Exhibit C).

In a representative profile, soils identified as IoE2 have a surface layer of dark-brown and yellowish-red silty clay loam 15 inches thick. Most of this layer has been removed by erosion. The subsoil, 40 to 60 inches thick, is dark-brown and dark reddish-brown silty clay that has subangular blocky structure and is very compact in place. The substratum is soft, weathered rock. The soil is very strong to extremely acidic. These soils are used for pasture, woodland, sugarcane, pineapple, and water supply. Permeability is slow to moderately slow. Runoff is rapid and the erosion hazard is severe. The available water capacity is about 1.4 inches per foot of soil.

Soils classified as IoD2 are similar to IoE2, except that it is moderately steep and part of the surface layer has been removed the erosion. Runoff is rapid, and the erosion hazard is moderate to severe. This soil is typically used for sugarcane, pineapple, and pasture.

A Geotechnical Investigation was conducted to evaluate the suitability of the soils to accommodate the proposed project. The findings of this study supported the conclusion that the site can sustain the construction of the proposed structures provided proper site preparation measures are followed (Appendix 3).

2.3 AIR QUALITY

The level of air quality in the area is almost always excellent. There may be periods of reduced quality from private agricultural burning. Air quality may also be reduced during the early construction phases of the project. This temporary condition is expected to return to normal upon completion of the earth disturbing activities.

2.4 BIOLOGICAL RESOURCES

The project site is not situated within an area that contains endangered species of plants or animals. The site consists of *kukui nut* trees, *ti* leaf plants, *albesia*, *hale koa*, Christmas berries, crotons, gingers and paneks among scrub grasses and low shrubs. These plants are associated with the previous tenants occupying the property.

2.5 CULTURAL RESOURCES

The project site itself does not contain any significant cultural or historical resources. It is not situated within an area that has been designated for preservation. Furthermore, the property is not listed on, or nominated to the Hawaii Register of Important Places or the National Historic Register.

2.6 WATER QUALITY

The KSSH Project is not located near to or along a stream or ocean. It is not expected to affect the water quality for inland and marine environments.

2.7 LAND USE

The subject property is classified "Urban " by the State Land Use Commission (LUC) (Exhibit C), General Planned "Urban Residential" (Exhibit D) and zoned "Residential (R-4)" by the County of Kauai (Exhibit E). Based solely on zoning, the property qualifies for 20 residential units. Residential R-4 zoning refers to single-family density which translates into 4 residential units per acre.

Kalaheo Self-Help Housing Project

The parcel is not located within the Special Management Area (SMA) of the County of Kauai, and is therefore not subject to its rules and regulations. Guidelines from the Coastal Zone Management Program for the State of Hawaii also does not apply.

According to the Planning Department, County of Kauai, no zoning permits have been issued for the property.

The Kalaheo Self-Help Housing Project, as proposed by SHHCH is a 19-unit residential project. Each of the newly created lots qualify for one (1) single family dwelling, and may qualify for an Additional Dwelling Unit (ADU).

2.7.1 HAWAII STATE PLAN

First adopted in 1975, the Hawaii State Plan was designed to guide long-range development of the State. The objectives and policies of the State Plan are broadly set forth in the areas of population, economy, physical environment, facility system, and socio-cultural advancement. Overall themes, goals, objectives, policies, priority guidelines, and implementation mechanisms are outlined for future development. KSHHP is consistent with the Hawaii State Plan's Affordable Housing Priority Guidelines in that:

- OBJECTIVE:** **Section 226-19(b)(4)**
Promote appropriate improvement, rehabilitation and maintenance of existing housing units and residential areas.
- RESPONSE:** The proposed development will enhance the area by the addition of newly constructed units, appropriate landscaping, and improved overall project aesthetics. The end result will be the accommodation of 19 new single family units.
- OBJECTIVE:** **Section 226-19(b)(3)**
Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style, and size of housing.

Kalaheo Self-Help Housing Project

RESPONSE: KSHHP fulfills all of the opportunities stated. The project is an affordable housing venture between public and private sectors of the community to provide fee simple homeownership. Families will be able to "customize" their homes through roof design, finish treatments and exterior color options.

2.7.2 KAUAI GENERAL PLAN

Established in 1971, and subsequently updated in 1985, the Kauai General Plan was designed to govern organized growth for the island. Policies for development, growth control, and Capital Improvement Project (CIP) expenditures are disclosed. The proposed development is consistent with the goals and objectives of the General Plan in that:

GOAL: To provide opportunities for suitable living quarters for all residents in all income levels.

RESPONSE: The project will provide 19 more affordable housing units to the segment of the community that needs the assistance. Through the Self-Help Housing Corporation of Hawaii, KSHHP affords families that fall within 50 to 80 percent, or below, the median family income, an opportunity to be homeowners. These candidates do not have the resources to plan, finance, and implement a project of this nature.

KSHHP will be financed and developed until each qualified applicant can secure their own mortgage. The self-help effort and process allows for savings, on average about 50 percent, on the cost to build the home.

GOAL: Promotes and protects the health, safety and welfare of all residents and visitors.

RESPONSE: The KSHHP will provide safe and decent housing for some of Kauai's own people and result in a more orderly and aesthetic environment for nearby residents.

Kalaheo Self-Help Housing Project

2.7.3 KOLOA-POIPU-KALAHEO DEVELOPMENT PLAN

The Koloa-Poipu-Kalaheo Development Plan is one of six (6) regional development plans which functions as a basis by which all future growth is organized. It seeks to identify community priorities specific for this planning region to insure orderly and harmonious growth. The proposal is consistent with the goals and policies of this regional development plan in that:

1. Provides affordable housing opportunities for families with incomes at the lower end of the income scale. Without programs like this, persons with lower incomes may never have the opportunity to realize the benefits of homeownership and equity growth.
2. These residential units are proposed within an existing zoned property and are conveniently oriented to places of employment, schools, retail stores, and other government services.

According to the Development Plan, "Geographically and environmentally this subarea (Kalaheo) is ideally suited to residential community use, relatively detached from the transitional impact of visitor influenced growth affecting other communities within the planning area, yet vitally connected by economic and social threads to those same impacts.

2.7.4 URBAN DESIGN PLAN

The project site falls outside of the boundaries of the Kauai Urban Design Plan, and is therefore not subject to its development criteria.

2.7.5 SPECIAL MANAGEMENT AREA (SMA)

The Coastal Zone Management Program is concerned with impacts the development may have within the Special Management Area - with respect to cultural, social, recreational and open space resources, coastal ecosystems, and coastal hazards.

Although the site does not fall within the SMA boundaries, the KSHHP conforms and supports many of its rules, for instance:

Kalaheo Self-Help Housing Project

1. The development is in conformance with the County General Plan, Hawaii State Plan, Comprehensive Zoning Ordinance, and other applicable local ordinances.
2. The development will not involve dredging, filling or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon.
3. The development will not reduce the size of any beach or other area usable for public recreation.
4. The development will not reduce or impose restrictions upon public access to tidal or submerged lands, beaches, portions of rivers and streams within the Special Management Area and the mean high tide line where there is no beach.
5. It will not interfere or detract from the line of sight towards the sea from the State highway nearest the coast, or from existing public views to and along the shoreline.
6. It will not adversely affect water quality, existing area of open water free of visible structures, existing and potential fisheries and fishing grounds, wildlife habitats, estuarine sanctuaries, potential or existing agricultural uses of land.
7. The proposed development and use will not have any substantial adverse environmental or ecological effects, and will not adversely affect any wetland, submerged lands, tidal basins, or navigable waters.

2.7.6 AGRICULTURE

The subject property is not engaged in, or appropriate for, significant agriculture activities. The proposal will not reduce or eliminate the inventory of important agricultural lands to the State of Hawaii.

2.7.7 OPEN SPACE and RECREATIONAL

The proposed development will not displace existing recreational facilities. Furthermore, the proposal will not reduce or restrict access to any recreational resource.

Kalaheo Self-Help Housing Project

2.7.8 TRAFFIC

Access to the KSHHP is through Puu Road, via Papalina Road off of Kaunualii Highway. The project site is within an existing zoned area. It is expected that approximately 20 to 40 additional vehicle movements will be made each day over this section of road.

2.7.9 HOUSING

The proposal will not cause a displacement of island residents as the property is presently vacant. It will however increase the inventory of fee simple affordable housing in the area by 19 units.

2.7.10 SCHOOLS

Residents of the proposed development will be selected through the existing island residential pool. As such, there will be no further demand to build additional schools. Kalaheo Elementary School is located approximately .5 miles away. However, should there be children of these families who attend intermediate or high school institutions, the County does provide transportation to both Waimea and Kauai High School with a pick-up time of 6:35am at the Kalaheo Neighborhood Center.

Pedestrian sidewalks are found throughout Kalaheo town, along both sides of Papalina Road, and along Puu Road leading to Kalaheo Elementary School.

2.7.11 PARKS

The proposed development will not create further pressures to develop new parks. Residents will be able to enjoy recreational opportunities provided at the Kalaheo Neighborhood Center, Kalawai Park, and at Kalaheo School.

Kalaheo Self-Help Housing Project

2.7.12 EMPLOYMENT

The proposed development will not significantly contribute to the long-term employment pool on Kauai. However, for approximately 15 months, the construction industry (workers and suppliers) will receive some benefit from this project. In addition, it will contribute to the real property tax pool.

2.7.13 WASTEWATER

The project site is not currently within an existing County wastewater disposal service area. Therefore, individual wastewater systems (IWS) will be required for the homes. The selected method of wastewater disposal is through an underground septic tank with leaching fields.

2.7.14 DRAINAGE

A natural swale traverses through the parcel, thus requiring a Flood/ Drainage Report prior to building permit approval. According to the Geotechnical Investigation done by Snyder and Associates "Continuous roof gutters are recommended. Downspouts from the gutters should be provided with adequate pipe conduits to carry storm water away from the structures and thus reduce the possibility of soil erosion adjacent to the foundations."

2.7.15 UTILITIES

Existing County water, electric, and telephone lines will be extended into the subdivision. All facility improvements will be constructed in accordance with County guidelines.

2.7.16 POLICE and FIRE

The KSHHP is not expected to significantly increase the demand for Police and Fire services as it is within an existing service area. The nearest fire station is located approximately .9 miles north of the site, along Kaumualii Highway. The station also serves as a "base" for police and ambulance services.

2.8 CONSTRAINTS

According to Article 10, Chapter 8, Kauai County Code (KCC), the purpose of the Constraint Districts is for establishing special standards of development to assure public health, safety, and welfare in areas containing unusual and unstable conditions. The following are the Constraint Districts for the County of Kauai, and as they exist on the subject property (Exhibit G):

| | |
|-----------|--|
| SLOPE: | None |
| SOIL: | Portions of the parcel lies with this District as identified on the 1,000 scale Constraint Maps. |
| TSUNAMI: | None |
| DRAINAGE: | None |
| SHORE: | None |
| FLOOD: | None |

According to the Kauai County Code (KCC) Article 15, Section 8-15.1 the the purpose of the Soil Constraint District is to minimize the threat to public health and safety as a result of development on soils that are unstable, have inadequate drainage characteristics, or require abnormal structural solutions because of load bearing or drainage characteristics.

The Soil District includes all land where:

1. The characteristics of the surface soils to a depth of 5 feet inhibit water percolation to the point that it is unacceptable to State and County health officials for use as a septic effluent discharge, or allows surface water to stand for over 12 hours.
2. The characteristic of the soils and subsurface geology makes the soil inadequate as a bearing surface for standard building or road construction.
3. The characteristic of the soil in combination with slope, water, wind or other physical factors makes the soil unstable and subject to sliding, slipping, or water or wind erosion.

Kalaheo Self-Help Housing Project

According to Section 8-15.3 KCC, the requirements for development within a Soils District are:

No Zoning, Building or Use Permit shall be issued, nor shall any use requiring the development, grading or alteration of any portion of the Soils District be permitted, unless the applicant establishes conformity with the requirements of this Article.

1. Applications shall include soils and geologic reports by a soils engineer submitted to the Department of Public Works indicating the structure, drainage characteristics, and bearing capacities of the land to be developed. The report shall include a topographic map of the parcel indicating existing or potential slip, slide, or highly erosive areas, and areas with poor surface drainage or inadequate percolation rates.
2. The applicant shall demonstrate through detailed drawings that the development will not contribute to the instability of the land and that all structural proposals including roads and pavement have adequately compensated for soil characteristics.
3. The applicant shall demonstrate through detailed drawings that the proposed development will eliminate the potential of casual standing water through positive drainage and that percolation rates are adequate for the type of development proposed.
4. For the development of not more than 1 dwelling unit, the Department of Public Works may waive any of the requirements of this Article provided that requirements of the State Health Department and County Building Code are met or exceeded.

2.9 FEDERAL INSURANCE RATE MAP (FIRM)

The subject property is situated outside the flood study by the Federal Emergency Management Agency (FEMA) and the National Flood Insurance Program (NFIP).

3.0

ENVIRONMENTAL CONSEQUENCES
and
MITIGATIONS

3.0 ENVIRONMENTAL CONSEQUENCES and MITIGATIONS

The following section describes the anticipated significance of potential environmental consequences relating to the development and use of the Kalaheo Self-Help Housing Project, and identifies appropriate mitigation measures. Consequences range in criteria from a) Not Significant; b) Significant but Mitigable; and c) Potentially Significant.

3.1 DESIGN

The homes are designed to minimize any visual impacts. To reduce the effect of massing, the homes are single-story and detached. This allows for more trees and landscaping between buildings, which softens the project's appearance. The single-story and single-family design successfully integrates the project into its surroundings.

MITIGATION: No significance.

3.2 CONSTRUCTION

The required construction for this project is expected to last approximately 10 - 12 months. During this time, nuisances associated with masonry and lumber fabrication will be experienced by neighboring properties.

MITIGATION: Significant but mitigable.
Fugitive dust impacts to neighboring properties may be reduced by daily watering, and at times requiring either more or less watering depending upon the weather and degree of activity. Compromising on work hours and days can also alleviate conflicts between neighbors, residents, and construction company personnel.

3.3 USE

The proposal is consistent with Chapter 8, KCC. All structures shall meet zoning code requirements relative to building envelopes, spatial relationships, and development standards in the Residential Districts. However, as with any neighborhood, social conflicts may arise from time to time.

Kalaheo Self-Help Housing Project

MITIGATION: Significant but mitigable.
By incorporating and enforcing KSHHP's CC&R's (Covenants, Conditions, and Restrictions) residents will be able to resolve any conflict through its proper procedures. The CC&R's govern all residential activities and serve to define all the rules of conduct for both residents and visitors, and outlines the process for penalty.

3.4 AIR QUALITY

The greatest ambient air quality impacts will very likely be the result of short-term construction activities. Fugitive dust generation will result in an increase of airborne pollutants from machinery exhaust emission and site grading activities.

MITIGATION: Significant but mitigable.
As previously mentioned, the project site is located adjacent to existing residential settlements. Protective measures must be taken to reduce fugitive dust migration. Watering of the soil twice daily 7 days a week will greatly reduce airborne particles. On windy days (winds 15 to 25 mph or greater), more frequent watering may be necessary. Should dust continue to pose a management problem, the erection of dust screens and overhead sprinklers may be necessary. The timely grassing of exposed soil areas can greatly reduce dust and soil erosion problems.

The earth excavation contractor shall be required to perform equipment service and maintenance to reduce equipment exhaust emissions. The prevailing trade winds are expected to atomize and disperse hydrocarbon particles and residual gases created from incomplete combustion.

Kalaheo Self-Help Housing Project

3.5 BIOLOGICAL RESOURCES

The project will have no adverse consequences on native or endangered plants or animals, since none inhabit the site.

MITIGATION: No significance.

3.6 CULTURAL RESOURCES

An Archaeological Inventory Survey is not required for this project. However, there is always the possibility of discovering inadvertent human burials.

MITIGATION: Significant but mitigable.
A pre-construction meeting would inform all personnel of the significance of protecting cultural sites, as well as the legal obligation found under Chapter 6E HRS.

Upon discovery of a cultural site or human burial, the law requires all construction work in the area to cease until DLNR-SHPD officials are notified and a determination is made as to the appropriate steps that must be taken for protection.

3.7 LAND USE

The proposed development is consistent with all land use plans, including the Hawaii State Plan, the General Plan, the Koloa-Poipu-Kalaheo Development Plan, and Chapter 8 KCC.

MITIGATION: No significance.

3.8 HOUSING

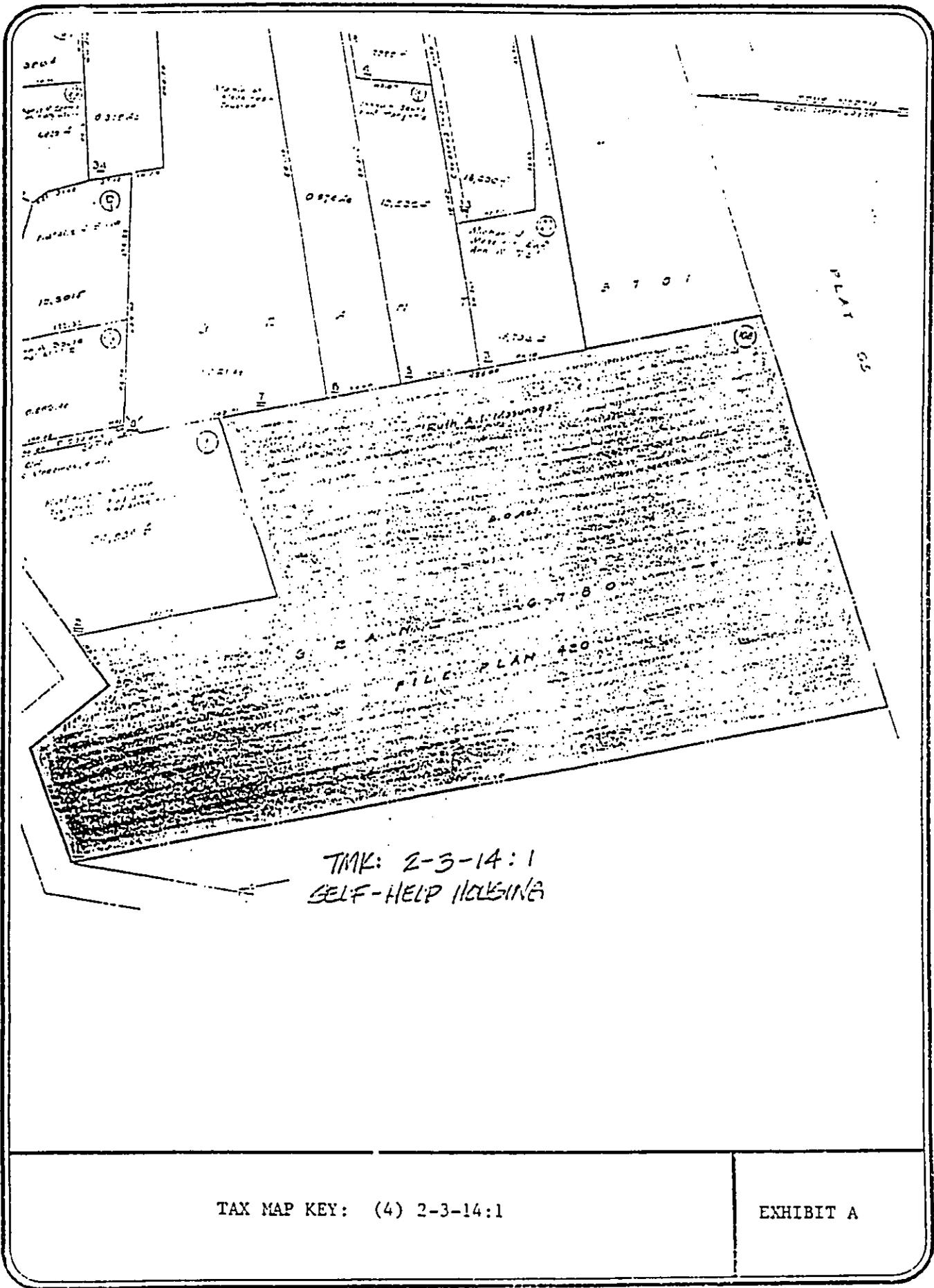
The construction and use of the Kalaheo Self-Help Housing Project will not displace any tenants or families since no one is currently residing on the subject property.

MITIGATION: No significance.

3.9 CUMULATIVE IMPACTS SUMMARY

Urban activities, regardless of its degree of impact, disrupts the delicate ecological balance of an environment. Program impacts which affect the social, biological, and cultural resources in Kalaheo have been identified. However, all available information and data indicates that these impacts, individually or together, would not significantly affect the natural resources in the area.

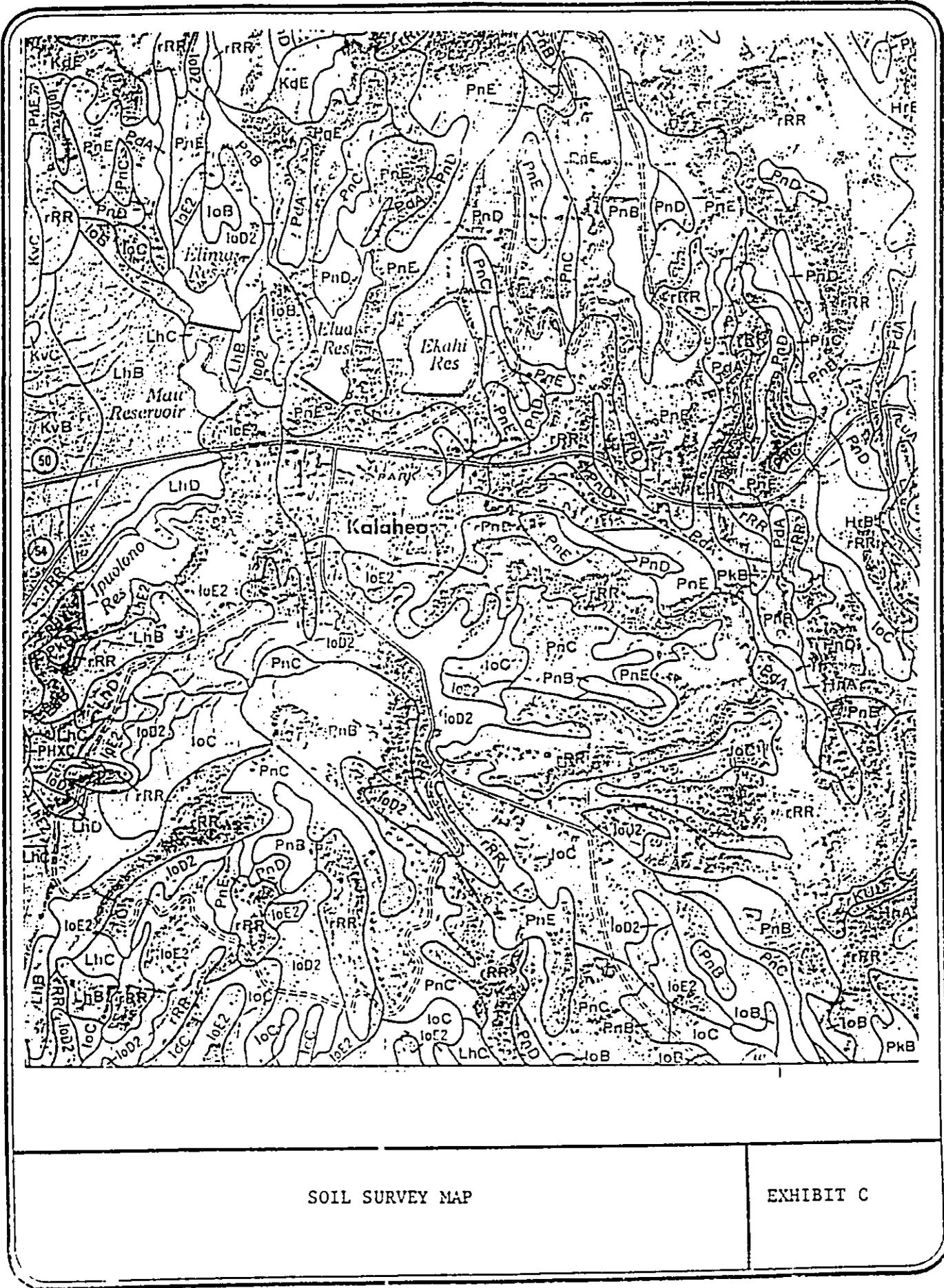
EXHIBITS



TMK: 2-3-14:1
 SELF-HELP HOUSING

TAX MAP KEY: (4) 2-3-14:1

EXHIBIT A



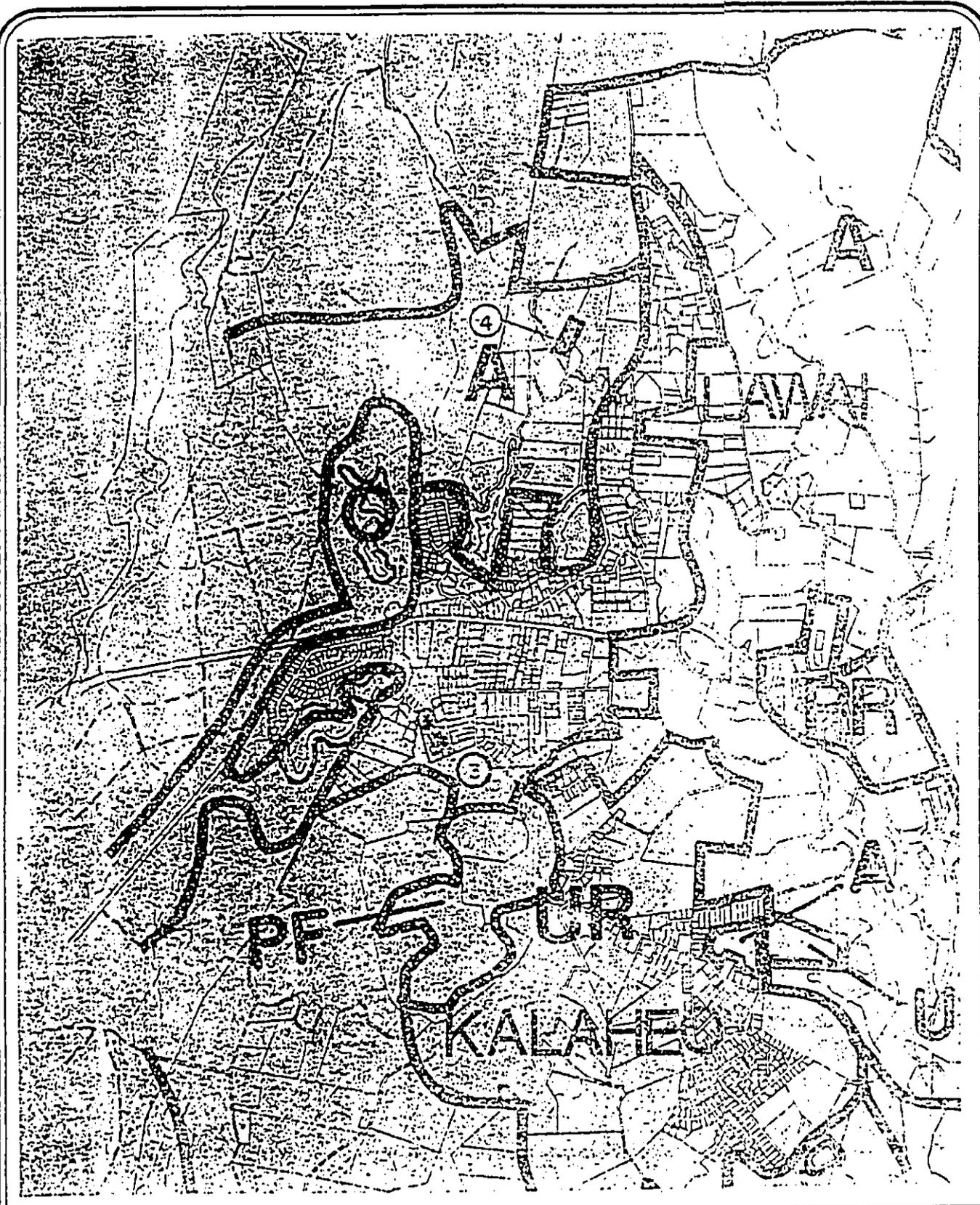
SOIL SURVEY MAP

EXHIBIT C



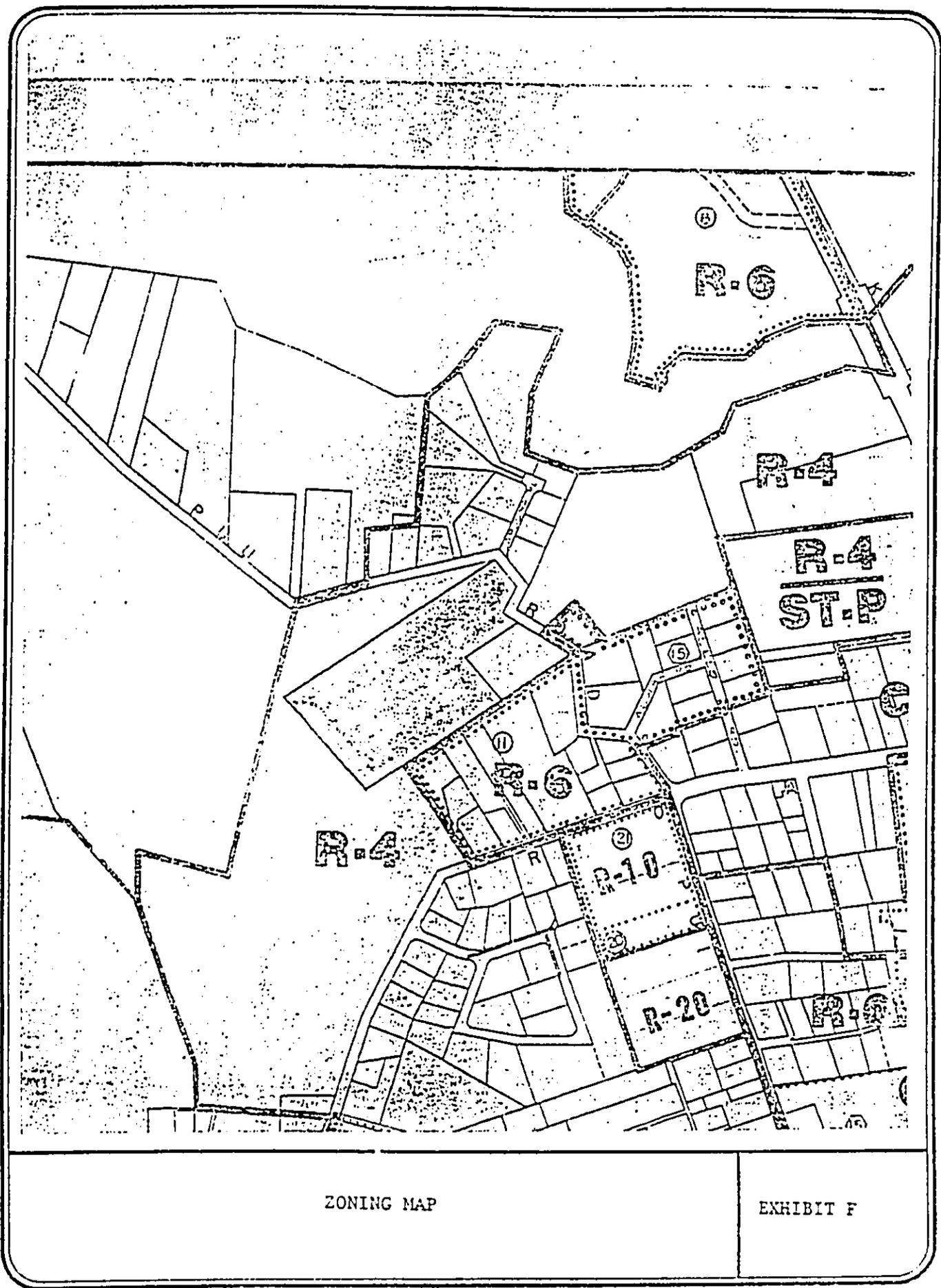
STATE LAND USE DISTRICT MAP

EXHIBIT D



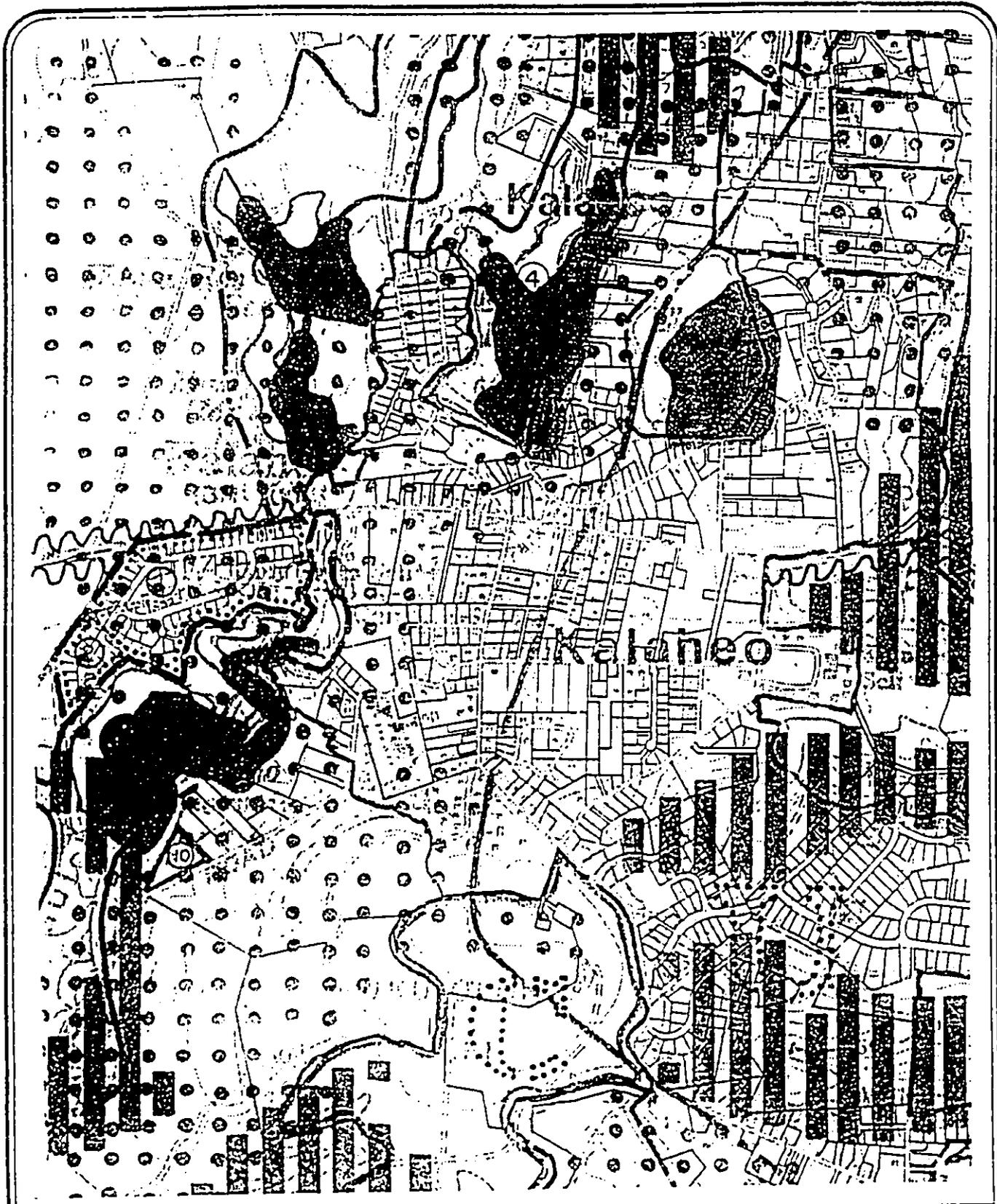
GENERAL PLAN MAP

EXHIBIT E



ZONING MAP

EXHIBIT F



CONSTRAINT MAP

EXHIBIT G

- LEGEND: ● = SOIL CONSTRAINT
■ = SLOPE CONSTRAINT

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APPENDIX

COUNTY OF KAUAI
PLANNING DEPARTMENT
4444 Rice Street, Suite 473, Lihue, Hawaii 96766

INQUIRY RESPONSE FORM

TO: APPLIED PLANNING SERVICES
P.O. Box 1724
Lihue, HI. 96766

DATE: July 8, 1996

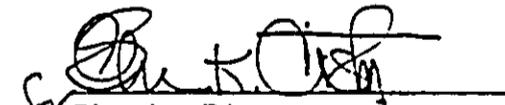
RE: TMK: (4) 2-3-14: 001
KALAHEO, KAUAI, HAWAII

For the subject property, or a portion thereof:

1. The zoning is Residential (R-4) District(s).
2. General Plan designation is Urban Residential (UR).
3. State Land Use District classification is Urban (U).
4. The property [] is [X] is not within the Special Management Area.
5. Property is within the Soil Constraint District.
6. Permits issued for the property:
Our department's records indicate that no Zoning Permits have been issued for the subject property.

7. Additional Information: (Violations, Density, Allowable Uses, Historic Dist./Structure)
We do not have any records of a 20 lot subdivision nor a consolidation of 20 lots on the property. However we do note that there is a reference to a File Plan No. 420 on the Tax Map Key. Possibly, this file plan map may be the source of an existing 20 lot subdivision. The Survey Division of the State Department of Accounting and General Services may be a possible source to help locate the File Plan map of the property. Also, a title search would be helpful to disclose any pertinent information of the property.

Please be advised that further evaluation, requirements, and approvals from pertinent agencies may also be required prior to development of this property. Further, please be advised that this letter shall not be used as a representation of the County of Kauai's official consent for development of this property, or as part of the sale of this property to a prospective purchaser. Should you have any questions on this matter, please contact Wesley Masumura of our office at (808) 241-6677.


Planning Director

FEASIBILITY REPORT

SELF-HELP HOUSING CORPORATION OF HAWAII

KALAHEO PROJECT (KAUAI)

TMK: 2-3-14:01

As mentioned previously, the subject parcel is very unique in that it is a "paper" 20-lot subdivision of record serviced by a private and substandard roadway lot. This unique scenario affords two alternatives for development:

1. Develop as-is.
2. Re-subdivide and develop per County standards.

We will highlight and summarize each of the alternatives and provide preliminary cost estimates for each.

We have also included in the following, our findings based on the inquiries conducted with the various agencies. The inquiries will give you an idea of the uniqueness as well as the complexity facing the development of the subject parcel.

DEVELOP AS-IS:

If the subject project is to be developed as-is, the following improvements will, in all likelihood, be required:

1. Design and construction of a 6-inch waterline along Puu Road from Papalina Road to the project site (approximately 800 l.f. in length); or pay a proportionate share if said waterline is already constructed by the Kalaheo Elderly Housing Project.
2. Design and construct a master meter for domestic consumption.
3. Design and construct a detector check meter for fire flow protection.
4. Design and construct separate interior waterlines (within 30-ft. roadway lot) - one each for domestic use and fire flow protection.
5. We recommend that individual water meters be installed on the interior domestic use waterline.
6. Design and construct a concrete driveway approach within Puu Road right-of-way and a concrete driveway (20 ft. wide) within the 30-ft. wide roadway lot.

7. Obtain individual wastewater system (IWS) approval for either a septic system or cesspool.
8. Pay all applicable County fees.

In addition to the above, the following concerns need to be addressed:

1. Due to the 30-ft. wide right-of-way roadway lot being private, an association of home owners may be required to address ownership, maintenance, billing, etc.
2. County services will not be provided due to the private roadway lot.
3. Fire Department will need assurances that their trucks will have an area to turn around (i.e., equivalent to a culdesac).
4. Due to the existing topography, buildable areas for house sites may be limited. These limitations may affect loan processes, particularly if HUD, FMHA or similar type of programs are involved.

RE-SUBDIVIDE AND DEVELOP PER COUNTY STANDARDS

If the subject project is to be a County-standard subdivision, the following will be required:

1. The 30-ft. wide right-of-way roadway lot would have to be widened to 44 ft. and terminated with a culdesac.
2. By re-subdividing (to widen roadway from 30 ft. to 44 ft.), the overall number of lots may be reduced from 20 lots to 18 lots, with a detention basin being constructed in one of the lots.
3. Construction plans will be required for the proposed new roadway. Construction plans will include design for the roadway, various utilities and grading, similar to that under the as-is condition, except that said design and construction shall be per County standards.
4. Extensive work will be required to have the new roadway conform to County standards.

INQUIRY - FINDINGS AND COMMENTS

We conducted an inquiry with the various governmental agencies regarding the subject project. Following are the preliminary findings and comments from said agencies:

PLANNING DEPARTMENT:

1. The subject "parcel" has ^{19 (lots sold)} 20 lots of record with a 30-ft. wide right-of-way roadway lot.
2. If the subject "parcel" is to be developed as-is (i.e., construction of homes), building permits would be required.
3. The 30-ft. wide right-of-way roadway lot is substandard as is, and will not be accepted by the County.
4. Non acceptance by the County means that the roadway will remain private, and there will be no County services provided such as trash pick up, road maintenance, etc.
5. To meet County standards, the 30-ft. wide right-of-way lot would have to be widened to a 44-ft. wide right-of-way roadway with a culdesac turnaround and constructed to County standards.
6. To accomplish the above (No. 5), a subdivision and its process would be required.

PUBLIC WORKS:

1. As much as they dislike it, as stated, the "parcel" is a record 20-lot subdivision, thus, development can occur as-is, with approved building permits.
2. However, a natural swale traverses through the parcel, thus, a flood/drainage report will be required prior to building permit approval.
3. In conjunction with No. 2, the flood/drainage report shall determine the buildable sites for each lot.
4. A grading permit will be required should any grading in excess of 100 c.y. occur.

5. Since the 30-ft. wide right-of-way roadway lot is a private lot, Public Works have no jurisdiction. However, should a driveway be constructed, a permit to work within County right-of-way will be required, for the driveway approach only.
6. If subdivision is the chosen route, then design and construction of drainage facilities and roadway facilities will be required (to County standards, of course), for the new roadway.

DEPARTMENT OF WATER:

1. Fire flow requirements as well as domestic use demands will need to be met. Thus, a water demand analysis will be required.
2. Being that the roadway lot is a private lot, Department of Water will not allow their facilities to be installed in said lot.
3. In lieu of No. 2 above, Department of Water will consider a master meter for domestic use, to be located within Puu Road right-of-way (interior waterline shall be private).
4. Likewise, Department of Water will consider a detector check meter for fire flow protection, within Puu Road right-of-way (again, private within the 30-ft. wide roadway lot). The domestic line and fire line shall be separate lines.
5. Construct/install a new 6-inch waterline long Puu Road, from Papalina Road to project site; or pay a proportionate share if said 6-inch waterline is installed by the Kalaheo Elderly Housing Project.
6. Design plans will be required for Items No.'s 3, 4, and 5 as necessary.
7. Applicable FRC charges would have to be paid to Department of Water. The amount being dependent upon the number of meters and size of meter.
8. If re-subdivision is the choice, then the master meter and detector check meter will not be required, and only one transmission waterline will be required within the new roadway. Said water improvements and facilities shall be per County standards.

DEPARTMENT OF HEALTH:

1. Septic tanks or cesspools are allowed for the project area. Nonetheless, individual wastewater system (IWS) reports will be required, for review and approval by the Department of Health.

GEOTECHNICAL INVESTIGATION
FOR
KALAHEO SELF-HELP HOUSING PROJECT
KALAHEO, KAUAI, HAWAII

JULY 1996

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GEOTECHNICAL INVESTIGATION
KALAHEO SELF-HELP HOUSING PROJECT

1. INTRODUCTION

A Geotechnical Investigation of the subject property located in Kalaheo, Kauai, Hawaii, TMK: (4) 2-3-14: 1 was conducted to determine surface and subsurface geotechnical conditions, suitability and requirements for the proposed housing project as shown on the Site Plan, Figure 2.

This investigation included the following work:

- a. Site reconnaissance, project planning and coordination;
- b. Excavation of five test pits and collection of relatively undisturbed soil samples (see Appendix B);
- c. Laboratory testing of the collected soil samples (see Appendix B);
- d. Analysis of the data and formulation of geotechnical recommendations; and
- e. Preparation of this written report.

Based upon the results of this investigation, criteria have been established for site preparation, site grading, slopes, surface drainage and for the design and construction of building foundations, retaining walls, slabs and pavements..

2. SITE DESCRIPTION

The site is bounded on the north by Puu Road, on the south, east, and west by partially developed and undeveloped agricultural and residential lots. The upper 4 acres of the site are presently being used as pasture land. Barbed wire fence runs the perimeter of the property, except along the north side where the trees and underbrush are very thick. The terrain generally slopes gradually down towards the north and the drainage swale which runs down the middle of the site. This site is covered with tall grass and scattered trees and bushes.

3. GEOTECHNICAL OBSERVATIONS

A field exploration program was performed at the site on July 23, 1996. Five test pits were excavated, using a backhoe, to depths of between 6.0 and 8.5 feet below existing ground elevation at the approximate locations shown on the Site Plan, Figure 2. The logs of the test pit excavations are presented in Appendix B.

The near surface soils were a medium brown clayey silt, which was slightly moist and loose. This topsoil zone was friable with many fine roots and occasional small tree roots. It was 6 to 24 inches thick. The topsoil zone was underlain by a zone of reddish brown clayey silt, which was moist and stiff, and was 2.5 to 6.0 feet thick.

In Test Pit 3 the reddish brown clayey silt extended to the bottom of hole.

In Test Pits 1, 2, 4, and 5 the reddish brown clayey silt was underlain by a medium brown and reddish brown clayey silt, which was moist and stiff to hard. This zone contained soil which occasionally displayed the structure of the parent rock. It was 2.5 to 4.5 feet thick.

In Test Pit 4 isolated boulders of dense basalt were encountered at 3.5 feet below grade. These boulders had a nominal diameter of 3.0 feet.

In Test Pit 5 at 6.5 feet, the medium reddish brown soil was underlain by a zone of mottled light brown cobbles and boulders of highly decomposed vesicular basalt, which was slightly moist and stiff.

Ground water was not encountered in the test pits. However, groundwater levels may fluctuate during periods of heavy rainfall.

4. CONCLUSIONS

The site is suitable for construction of the proposed structures provided the recommendations presented in this report are incorporated into the project plans and specifications, and implemented during construction.

Topsoil thicknesses up to two feet were observed. The average thickness of topsoil on the site is estimated to be 12 inches.

5. RECOMMENDATIONS

5.1 CLEARING AND STRIPPING

Building areas and areas to receive fill or other improvements should be cleared and stripped including removal of topsoil, stumps, boulders and loose, soft, or contaminated materials to a minimum depth of 6 inches below existing grade. Any exploration trenches or test pits that may have been excavated for the present or previous geotechnical investigations in areas to receive engineered fill must be re-excavated and properly backfilled. Excavations extending below final grade should be cleaned out to firm, undisturbed soil as determined by the Geotechnical Engineer. The Geotechnical Engineer should observe all areas to receive engineered fill to verify that all unsuitable material has been removed and that the subgrade is properly prepared. Topsoil should be stockpiled for use in landscaping or should be removed from the site.

5.2 GRADING

Following site stripping and removal of unsuitable soil, the site may be brought to the desired finished grades by excavating or by placing engineered fill as appropriate. Excavated soils may be either 1) placed in engineered fill, 2) placed in a controlled fill on agricultural land away from the proposed improvements, or c) removed from the site. Engineered fill should be placed in lifts not exceeding 8 inches in uncompacted thickness, moisture conditioned, and compacted to at least 90% relative compaction based on ASTM Laboratory Test Procedure D-1557.

Approved on-site soils or imported granular material may be used for engineered fill. Imported materials must be approved by the Geotechnical Engineer prior to transporting to the placement location and must meet the following requirements:

- a. Contain no organic materials;
- b. Have a plasticity Index 15 or less;
- c. Contain no rocks larger than 6 inches in maximum dimension; and
- d. Have not more than 15% passing the No. 200 sieve.

Moisture conditioning of fill material may be accomplished either in the borrow area or in the loose lift prior to compaction. However, the loose lift, prior to compaction, must have a uniform moisture content within the range of optimum to 5% above optimum. Optimum

moisture content for the particular soil used for fill is to be determined in accordance with ASTM Test Procedure D-1557.

5.3 CUT AND FILL SLOPES

Cut slopes may be constructed at 1.5:1 (horizontal to vertical). Cut slopes in rock may be steeper than 1.5:1 as determined by the Geotechnical Engineer. Cut slopes should be examined by the Geotechnical Engineer during grading and evaluated for stability.

Fill slopes should be constructed no steeper than 2:1. Fill slopes are subject to severe erosion when the site experiences heavy rain. Therefore, before work is stopped, a positive gradient away from the slopes should be provided to carry the surface runoff water away from the slopes in order to minimize or control erosion in these areas.

After completion of the slope grading, erosion protection should be provided on the fill slopes and must include mulching and planting with fast-growing grass.

5.4 FOUNDATIONS

Structures may be supported on spread footings, or continuous wall footings, or a combination of both.

Spread footings should be founded a minimum of 18 inches below lowest adjacent grade and on the native soil below the topsoil or on engineered fill. They should be a minimum of 24 inches in diameter, or side dimension if square.

Continuous wall footings should be founded a minimum of 18 inches below lowest adjacent grade and on the native soil below the topsoil or on engineered fill. Footing width should be a minimum of 15 inches. Footings should be reinforced by a minimum of 4 number 5 bars, two on top and two on bottom.

Footings founded at a minimum depth of 18 inches may be designed for an allowable soil bearing capacity of 3000 p.s.f. for dead plus live loads. This value may be increased by one-third to allow for seismic and wind forces. Passive pressures can be assumed to act on the vertical faces of the footings. For footings on level soil, the passive pressure below one foot below grade can be computed assuming a fluid weighing 300 p.c.f. Passive

pressures for footings on slopes with the supporting material sloping away from the footing should be limited to those from an equivalent fluid weighing 200 p.c.f., neglecting the upper 3 feet. The downslope edge of footings should be set back a minimum of 10 feet from the face of a slope which slopes away from the footing. The coefficient of friction between the base of footings and the soil can be assumed to be 0.45.

Footing excavation and concrete placement should be coordinated so that holes are left open a minimum amount of time. Footing excavations should not be allowed to desiccate significantly before placing concrete and certainly not to the point of showing shrinkage cracks. Excavations should be cleared of loose soil before placing reinforcement.

5.5 RETAINING WALLS

Retaining walls should be designed to resist lateral pressures exerted from a media having an equivalent fluid weight as follows:

| Gradient of Back Slope | Equivalent Fluid Weight | |
|------------------------|-------------------------|--------------|
| | Restrained | Unrestrained |
| Flat | 65 pcf | 50 pcf |
| 2:1 | 75 pcf | 60 pcf |

The above criteria are based on fully drained conditions. For these conditions, we recommend that a filter material blanket be placed behind the wall. The blanket should be a minimum of 12 inches thick and should extend the full height of the wall to within 12 inches of the surface. A 4 inch perforated drain pipe should be installed in the bottom of the filter blanket and should be underlain by at least 4 inches of filter type material. Adequate gradient shall be provided to discharge water that collects behind the wall to a controlled discharge system away from the structure foundations and nearby engineered fills.

Passive soil pressures can be assumed to act against the downslope face of wall foundations. For walls on level soil, the passive pressure below one foot below grade can be computed assuming a fluid weighing 300 p.c.f. Passive pressures for footings on slopes with the supporting material sloping away from the wall should be limited to those from an equivalent fluid weighing 200 p.c.f., neglecting the upper 3 feet. The downslope edge of

footings should be set back a minimum of 10 feet from the face of a slope which slopes away from the footing.

The coefficient of friction between the base of foundations and the soil is equal to 0.45. An allowable soil pressure of 3,000 p.s.f may be assigned to bearing soils directly beneath the wall foundation, where the base of the foundation is a minimum of 18 inches below adjacent grade.

Placement of wall backfill shall not begin until the concrete has cured for 14 days. Wall backfill shall be compacted to the requirements of engineered fill.

5.6 SLAB-ON-GRADE CONSTRUCTION

Where slabs-on-grade are to be constructed, 4 inches of sand, gravel or clean, crushed rock material should be used between the finished subgrade and the floor slab to serve as a capillary break between the subsoil and the slab. Where floor coverings are anticipated, a waterproof membrane should be placed between the granular layer and the floor slab in order to prevent any moisture condensation under the floor coverings. A minimum of one inch of moist sand on top of the membrane will not only help protect the membrane but will also assist in equalizing the concrete curing rate to prevent excessive shrinkage cracks. All slabs should be reinforced with number 3 rebar at 12 inches on center, each way, as a minimum.

Slabs at door openings should be constructed with a "curl" or a thickened edge extending 6 inches into native ground or compacted fill. Alternatively, the foundation may be continued across the openings.

Conventional slabs over backfilled areas should be isolated from adjacent retaining walls and foundation systems to minimize cracking due to differential settlement. These slabs should be reinforced as required to maintain their integrity as floating units. Individual sections should be kept to dimensions that will minimize cracking.

5.7 PAVEMENT AREAS

PREPARATION OF SUBGRADE: After underground facilities have been placed in the areas to receive pavement and removal of excess material has been completed, the upper 6 inches of the subgrade soil shall be scarified, moisture conditioned and compacted to a minimum relative compaction of 95% of maximum density based on the ASTM Test Procedure D-1557.

AGGREGATE BASE: All aggregate base material placed subsequently should also be compacted to a minimum relative compaction of 95% of maximum density based on the ASTM Test Procedure D-1557. The construction of the pavement should conform to the requirements set forth by the latest Standard Specifications of the Highway Department of the State of Hawaii and/or County of Kauai, Department of Public Works.

PAVEMENT DESIGN: If paving is required on the site, it is recommended that soil samples be taken by the Geotechnical Engineer for a pavement design after the rough grading has been completed in order to provide confirmation of the soils at subgrade level and to provide a pavement design section. A pavement section of 2 inches of asphalt over 8 inches of aggregate base may be assumed for design purposes.

5.8 DRAINAGE CONTROL

All finish grades should provide a positive gradient to an adequate discharge point in order to provide rapid removal of surface water runoff away from all foundations. No ponding of water should be allowed adjacent to the foundations.

Continuous roof gutters are recommended. Downspouts from the gutters should be provided with adequate pipe conduits to carry storm water away from the structures and thus reduce the possibility of soil erosion adjacent to the foundations.

6. QUALITY CONTROL

It is highly recommended that the owner contract with the Geotechnical Engineer to provide the services recommended in this section.

Unanticipated or changed conditions may be encountered during construction. The client is urged to retain the Geotechnical Engineer to monitor construction, and the Geotechnical Engineer agrees to assign to the monitoring function persons qualified to observe and report on the quality of work performed by contractors. Construction monitoring is a technique employed to minimize the risk of problems arising during construction. Provision of construction monitoring by the Geotechnical Engineer is not insurance, nor does it constitute a warranty or guarantee of any type. In all cases, contractors shall retain responsibility for the quality of their work and for adhering to plans and specifications.

6.1 GEOTECHNICAL REVIEW

All grading, foundation, and building plans for the proposed improvements should be reviewed by the Geotechnical Engineer prior to contract bidding to ensure that plans are reconciled with soil conditions, and sufficient time is allowed for suitable mitigative measures to be incorporated into the final specifications.

6.2 CONSTRUCTION OBSERVATIONS

The Geotechnical Engineer should observe and verify the demolition, stripping and excavation operations and the placement of engineered fill and should test the fill for proper compaction. Should import material be required, the Geotechnical Engineer should test and verify that the material is suitable for use as engineered fill.

During construction of building and retaining wall foundations, the Geotechnical Engineer should observe and verify the excavations for the foundations.

6.3 NOTICE OF WORK

The Geotechnical Engineer should be notified at least ten (10) working days prior to beginning construction operations on the property in order to schedule the required manpower and equipment to coordinate the work. After project initiation, at least two (2) working days notice should be given for changes to schedule.

7. LIMITATIONS

7.1 STANDARD OF CARE

Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices. Services performed by Snyder and Associates are conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in Hawaii under similar conditions. No other representation, express or implied, and no warranty or guarantee is included or intended in this report or in any opinion, document or otherwise.

7.2 SUPPLEMENTAL RECOMMENDATIONS

The recommendations of this report are based upon the assumption that the soil conditions do not deviate from those disclosed in the test pits and from a reconnaissance of the site. Should any variations or undesirable conditions be encountered during the development of the site, supplemental recommendations, as dictated by the field conditions, should be obtained from the Geotechnical Engineer.

7.3 RESPONSIBILITY

It is the responsibility of the property owner, or his representative, to ensure that the information and recommendations contained in this report are brought to the attention of the Architect and Engineer for the project and incorporated into the plans and that the necessary steps are taken to see that the Contractor and Subcontractors carry out such recommendations in the field.

7.4 GEOTECHNICAL ENGINEER

Throughout this report, the term "Geotechnical Engineer" shall mean to include Geologist, Field Inspector, or other person operating under the direct supervision of the Principal Geotechnical Engineer.

SNYDER AND ASSOCIATES - GEOTECHNICAL ENGINEERS



Frederick G. Snyder, P.E.
Principal Engineer
Professional Engineer Number 6524-C

Project 9639
July 26, 1996

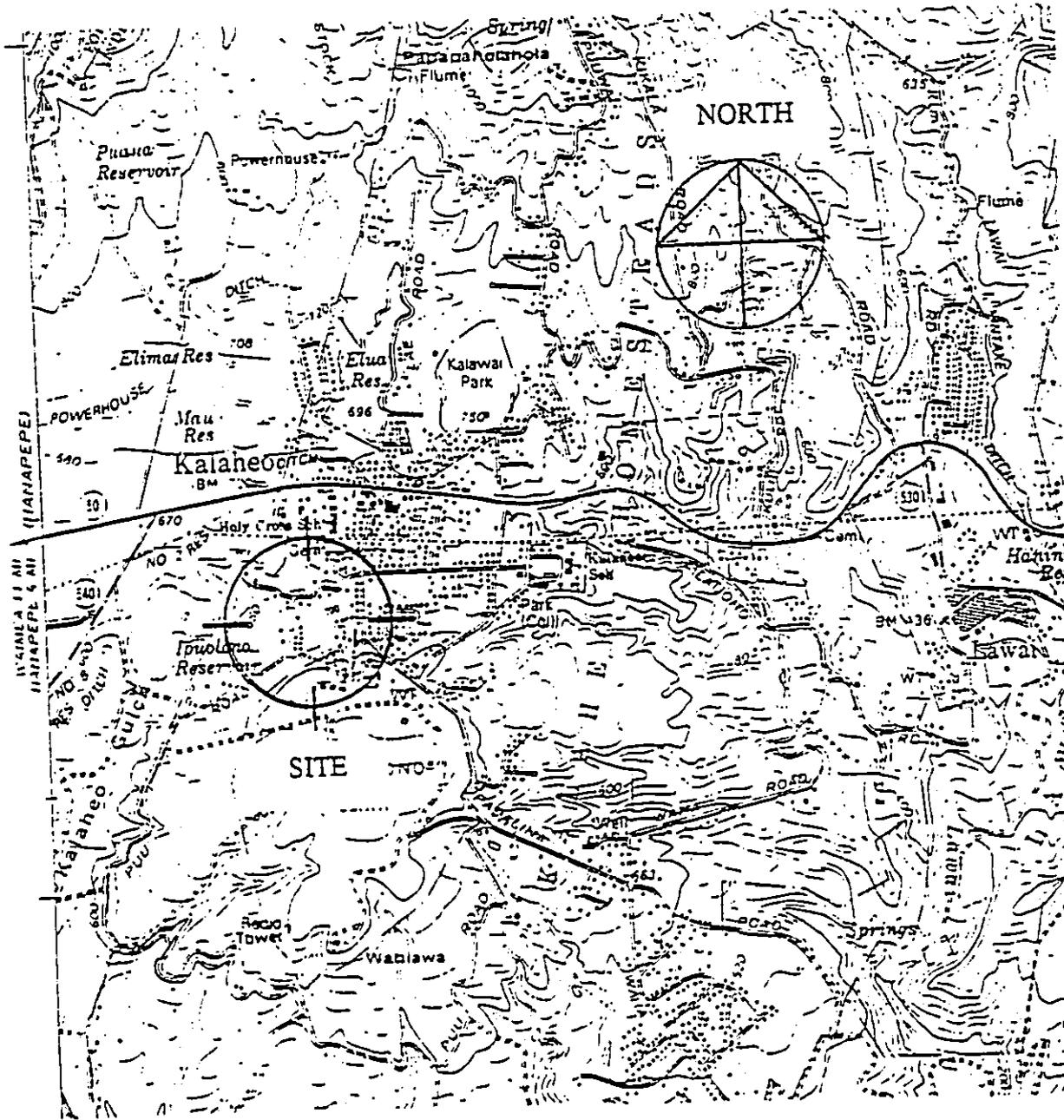
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APPENDIX A

LOCATION MAP

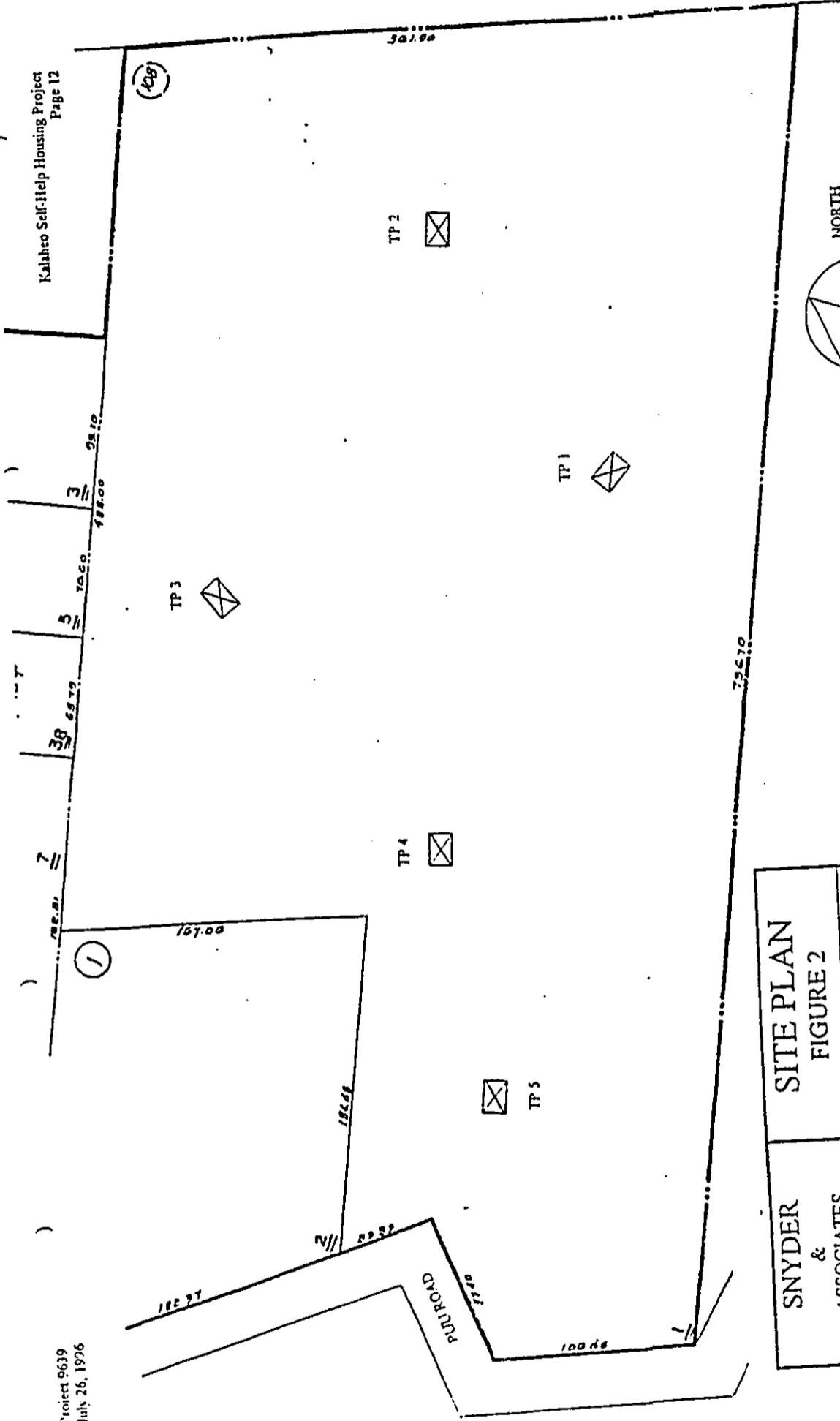
SITE PLAN

DAVIDER AND ASSOCIATES GEOTECHNICAL ENGINEERS



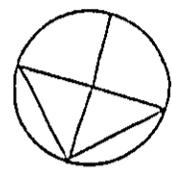
LOCATION MAP
FIGURE 1

Project 9639
July 26, 1996



| | |
|---|---|
| <p>SNYDER & ASSOCIATES GEOTECHNICAL ENGINEERS 4374 KUKUI GROVE STREET SUITE 102 LIHUE, KAUAI, HAWAII 96766 PH (808) 245-2818</p> | <p>SITE PLAN FIGURE 2</p> |
| | <p>KALAHEO SELF-HELP HOUSING PROJECT Grantee 6780 PUU ROAD KALAHEO, KAUAI, HAWAII JULY 25, 1996</p> |

NORTH



SCALE: 1" = 50'

— X — APPROXIMATE TEST PIT LOCATION

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APPENDIX B

SUBSURFACE EXPLORATION

LOGS OF TEST PITS

LABORATORY TESTING AND DATA

ENYDER AND ASSOCIATES GEOTECHNICAL ENGINEERS

SUBSURFACE EXPLORATION

Under the supervision of the Geotechnical Engineer, a field exploration program was performed at the site on July 23, 1996. A total of 5 test pits, between 6.0 and 8.5 feet deep, were excavated at the approximate locations shown on the Site Plan, Figures 2. All depths are with reference to the existing ground elevation at the time of excavation.

The exposed soils were examined and the description of the soils were recorded on the corresponding test pit log. Insitu tests were performed for bearing strength and shear strength using the Pocket Penetrometer and the Torvane, respectively. The data from these tests were recorded on the test pit log.

Relatively undisturbed samples of soil were taken at the locations shown on the test pit log. The undisturbed samples were obtained by driving steel sleeves either two or three inches in diameter into undisturbed soil using a hand held slide hammer. These samples were capped and taken to the laboratory for testing.

LOG OF TEST PIT 1

| Depth (ft.) | Sample | BS | SS | Soil Description |
|-------------|--------|------|-----|---|
| 0.0' | | | | Medium brown clayey SILT, slightly moist, loose, friable, with many fine roots, topsoil. |
| 0.5' | | | | Reddish brown clayey SILT, moist, stiff. |
| 1.0' | | 4.0 | 1.9 | -firm in top 1 foot of zone, with occasional fine roots |
| 1.5' | [1-1] | | | |
| 2.0' | | | | |
| 2.5' | | | | |
| 3.0' | | 4.5 | 1.6 | |
| 3.5' | | | | |
| 4.0' | [1-2] | | | |
| 4.5' | | >4.5 | 2.3 | |
| 5.0' | | | | Medium brown and reddish brown clayey SILT, moist, stiff, occasionally displaying the structure of the parent rock. |
| 5.5' | | | | |
| 6.0' | | >4.5 | 2.0 | |
| 6.5' | | | | |
| 7.0' | [1-3] | | | |
| 7.5' | | | | |
| 8.0' | | | | |
| 8.5' | | | | |
| 9.0' | | | | B.O.H = 8.5 feet. No Water. |
| 9.5' | | | | |
| 10.0' | | | | |

Notes: (#) = Undisturbed Sample, 2" Sleeve
 (U) = Undisturbed Sample, 1" Sleeve
 (E) = Bulk Sample

BS = Bearing Strength (tons/ft²)
 SS = Shear Strength, Ton/ft²
 BOH = Bottom of Hole

SMYDEN AND ASSOCIATES GEOTECHNICAL ENGINEERS

LOG OF TEST PIT 2

| Depth (ft.) | Sample | BS | SS | Soil Description |
|-------------|--------|------|-----|--|
| 0.0' | | | | Medium brown clayey SILT, slightly moist, loose, friable, with many fine roots, topsoil. |
| 0.5' | | | | |
| 1.0' | | | | |
| 1.5' | [2-1] | 3.75 | 1.4 | Reddish brown clayey SILT, moist, stiff, with occasional fine roots in top 1 foot of zone. |
| 2.0' | | | | |
| 2.5' | | | | |
| 3.0' | | | | |
| 3.5' | [2-2] | >4.5 | 1.3 | |
| 4.0' | | | | |
| 4.5' | | | | |
| 5.0' | | | | |
| 5.5' | | | | |
| 6.0' | | | | |
| 6.5' | | | | |
| 7.0' | | | | |
| 7.5' | | | | |
| 8.0' | | | | |
| 8.5' | | | | |
| 9.0' | | | | B.O.H. = 6.5 feet. No Water. |
| 9.5' | | | | |
| 10.0' | | | | |

Notes: (#) = Undisturbed Sample, 2" Sleeve
{#} = Undisturbed Sample, 3" Sleeve
(E) = Bulk Sample

BS = Bearing Strength (tons/ft²)
SS = Shear Strength, Torvane (tons/ft²)
BOH = Bottom of Hole

LOG OF TEST PIT 3

| Depth (ft.) | Sample | BS | SS | Soil Description |
|-------------|--------|------|------|---|
| 0.0' | | | | Medium brown clayey SILT, slightly moist, loose, friable, with many fine roots, with occasional roots to 1/2 inch in diameter, with occasional debris, topsoil. |
| 0.5' | | | | |
| 1.0' | {3-1} | | | Reddish brown clayey SILT, moist, stiff, with occasional fine roots in the top 1 foot of zone. - more moist and more stiff with depth. |
| 1.5' | | 3.5 | 0.75 | |
| 2.0' | | | | |
| 2.5' | | | | |
| 3.0' | | | | Medium brown clayey SILT, moist, stiff. B.O.H. = 6.0 feet. No Water. |
| 3.5' | | >4.5 | 1.1 | |
| 4.0' | [3-2] | | | |
| 4.5' | | | | |
| 5.0' | | | | |
| 5.5' | | | | |
| 6.0' | | | | |
| 6.5' | | | | |
| 7.0' | | | | |
| 7.5' | | | | |
| 8.0' | | | | |
| 8.5' | | | | |
| 9.0' | | | | |
| 9.5' | | | | |
| 10.0' | | | | |

Notes: [#] = Undisturbed Sample, 2" Sleeve
{#} = Undisturbed Sample, 3" Sleeve
(B) = Bulk Sample

BS = Bearing Strength (tons/ft²)
SS = Shear Strength, Torvane (tons/ft²)
BOH = Bottom of Hole

LOG OF TEST PIT 4

| Depth (ft.) | Sample | BS | SS | Soil Description |
|---|--------|------|-----|---|
| 0.0^ 0.5 1.0^ | {4-3} | 2.0 | | Medium brown clayey SILT, slightly moist, loose, friable, with many fine roots, with some roots to 1/4 inch in diameter, topsoil. |
| 1.5 2.0^ 2.5 3.0^ 3.5 | | >4.5 | 1.0 | Reddish brown clayey SILT, moist, stiff, with fine roots in the top 1 foot of zone. - more moist and more stiff with depth. |
| 3.0^ 3.5 | | >4.5 | 1.0 | - at 3.5 feet below grade isolated boulders of dense basalt encountered with a nominal diameter of 3 feet. |
| 4.0^ 4.5 5.0^ 5.5 6.0^ | [4-1] | >4.5 | 1.4 | Medium brown and reddish brown clayey SILT, moist, stiff, with many pockets of decomposed basalt. |
| 6.5 7.0^ 7.5 8.0^ 8.5 9.0^ 9.5 10.0^ | [4-2] | | | Medium brown clayey SILT, moist, stiff to hard, occasionally displaying the structure of the parent rock. B.O.H. = 6.0 feet. No Water. |

Notes: [#] = Undisturbed Sample, 2" Sleeve
{#} = Undisturbed Sample, 3" Sleeve
(B) = Bulk Sample

BS = Bearing Strength (tons/ft²)
SS = Shear Strength, Torvane (tons/ft²)
BOH = Bottom of Hole

LOG OF TEST PIT 5

| Depth (ft.) | Sample | BS | SS | Soil Description |
|---|--------|------|------|---|
| 0.0^ 0.5 1.0^ 1.5 | | 3.0 | | Medium brown clayey SILT, slightly moist, loose, friable, with many fine roots, with some roots 1/2 inch in diameter, topsoil. |
| 2.0^ 2.5 3.0^ 3.5 4.0^ 4.5 | [5-1] | >4.5 | 0.75 | Reddish brown clayey SILT, moist, stiff. |
| 5.0^ 5.5 6.0^ | [5-2] | >4.5 | 1.0 | Medium brown clayey SILT, moist, stiff. |
| 6.5 7.0^ 7.5 8.0^ 8.5 9.0^ 9.5 10.0^ | [5-3] | >4.5 | | Mottled light brown COBBLES and BOULDERS of decomposed vecicular basalt, slightly moist, stiff. B.O.H. = 7.5 feet. No Water. |

Notes: [#] = Undisturbed Sample, 2" Sleeve
{#} = Undisturbed Sample, 3" Sleeve
(B) = Bulk Sample

BS = Bearing Strength (tons/ft²)
SS = Shear Strength, Torvane (tons/ft²)
BOH = Bottom of Hole

LABORATORY TESTING

The representative samples collected during the field exploration were tested for various parameters in the laboratory. The results of laboratory testing are summarized in Table 1.

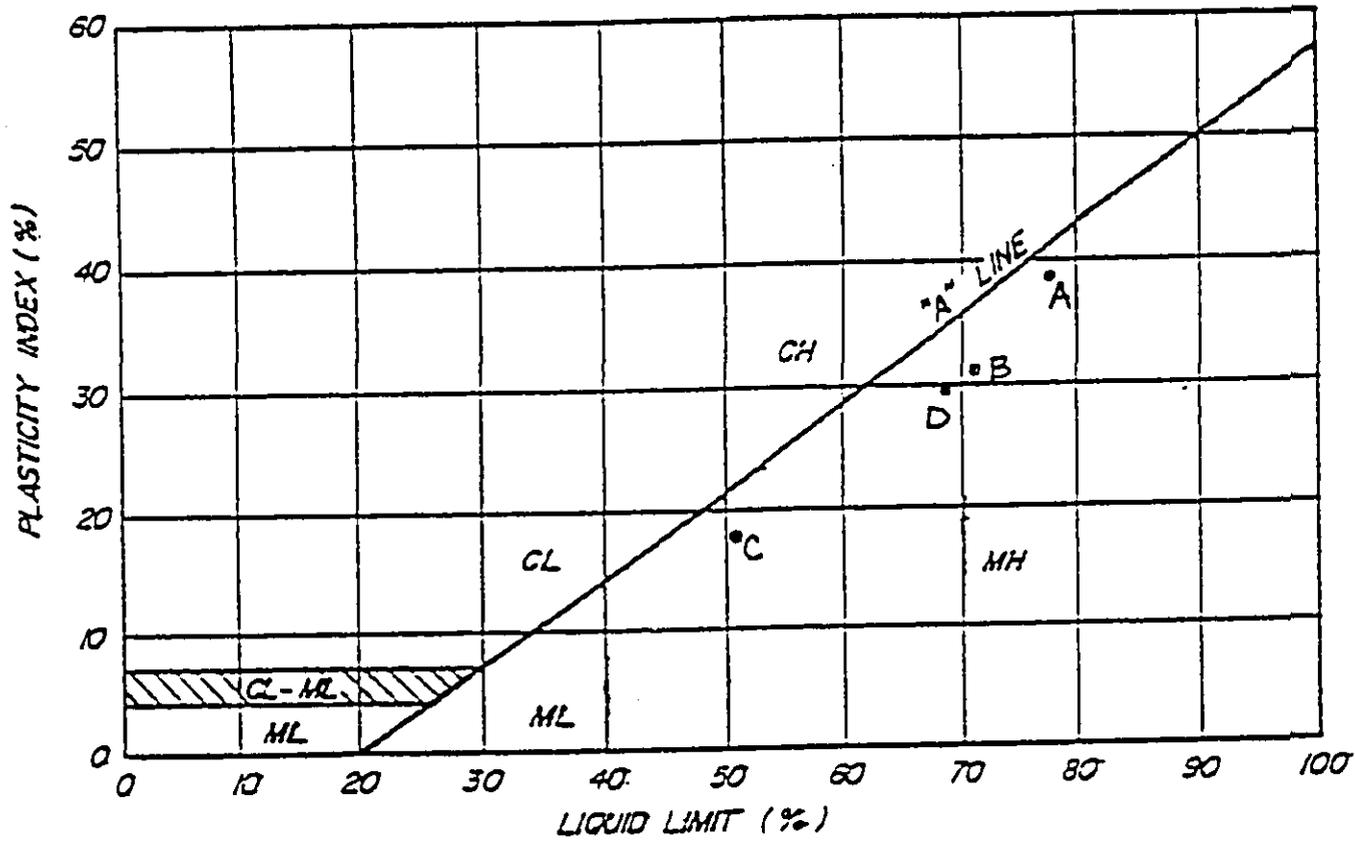
The following test procedures were conducted:

- a. In-place Moisture Content according to ASTM Test Procedure D-2216.
- b. In-place Dry Density according to ASTM Test Procedure D-2937.
- c. Shear Strength - Unconfined compression using a modified form of ASTM Test Procedure D-2166.
- d. Atterberg Limits according to ASTM Test Procedure D-4318 for liquid limit, plastic limit, and plasticity index.

TABLE 1

| Test Pit Number | Sample Number | Moisture Content (%) | Dry Density (lb/ft ³) | Unconfined Comp. (lb/ft ²) | Liquid Limit (%) | Plasticity Index (%) |
|-----------------|---------------|----------------------|-----------------------------------|--|------------------|----------------------|
| 1 | 1-1 | 44 | 79 | 2406 | 77 | 39 |
| 1 | 1-2 | 47 | 78 | 5135 | - | - |
| 1 | 1-3 | 48 | 72 | 1006 | - | - |
| 2 | 2-1 | 41 | 75 | 3505 | 71 | 31 |
| 2 | 2-2 | 49 | 70 | 4069 | - | - |
| 3 | 3-1 | 37 | 66 | - | - | - |
| 3 | 3-2 | 41 | 77 | 1210 | - | - |
| 4 | 4-1 | 35 | 85 | 1503 | 51 | 17 |
| 4 | 4-2 | 50 | 58 | 1473 | - | - |
| 4 | 4-3 | 43 | 62 | - | - | - |
| 5 | 5-1 | 43 | 69 | 2736 | 69 | 30 |
| 5 | 5-2 | 45 | 76 | 6457 | - | - |
| 5 | 5-3 | 50 | 69 | 7473 | - | - |

PLASTICITY CHART



ATTERBERG LIMIT TEST DATA

| Key Symbol | Test Pit Number | Sample Number | Depth (Ft.) | Liquid Limit (%) | Plasticity Index (%) | Unified Class |
|------------|-----------------|---------------|-------------|------------------|----------------------|---------------|
| A | 1 | 1-1 | 1.5 | 77 | 39 | MH |
| B | 2 | 2-1 | 2.0 | 71 | 31 | MH |
| C | 4 | 4-1 | 5.0 | 51 | 17 | ML/MH |
| D | 5 | 5-1 | 2.0 | 69 | 30 | MH |

Notes:

CH = Highly Plastic Clay
CL = Low to Moderately Plastic Clay

MH = Elastic Silt
ML = Low Plasticity Silt