JOHN WAIHEE
GOVERNOR OF HAWAII

Keith W. Ahue, Chairperson
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
John P. Keppeler, II
Dona L. Hanaike

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

DEP[illegible]

'93 APR -2 A7:2[illegible]

OFC. OF ENV[illegible]
QUALITY [illegible]

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

FILE NO.: LA-3/11/93-2634
DOC. ID.: 1172

MAR 31 1993

MEMORANDUM

TO: The Honorable Brian J. J. Choy, Director
Office of Environmental Quality Control

FROM: Keith W. Ahue, Chairperson
Board of Land and Natural Resources

SUBJECT: Document for Publication in the OEQC Bulletin Final Environmental Assessment for Conservation District Use Application LA-3/11/93-2634 for a water reservoir, access road, and appurtenant waterlines at Lanai City, Kamoku, Lanai, TMK: 4-9-02: 01

The above mentioned Chapter 343 document was reviewed and a negative declaration was declared based upon the final environmental assessment provided with the CDUA.

Please feel free to call Roy Schaefer of our Office of Conservation and Environmental Affairs, at 587-0377, if you have any questions.

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1993-04-23-LA-FEA- Koele Water Reservoir & Access Road

LA-2634

BCA
BELT COLLINS
& ASSOCIATES
Engineering • Planning
Landscape Architecture

680 Ala Moana Boulevard, First Floor, Honolulu, Hawaii 96813-5406
Phone: (808) 521-5361, Fax: (808) 538-7819
Hawaii • Singapore • Australia • Hong Kong • Thailand • Saipan

March 9, 1993
93P-171/144.0100

Mr. John P. Keppler II, Acting Director
Board of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Keppler:

Conservation District Use Application
Proposed 0.5 to .735 MG Reservoir, Access Road and Appurtenant Water Lines
TMK 4-9-2: Portion of 1, Koele, Island of Lanai, Hawaii

On behalf of the applicant, Lanai Company, Inc., enclosed are the original and 17 copies of a Conservation District Use Application (CDUA) for the construction and maintenance of the above reservoir, access road and water lines.

We had previously submitted an application for the project (CDUA No. LA-6-18-92-2578) on June 17, 1992. A public hearing before hearing officer and BLNR member John Arisumi was held on Lanai on October 8, 1992. In response to a Maui County Planning Department request, we realigned the access road to minimize impact on existing trees at the project site. As a result, the reservoir site also had to be changed somewhat. The new layout will allow more trees to be retained.

The time needed to make the above changes required us to withdraw the initial application, as the 180-day period would have been exceeded before CDUA processing could be completed. Before submitting this current application for essentially the same project, we sought other potential sites for the water reservoir outside the Conservation District and found none as suitable from both an environmental and engineering viewpoint.

For this current submittal, we are requesting a range for the capacity of the reservoir from 500,000 to 735,000 gallons. At either size, the base of the reservoir would remain at 62 feet in diameter and the height vary from 33 to 42 feet. All other aspects of the project would remain the same. The flexibility is requested to allow for potential needed capacity when the reservoir serving upper Lanai City residents is out of service for maintenance or emergency.

We have already met the requirements of the Draft Environmental Assessment (EA) process and responded to comments to the Draft EA, to Maui County Planning Department concerns as well as those raised during the public hearing, in the attached EA. We respectfully request that you consider this the Final EA for CDUA No. LA-6-18-92-2578.

Thank you for your consideration and I hope to hear from you soon.

Sincerely,

Anne L. Mapes

Anne L. Mapes

cc: Lanai Company, Inc.

February 1983

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

FOR DLNR USE ONLY
Reviewed by _____
Date _____
Accepted by _____
Date _____
Docket/File No. _____
180-Day Exp. _____
EIS Required _____
PH Required _____
Board Approved _____
Disapproved _____
Well No. _____

DEPARTMENT MASTER APPLICATION FORM

(Print or Type)

I. LANDOWNER/WATER SOURCE OWNER (If State land, to be filled in by Government Agency in control of property)

Name **Dole Food Company**

Address **650 Iwilei Road**
Honolulu, HI 96817

Telephone No. 548-2907

DOLE FOOD COMPANY, INC.
By its Agent
CASTLE & COOKE LAND COMPANY

SIGNATURE _____
By Kevin Shaney V.P.

Date 3/5/93

II. APPLICANT (Water Use, omit if applicant is landowner)

Name **Lanai Company, Inc.**

Address **650 Iwilei Road, 3rd Floor**
Honolulu, HI 96817

Telephone No. 548-4811

Interest in Property **Developer**

(Indicate interest in property; submit written evidence of this interest)

*SIGNATURE _____

Date 3/3/93

*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

III. TYPE OF PERMIT(S) APPLYING FOR

( ) A. State Lands

(X) B. Conservation District Use

( ) C. Withdraw Water From A Ground Water Control Area

( ) D. Supply Water From A Ground Water Control Area

( ) E. Well Drilling/Modification

IV. WELL OR LAND PARCEL LOCATION REQUESTED

District **Lahaina**

Island **Lanai**

County **Maui County**

Tax Map Key **2nd Division, 4-9-02:Portion of 1.**

Area of Parcel 0.9 ac.± of an 87,011.8 ac. parce
(Indicate in acres or sq. ft.)

Term (if lease) _____

V. Environmental Requirements

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11; Chapter 200, Environmental Impact Statement Rules for applicant actions, an Environmental assessment of the proposed use must be attached. the Environmental assessment shall include, but not be limited to the following:

(1) Identification of applicant or proposing agency;
See Section I on page A-1 of attached Exhibit A.
(2) Identification of approving agency, if applicable;
See Section II on page A-1 of attached Exhibit A.
(3) Identification of agencies consulted in making assessment;
See Section III on page A-1 of attached Exhibit A.
(4) General description of the action's technical, economic, social, and environmental characteristics;
See Section IV on page A-2 of attached Exhibit A.
(5) Summary description of the affected environment, including suitable and adequate location and site maps;
See Section V on page A-10 of attached Exhibit A.
(6) Identification and summary of major impacts and alternatives considered, if any;
See Section VI on page A-17 of attached Exhibit A.
(7) Proposed mitigation measures, if any;
See Section VII on page A-18 of attached Exhibit A.
(8) Determination;
See Section VIII on page A-19 of attached Exhibit A.
(9) Findings and reasons supporting determination; and
See Section IX on page A-19 of attached Exhibit A.
(10) Agencies to be consulted in the preparation of the EIS, if applicable.

VI. Summary of Proposed Use (what is proposed)

See Section VI on page 2 of Attached to completed Department Master Application Form.

INFORMATION REQUIRED FOR ALL USES

I. Description of Parcel

A. Existing structures/Use. (Attach description or map).
See Section IA on page 3 of Attachment.

B. Existing utilities. (If available, indicate size and location on map. Include electricity, water, telephone, drainage, and sewarage).
See Section IB on page 3 of Attachment.

C. Existing access. (Provide map showing roadways, trails, if any. Give street name. Indicate width, type of paving and ownership).
See Section IC on page 3 of Attachment.

D. Vegetation. (Describe or provide map showing location and types of vegetation. Indicate if rare native plants are present).
See Section ID on page 3 of Attachment.

E. Topography; if ocean area, give depths. (Submit contour maps for ocean areas and areas where slopes are 40% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases).
See Section IE on page 3 of Attachment.

F. If shoreline area, describe shoreline. (Indicate if shoreline is sandy, muddy, rocky, etc. Indicate cliffs, reefs, or other features such as access to shoreline).
See Section IF on page 4 of Attachment.

G. Existing covenants, easements, restrictions. (If State lands, indicate present encumbrances.)
See Section IG on page 4 of Attachment.

H. Historic sites affected. (If applicable, attach map and descriptions).
See Section IH on page 4 of Attachment.

II. Description: Describe the activity proposed, its purpose and all operations to be conducted. (Use additional sheets as necessary).
See Section II on page 4 of Attachment.

III. Commencement Date: See Section IIIA of Attachment.

Completion Date: See Section IIIB of Attachment.

IV. TYPE OF USE REQUESTED (Mark where appropriate) (Please refer to Title 13, Chapter 2)

1. Permitted Use (exception occasional use);
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

2. Accessory Use (accessory to a permitted use):
DLNR Title 13, Chapter 2, Section _____; Subzone _____.

3. Occasional Use: Subzone _____.

4. Temporary Variance: Subzone _____.

5. Conditional Use: Subzone R.

Area of Proposed Use 0.9 acs.± within State Conservation; 1.8 acs.± for total project.
(Indicate in acres or sq. ft.)

Name & Distance of Nearest Town or Landmark
About 1/2 mile west of Lanai City

Boundary Interpretation (If the area is within 40 feet of the boundary of the Conservation District, include map showing interpretation of the boundary by the State Land Use Commission).
See Section IVD on page 11 of Attachment.
Conservation District Subzone Resource (R)
County General Plan Designation Conservation

V. FILING FEE

1. Enclose $50.00. All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii.

2. If use is commercial, as defined, submit additional public hearing fee of $50.00.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. Plans: (All plans should include north arrow and graphic scale).

A. Area Plan: Area plan should include but not be limited to relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; names and addresses of adjacent property owners.
See Section IA on page 12 of Attachment.

B. Site Plan: Site plan (maps) should include, but not be limited to, dimensions and shape of lot; metes and bounds, including easements and their use; existing features, including vegetation, water area, roads, and utilities.
See Section IB on page 12 of Attachment.

C. Construction Plan: Construction plans should include, but not be limited to, existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans); open space and recreation areas; landscaping, including buffers; roadways, including widths; offstreet parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging or soil disposal.

D. Maintenance Plans: For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.
See Section ID on page 12 of Attachment.

E. Management Plans: For any appropriate use of animal, plant, or mineral resources, management plans are required.
See Section IE on page 12 of Attachment.

F. Historic or Archaeological Site Plan: Where there exists historic or archaeological sites on the State or Federal Register, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.
See Section IF on page 12 of Attachment.

II. Subzone Objective: Demonstrate that the intended use is consistent with the objective of the subject Conservation District Subzone (as stated in Title 13, Chapter 2).

See Section II on page 13 of Attachment.

OEQC BULLETIN PUBLICATION FORM

TITLE OF PROJECT: Koele Water Reservoir and Access Road

LOCATION: ISLAND Lanai DISTRICT Lahaina

TAX MAP KEY : 2nd Division, 4-9-02: Portion of 1

PLEASE CHECK THE FOLLOWING CATEGORIES:

Type of Action: AGENCY____ APPLICANT X

Applicable State or Federal Statute:

X Chapter 343, HRS ___ Chapter 205A, HRS ___ NEPA (Federal Actions Only)

Type of Document:

___ Draft Environmental Assessment (Negative Declaration anticipated)
___ Draft EIS
___ NEPA NOP

X Final Environmental Assessment (Negative Declaration)
___ Final EIS
___ NEPA Draft EIS

___ Final Environmental Assessment (EIS Preparation Notice)
___ NEPA FONSI
___ NEPA Final EIS

Type of Revision (if applicable):

___ Revised ___ Supplemental ___ Addendum ___ Other (please explain)

Prior to general distribution, please submit to OEQC: 4 copies of the Draft EA, Final EA (Negative Declaration or EIS Preparation Notice), 4 copies of the Draft EIS or Final EIS (For Draft and Final EISs an additional copy is mailed to OEQC.)

PROPOSING AGENCY OR APPLICANT SHOULD SUBMIT COPIES OF THE DOCUMENTS TO THE APPROVING AGENCY OR ACCEPTING AUTHORITY PRIOR TO SUBMITTING COPIES TO OEQC.

APPROVING AGENCY OR ACCEPTING AUTHORITY: Department of Land and Natural Resources
ADDRESS: 1151 Punchbowl Street
Honolulu, Hawaii 96813

CONTACT: ____ PHONE: 587-0377

PROPOSING AGENCY OR APPLICANT: Lanai Company, Inc.
ADDRESS: 650 Iwilei Road, 3rd Floor
Honolulu, Hawaii 96813

CONTACT: ____ PHONE: 548-2928

CONSULTANT: Belt Collins & Associates
ADDRESS: 680 Ala Moana Boulevard, First Floor
Honolulu, Hawaii 96813

CONTACT: Anne Mapes PHONE: 521-5361

COMMENT PERIOD END DATE: ____

CONDITIONS WHICH TRIGGERED THE EIS LAW: PLEASE CHECK ALL THAT APPLY TO THE PROPOSED ACTION.

____	*Use of State or County lands or funds HRS 343-5(a)(1)*	____	*Use of lands in the Waikiki Special District HRS 343-5(a)(5)*
X	*Use of Conservation District Lands HRS 343-5(a)(2)*	____	*Amendment to a County General Plan HRS 343-5(a)(6)*
____	*Use of Shoreline Setback Area HRS 343-5(a)(3)*	____	*Reclassification of Conservation Lands HRS 343-5(a)(7)*
____	*Use of Historic Site or District HRS 343-5(a)(4)*	____	*Construction or modification of helicopter facilities HRS 343-5(a)(8)*

OTHER CONDITIONS:

____ *Use of Special Management Area (City & County of Honolulu)*

____ *Other** _____

* *If the project does not trigger HRS 343, please explain why document is being submitted to OEQC.*

***SUMMARY** of the proposed action or project to be published in the OEQC Bulletin. Please submit it as a summary ready for publication. The description should be brief (300 words or less), yet provide sufficient detail to convey the full impact of the proposed action.*

The applicant proposes to construct a 500,000- to 735,000-gallon reservoir, access road, and appurtenant water lines approximately one half mile east of Lanai City. The reservoir will be approximately 62 feet in diameter and 33 to 42 feet high. The water lines will connect Koele Well No. 8 and Koele Well No. 3 to the reservoir and the reservoir to its service area. Also proposed are grading of a roadway to provide access to the reservoir site, geological testing, and future maintenance. The access roadway has been realigned to minimize the need to cut trees at the project site and vicinity.

The reservoir will service the Koele Project District and the upper portion of Lanai City. This upper portion will have improved fire flow pressure once the proposed reservoir is constructed.

Impacts due to the project will mostly be temporary construction period ones. Long-term impacts are expected to be beneficial. Potential adverse visual impacts will be mitigated by trees and painting the reservoir a color that will make it blend into the natural environment.

***NOTE:** Since the deadline for EIS submittal is so close to the publication date for the OEQC Bulletin, please assist us by bringing the Document for Publication Form and a computer disk with the project description (size 3 1/2" or 5 1/4" disk are acceptable; preferably WordPerfect 5.1 or ASCII text format) to the Office of Environmental Quality Control as early as possible. Thank you.*

ATTACHMENT TO

DEPARTMENT MASTER APPLICATION FORM

Conservation District Use Application

for Proposed Water Reservoir and

Access Road at Koele, Lanai

V. ENVIRONMENTAL REQUIREMENTS

Pursuant to Chapter 343, Hawaii Revised Statutes, and in accordance with Title 11, Chapter 200, Environmental Impact Statement (EIS) Rules for Applicant Actions, an Environmental Assessment of the proposed use has been prepared and is attached as Exhibit A.

VI. SUMMARY OF PROPOSED USE

The entire project site is located on approximately 1.8 acres within and mauka of the Koele Project District near Lanai City, Lanai. The reservoir site and the upper portion of the access road, which encompasses 0.9 acre and are the subject of this Conservation District Use Application (CDUA), are located on an 87,011.7737-acre parcel identified as Tax Map Second Division, 4-9-02:01. The remaining lower portion of the access road is within the Koele Project District and is located on a 441.798-acre parcel identified as Tax Map Second Division, 4-9-18:02.

The applicant proposes the construction of a 500,000 to 735,000-gallon reservoir, access road and appurtenant water lines, approximately a half mile to the east of Lanai City. Refer to Figure 1, Project Location. (All figures referred to are part of the Environmental Assessment.)

The reservoir will service the proposed residential development in the Koele Project District and upper portion of Lanai City. The reservoir will be approximately 62 feet in diameter and 33 to 42 feet high. The water lines will connect Koele Well No. 8 and Koele Well No. 3 to the reservoir and the reservoir to its service area. The water lines will run under the access road at a minimum depth of three feet.

The first phase of the project involves the grading of a roadway to provide access to the proposed reservoir site. This action is to provide access for geological testing equipment. Geological testing is the second phase and will be performed to determine the stability of the site for use as a reservoir. If testing proves favorable, the final phase, the construction of a reservoir, water lines and access road will be implemented. Refer to Figure 3, Proposed Site Plan for Koele Reservoir and Access Road; Figure 4, Typical Access Road Section; and Figure 5, Typical Reservoir Section. Construction of the proposed project is estimated to cost approximately $1 million.

The lower portions of the access road and water lines will be located within the State Urban District and the Koele Project District. This portion of the project site is designated for residential use. Refer to Figure 2, Proposed Project with Koele Project District. (Maui County has recently granted Phase II approval for the Project District, subject to conditions.)

The reservoir site and the upper portion of the access road and water line are located within the State Conservation District. The approximate location of this State Urban/Conservation District boundary is shown in Figure 3, Proposed Site Plan for Koele Reservoir and Access Road. This Conservation District Use Application (CDUA) is being filed for the upper portion of this project site, including the reservoir, which are located within the State Conservation District. The metes and bounds description of the State Urban/Conservation District boundary is included in Appendix G of this report.

INFORMATION REQUIRED FOR ALL USES

I. DESCRIPTION OF PARCEL

A. Existing Structures/Use

There are no structures or uses currently on the project site. The land has not been in any known recent uses. This forest land consists mainly of non-native species and is characterized as a closed-canopied mixed forest. The koa tree grove, according to the biological report (Appendix C), "is believed to be planted and is not considered a native community."

B. Existing Utilities

The only utilities in close proximity to the project site are the existing freshwater wells, Koele Well No. 8 and Koele Well No. 3. The proposed access road will be located immediately next to Koele Well No. 8 to provide access to the well and for connection to the water line that runs between the well and the reservoir.

C. Existing Access

Access to the project site from Lanai City is by a dirt road to Koele Well No. 8, then by foot up to the proposed reservoir site.

D. Vegetation

A biological survey of the project site was conducted by Kenneth M. Nagata on November 22, 1991. The survey identified 22 species of vegetation on the site. The vegetation consists largely of non-native species and can be characterized as a closed-canopied mixed forest. This forest consists mainly of Koa, Red Ironbark, Paperbark, Ironwood, Silk Oak and Albizia falcataria. Strawberry guava and Christmas berry constitute the shrub layer. The herb layer is very sparse and consists of widely scattered tree seedings, Boston fern and an Athyrium. See Appendix C.

Of the 22 species of vegetation present, two are endemic or possibly endemic and four are indigenous or possibly indigenous. All of the native

species are widespread and common throughout the State. No native plant communities or rare and endangered species were found.

A follow-up survey was conducted in November 1992. Differences in vegetation encountered in the second walk-through were deemed inconsequential. See Appendix D.

E. Topography

The project site is located approximately half a mile to the east of Lanai City. The project site varies in elevation from 1,900 to 2,060 feet above mean sea level. Located on the relatively steep slope of Puu Nene, the project site varies in slope between 20 to 30 percent with an average of *about 25 percent.*

F. Shoreline Description

The project site is not on the shoreline; therefore, no shoreline description is required.

G. Existing Covenants, Easements, Restrictions

The applicant is not aware of any existing covenants, easements or restrictions on the project site.

H. Historic Sites Affected

An archaeological survey of the project site and surrounding area was conducted by Cultural Surveys Hawaii on October 24, 1991. Refer to Appendix E, Archaeological Survey. No surface historical, cultural, or archaeological resources were observed on the project site. Literature research also indicated the probable absence of any subsurface cultural deposits.

II. DESCRIPTION

See Section VI, Summary of Proposed Use, preceding.

III. COMMENCEMENT AND COMPLETION DATES

A. Commencement Date

Construction is expected to commence within 60 days after the receipt of all required government approvals.

B. Completion Date

The reservoir is expected to be completed within 9 months after the commencement of construction of the project.

IV. TYPE OF USE REQUESTED

A. Conditional Use

As stated previously, a portion of the proposed project area is within the State Conservation District and is within the Subzone R, Resource, designation. The proposed project is not a permitted use and requires a conditional use permit.

B. Area of Proposed Use

The entire project area covers approximately 1.8 acres. The reservoir site and the upper road area in the State Conservation District is approximately 0.9 acre. The remaining lower road area in the Koele Project District is approximately 0.9 acre.

C. Name and Distance of Nearest Town or Landmark

The nearest town is Lanai City, located approximately half a mile to the west.

D. Boundary Interpretation

A boundary amendment was approved in 1991 with the boundary described by a metes and bounds description. A boundary interpretation of the State Conservation District boundary was certified by the State Land

Use Commission on July 30, 1992. Refer to Appendix G for the metes and bounds description.

E. Conservation District Subzone

The Conservation District Subzone is R, Resource.

F. County General Plan Designation

The County General Plan consists of broad objectives and policies for the long-range development of the County. The Lanai Community Plan contains the maps identifying the planned distribution and intensity of land use and public facilities. The proposed project area is located partially within the Koele Project District and partially within the Conservation District.

V. FILING FEE

A filing fee of $50.00 is enclosed.

INFORMATION REQUIRED FOR CONDITIONAL USE ONLY

I. PLANS

A. Area Plan

See Figure 2, Proposed Project Within Proposed Koele Project District, for a map indicating the approximate location of the project site and the surrounding area.

The project site and all lands adjacent to the project site are owned by Dole Food Company, 650 Iwilei Road, Honolulu, Hawaii 96817.

B. Site Plan

Figure 3, Proposed Site Plan for Koele Reservoir and Access Road, is a map of the entire project site.

C. Construction Plan

The proposed project site is shown in Figure 3. A typical section of the access road and water lines is shown in Figure 4. Construction plans have not been completed as of this application submittal.

D. Maintenance Plans

The reservoir will be inspected, repaired and cleaned on an annual basis. This process will involve draining the reservoir; inspecting both its interior and exterior; repair of the reservoir, if necessary; scrubbing of the interior; and spraying the interior with chlorine to disinfect it. Maintenance of the existing vegetation, as required, will also be performed.

E. Management Plans

The reservoir will be managed by the Lanai Water Company.

F. **Historic or Archaeological Site Plan**

No historic or archaeological plan is required due to the absence of any surface resources and subsurface cultural material.

II. SUBZONE OBJECTIVE

The project site is in the Resource Conservation District Subzone.

Section 13-2-12(a) of Resource (R) subzone states:

> *The objective of this subzone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.*

The proposed project is not anticipated to have any major or significant adverse long-term impact on the natural resources of the area. The project could have some adverse long-term impact on the visual character of the area as stated in the attached environmental assessment. Short-term adverse impacts on the area's visual character, air quality and sonic quality caused by construction work are anticipated.

EXHIBIT A

ENVIRONMENTAL ASSESSMENT

FINAL ENVIRONMENTAL ASSESSMENT

PROPOSED RESERVOIR AND ACCESS ROAD
KOELE, LANAI, HAWAII

I. APPLICANT

The applicant is the Lanai Company, a subsidiary of Dole Food Company, the landowner of the project site.

II. APPROVING AGENCY

The approving agency for this environmental assessment and the CDUA is the Board of Land and Natural Resources, State of Hawaii.

III. AGENCIES CONSULTED IN PREPARING ASSESSMENT

The following agencies have reviewed and commented on the project or have been consulted in the preparation of the draft environmental assessment:

STATE AGENCY

- Department of Land and Natural Resources
  Historic Preservation Division
  Office of Conservation and Environmental Affairs

COUNTY AGENCIES

- Planning Department
- Department of Public Works
- Department of Water Supply

DLNR, the approving agency, received a written comment letter from the UH Environmental Center during the 30-day review period for the draft Environmental Assessment. These comments were forwarded to the applicant and revisions addressing the Center's concerns were incorporated into this final Environmental Assessment. The comment letter is included in Appendix A.

IV. DESCRIPTION OF THE ACTION'S TECHNICAL, ECONOMIC, SOCIAL AND ENVIRONMENTAL CHARACTERISTICS

PROJECT DESCRIPTION

The entire project site is located on approximately 1.8 acres within and mauka of the Koele Project District near Lanai City, Lanai. The reservoir site and the upper portion of the access road, which encompass 0.9 acre and are the subject of this Conservation District Use Application (CDUA), are located on an 87,011.7737-acre parcel identified as Tax Map Second Division, 4-9-02: portion of 01.

The applicant proposes the construction of a reservoir, access road and appurtenance water lines, approximately a half mile to the east of Lanai City. Refer to Figure 1, Project Location. Originally, a 500,000-gallon reservoir was proposed. The applicant now proposes to install up to a 735,000-gallon reservoir to allow flexibility. The increased capacity would ensure adequate potable water storage for Lanai City residents when the primary reservoir serving these water users is out of service during maintenance or emergency.

The reservoir will service the proposed residential development in the Koele Project District and upper portion of Lanai City. The reservoir will be approximately 62 feet in diameter and 33 to 42 feet high. (At either the higher or lower tank capacity, the area covered by the base of the reservoir would remain the same. At the higher capacity, the height would be 9 feet greater.) The water lines will connect Koele Well No. 8 and Koele Well No. 3 to the reservoir and the reservoir to its service area. The water lines will run under the access road at a minimum depth of three feet. If necessary, a fence will be erected around the reservoir to protect landscaping and for safety purposes.

The location of the proposed reservoir and access road were adjusted to reduce the number of Koa trees to be cut. This was done mainly in response to concerns expressed by the Maui County Planning Department. The revised plan is shown in Figure 3. The typical access road and revised reservoir sections are shown in Figures 4 and 5, respectively. The site plan and section in the draft Environmental Assessment are included in Appendix B.

The first phase of the project involves the grading of a roadway to provide access to the proposed reservoir site. This action is to provide access for geological testing equipment. Geological testing is the second phase and will be performed to determine the stability of the site for use as a reservoir. If testing proves favorable, the final phase, the construction of a 500,000 to 735,000-gallon reservoir, retaining walls, water lines and access road will be implemented. Refer to Figure 3, Proposed Site Plan for Koele Reservoir and Access Road, Figure 4, Typical Access Road Section, and Figure 5, Typical Reservoir Section. Construction of the proposed project is estimated to cost approximately $1 million.

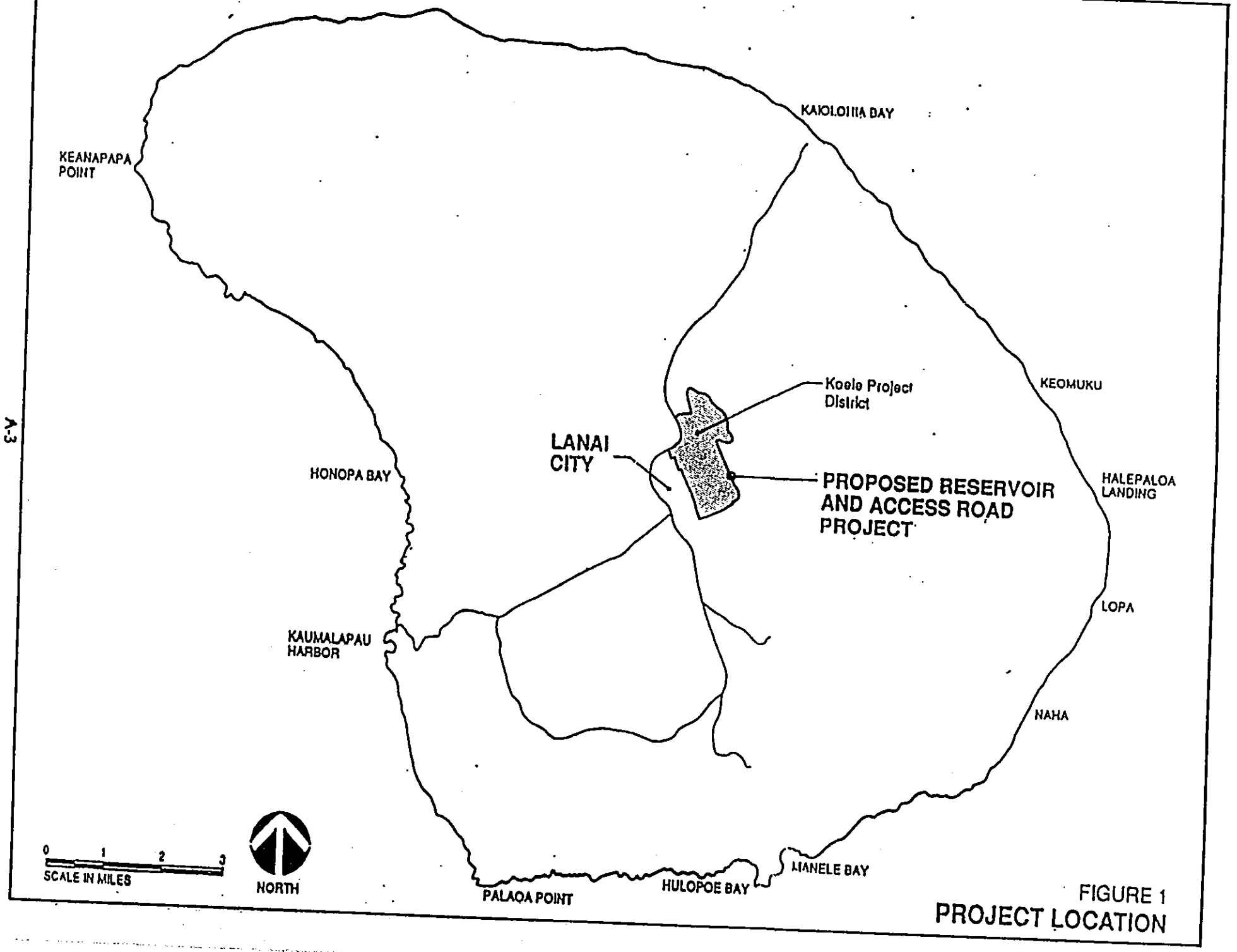
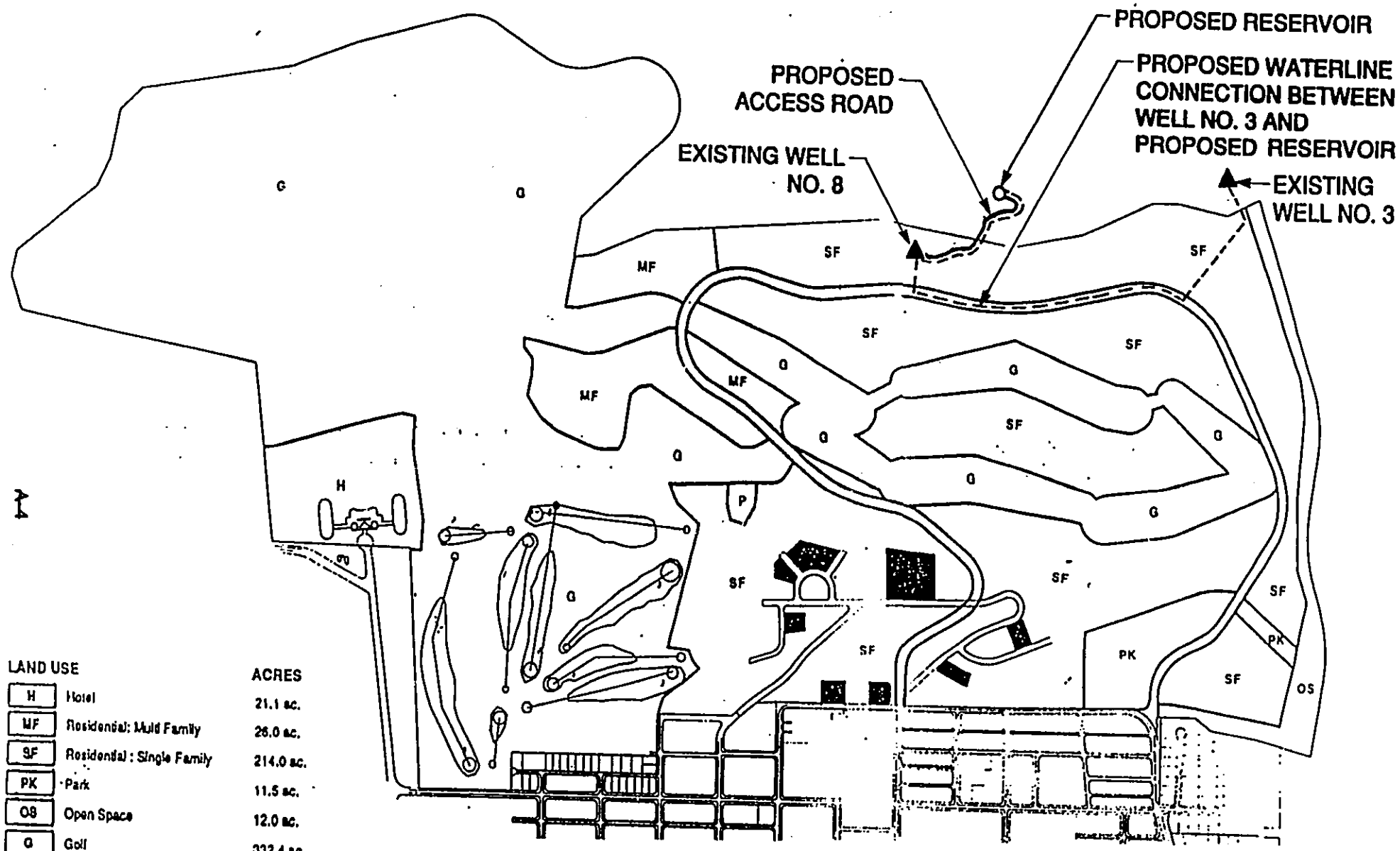


FIGURE 1
PROJECT LOCATION

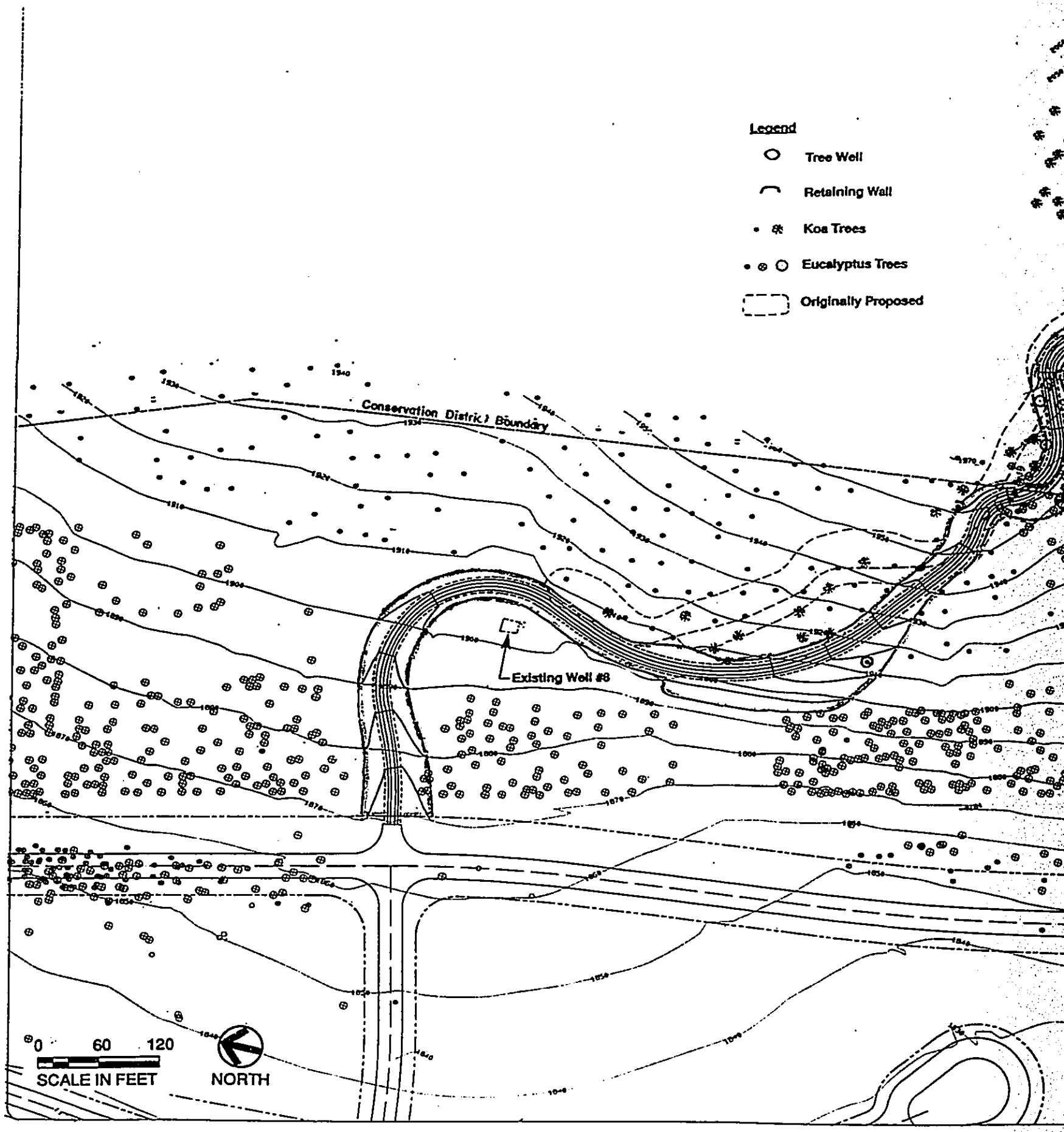


LAND USE		ACRES
H	Hotel	21.1 ac.
MF	Residential: Multi Family	26.0 ac.
SF	Residential : Single Family	214.0 ac.
PK	Park	11.5 ac.
OS	Open Space	12.0 ac.
G	Golf	332.4 ac.
P	Public	1.0 ac.
	Roadway (Major collectors only)	14.0 ac.
	Project District Total	632.0 ac.±
	Project District Boundary	
	Non Castle & Cooke Owned Prop. 7± ac.	

NORTH

0 400 800
SCALE IN FEET

FIGURE 2
PROPOSED PROJECT WITH KOELE PROJECT DISTRICT


Legend
Tree Well
Retaining Wall
Koa Trees
Eucalyptus Trees
Originally Proposed
Conservation District Boundary
Existing Well #8
0 60 120
SCALE IN FEET
NORTH

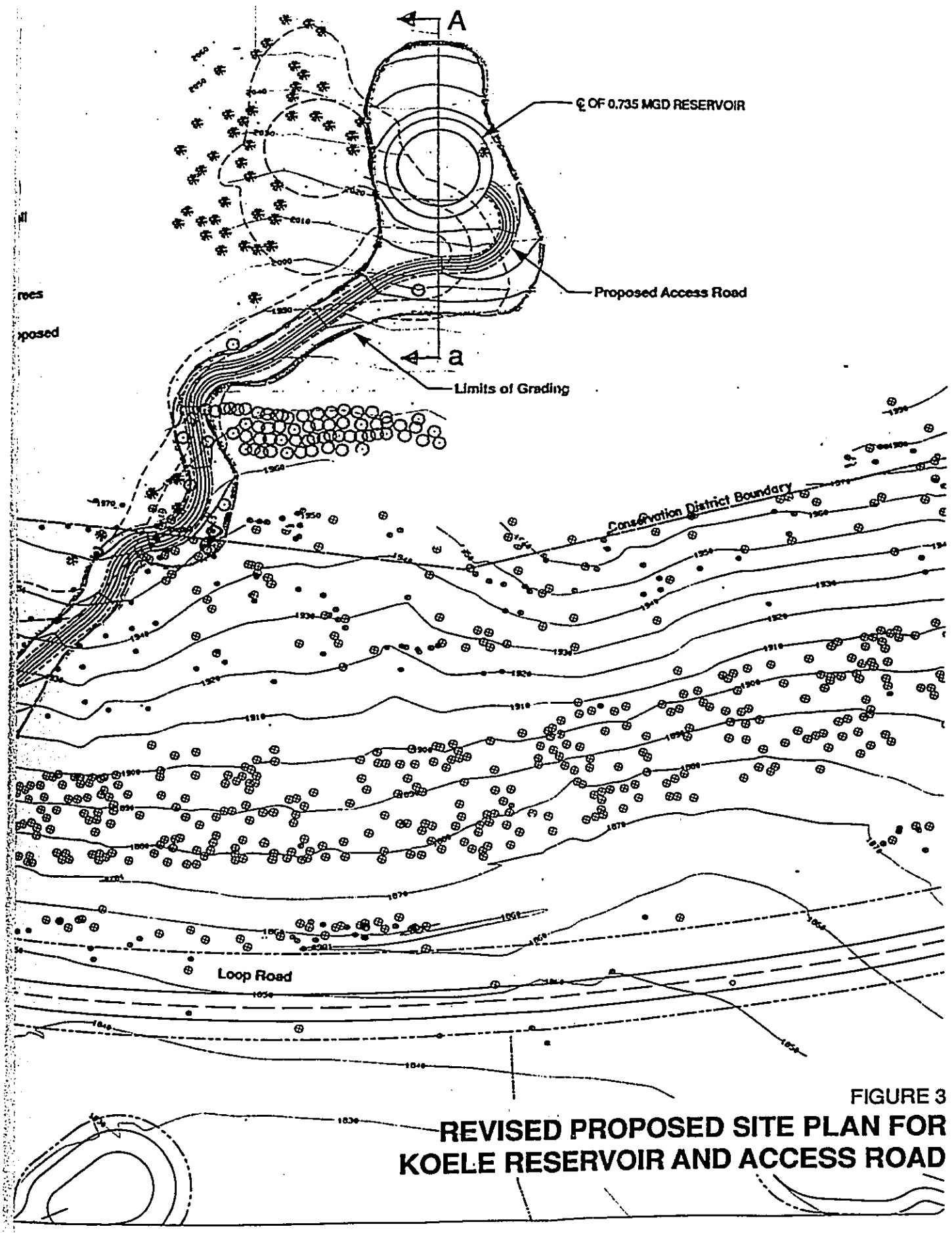
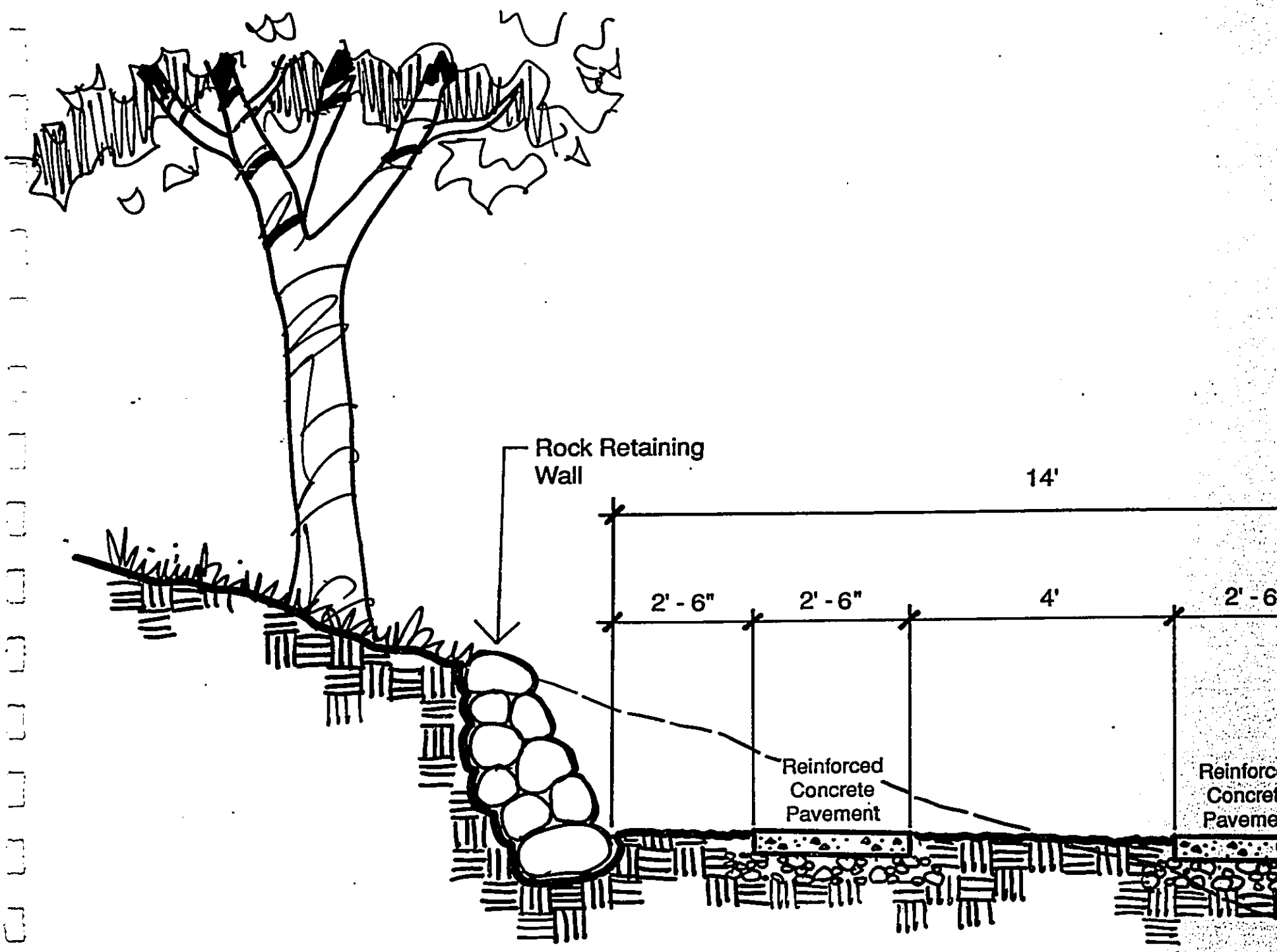


FIGURE 3

REVISED PROPOSED SITE PLAN FOR KOELE RESERVOIR AND ACCESS ROAD


Rock Retaining
Wall
14'
2' - 6"
2' - 6"
4'
2' - 6
Reinforced
Concrete
Pavement
Reinforc
Concret
Paveme

ACCESS

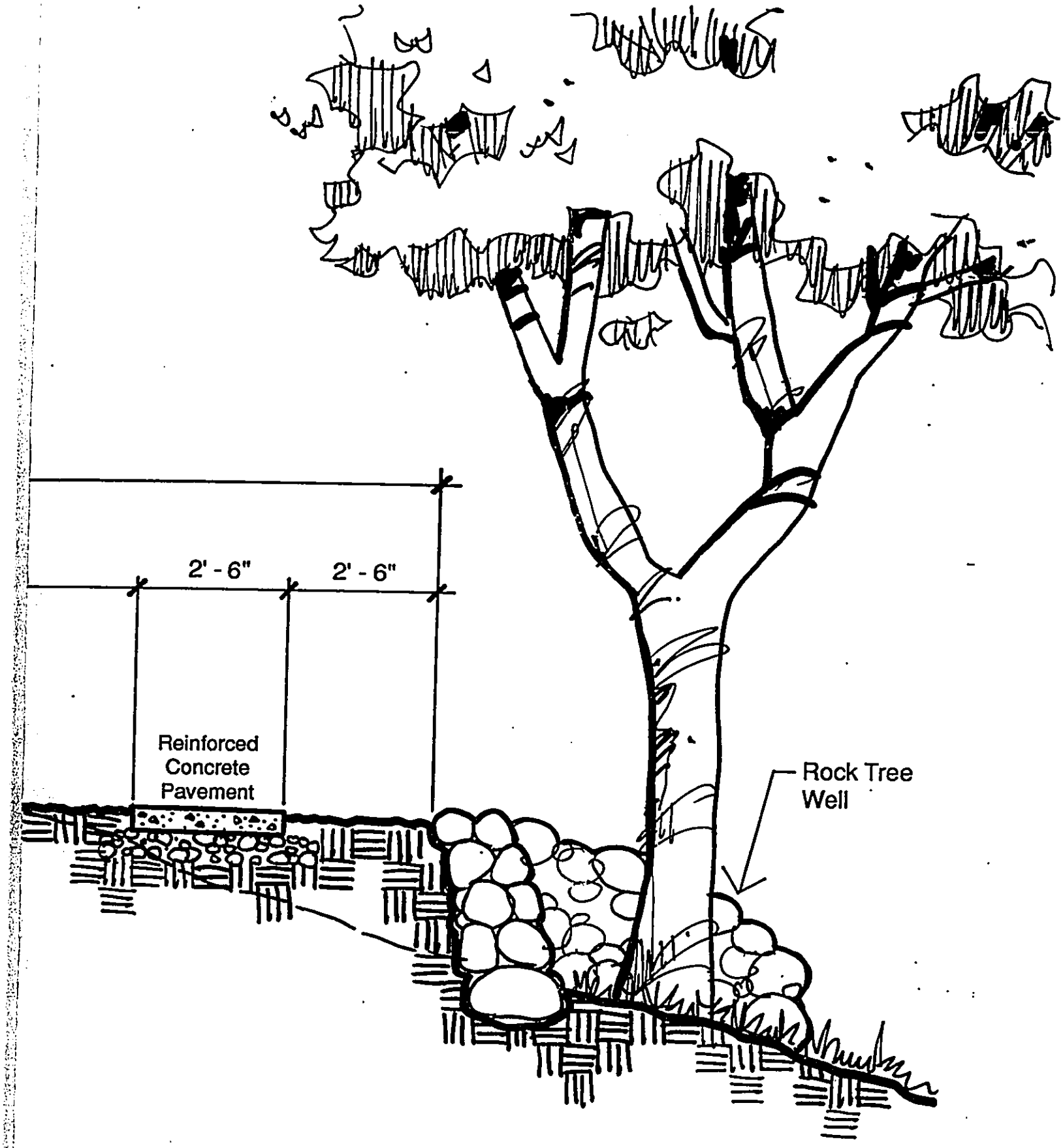
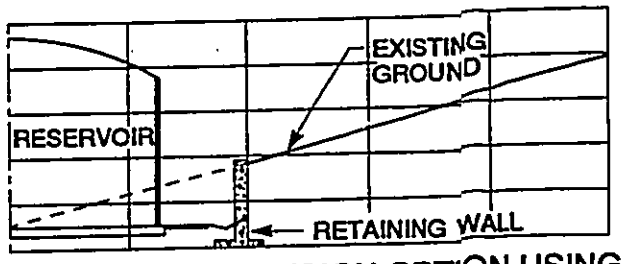
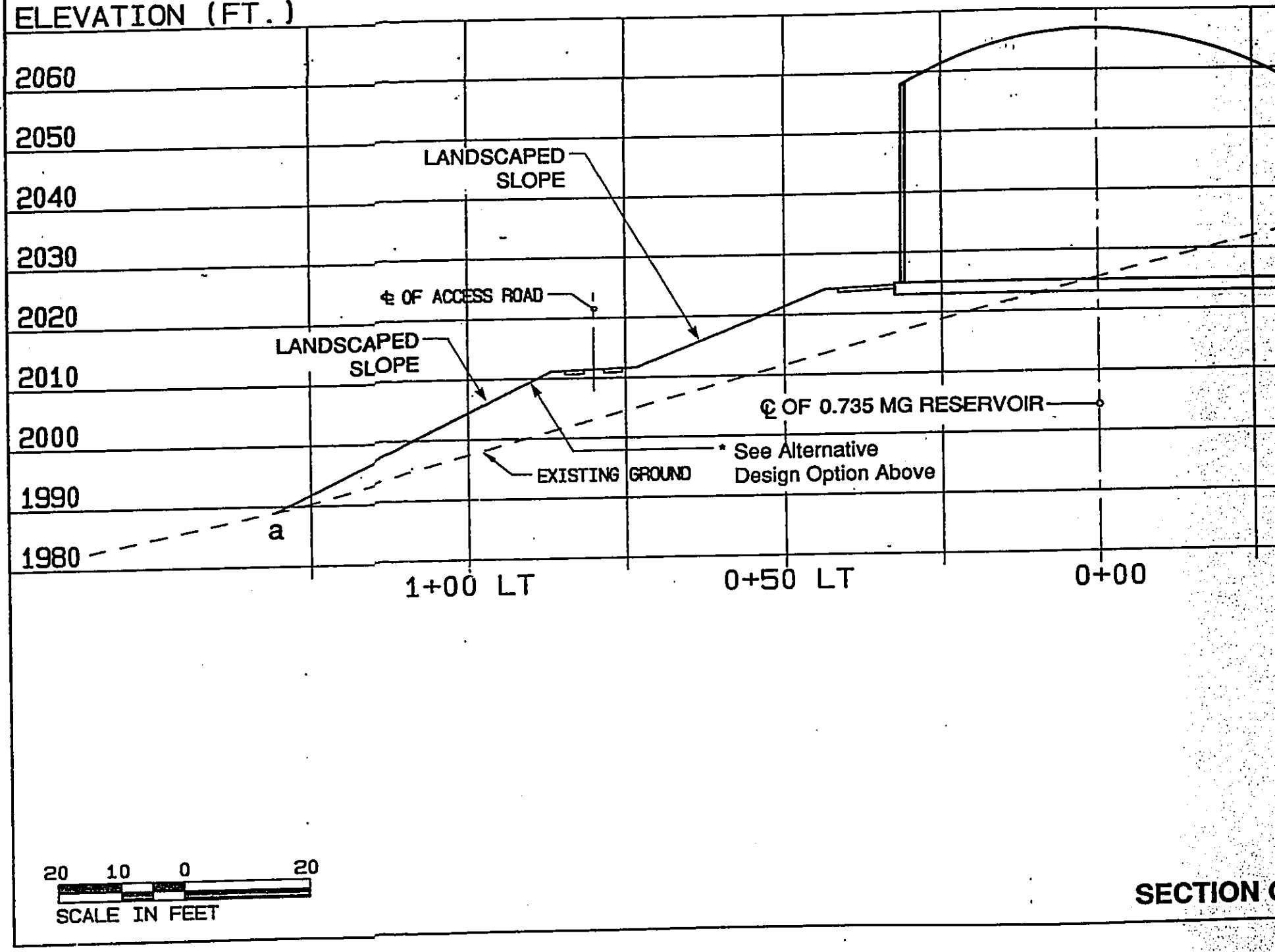


FIGURE 4

ACCESS ROAD SECTION IN RELATION TO PRESERVED TREES



* ALTERNATIVE DESIGN OPTION USING RETAINING WALLS



SECTION

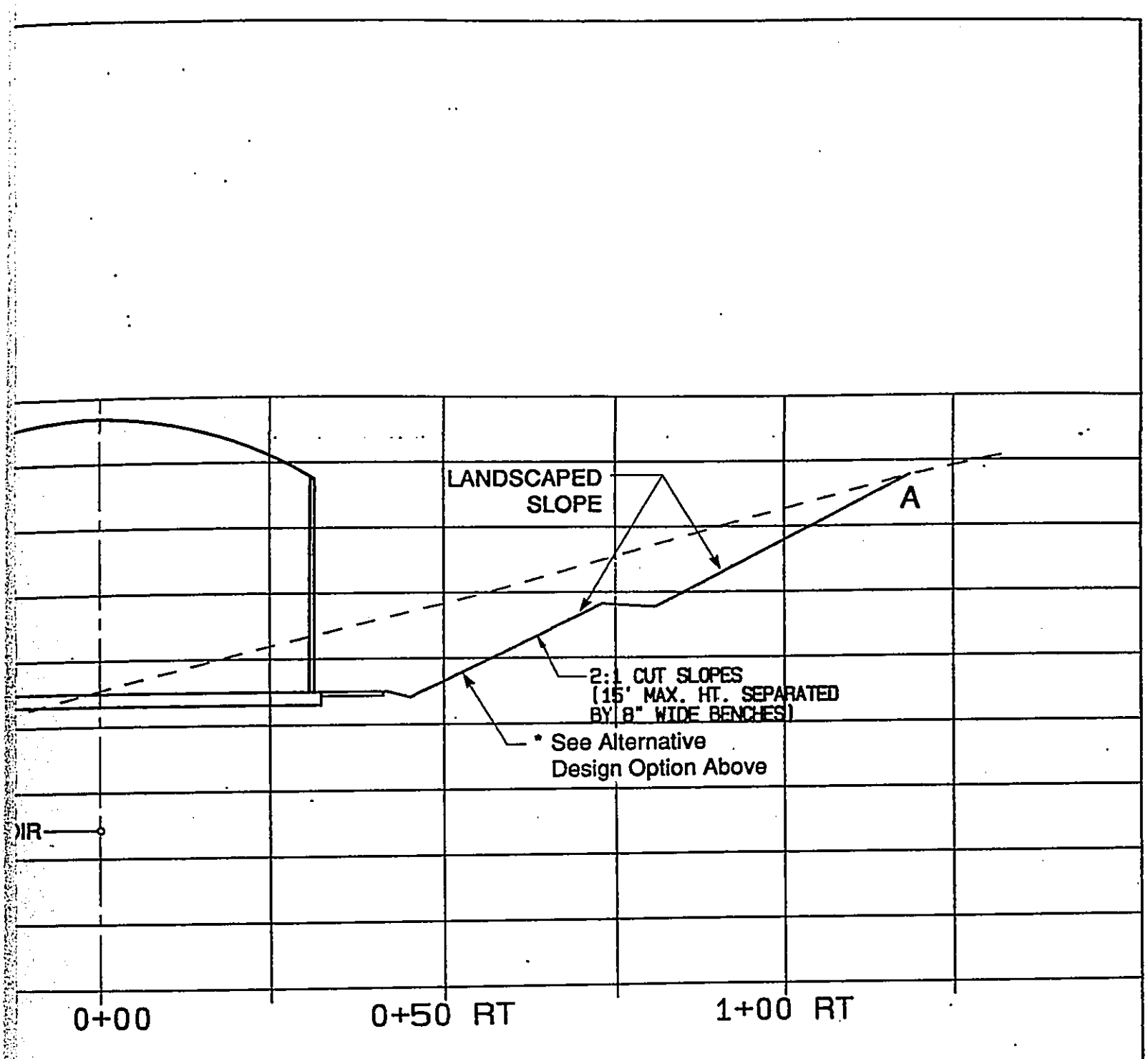


FIGURE 5

SECTION OF PROPOSED KOELE RESERVOIR AND ACCESS ROAD

The lower portions of the access road and water lines will be located within the State Urban District and the Koele Project District. This portion of the project site is designated for residential use. Refer to Figure 2, Proposed Project with Koele Project District. (Maui County has recently granted Phase II approval for the Project District, subject to conditions.)

The reservoir site and the upper portion of the access road and water line are located within the State Conservation District. The approximate location of this State Urban/Conservation District boundary is shown in Figure 3, Proposed Site Plan for Koele Reservoir and Access Road. This Conservation District Use Application (CDUA) is being filed for the upper portion of this project site, including the reservoir, which are located within the State Conservation District. The metes and bounds description of the State Urban/Conservation District boundary is included in Appendix G of this report.

PROJECT OBJECTIVE

The objective of the proposed project is to provide a means of storing necessary amounts of potable water and conveying this supply with sufficient pressure to the proposed residential development in the Koele Project District and the upper portion of Lanai City for domestic consumption and fire flow. The proposed project is expected to increase the fire flow pressure and thereby improve the fire protection to residences in the upper portion of Lanai City.

PUBLIC LAND USE POLICIES

State Policies

State Land Use District

The reservoir and the upper portions of the access road and water lines are located within a State Conservation District according to the State Land Use District Boundary map for Lanai. Land use regulation of this area is under the jurisdiction of the State of Hawaii. The Conservation subzone designation for the project site is R, Resource. The proposed project is not a permitted use within this subzone designation and hence, a Conservation District Use (CDU) permit is being requested. The lower portions of the access road and water lines are located within a State Urban District.

COUNTY OF MAUI LAND USE POLICIES

General Plan

The General Plan Objectives and Policies of the County of Maui that are met by the proposed project are as follows:

Objective (I)(B)(1) *To use the land within the County for social and economic betterment of the County's residents.*

DISCUSSION: The proposed reservoir will be beneficial to both the proposed residential development and the upper portion of Lanai City by ensuring the availability of an adequate potable water supply with sufficient pressure for domestic use and fire flow.

Objective (IV)(B)(1) *To provide an adequate supply of domestic and irrigation water to meet the needs of our people.*

DISCUSSION: As stated previously, the proposed reservoir will ensure an adequate supply of potable water for the proposed residential development in the Koele Project District and the upper portion of Lanai City.

Objective (V)(D)(1) *To create an atmosphere which will convey a sense of security for all residents and aid in the protection of life and property.*

DISCUSSION: The upper portion of Lanai City currently does not have adequate fire flow pressure. The proposed project will increase the water pressure in this area.

Lanai Community Plan

The Lanai Community Plan Map designates the lower portion of the access road and water lines as being within the Lanai Project District No. 2 (Koele); and the reservoir site and upper portion of the access road and water lines as being within the State Conservation District.

Maui County Zoning

The lower portion of the access road and water lines is within the residential area of the Lanai Project District No. 2 (Koele). The reservoir site and the upper portion of the access road and water lines are within the State Conservation District.

Special Management Area

The project site is not located within the Special Management Area and is therefore not subject to the SMA Rules and Regulations of the County of Maui.

SUMMARY OF REQUIRED LAND USE PERMITS AND APPROVALS

The proposed action is subject to Chapter 343 HRS requirements. The proposed project requires a Conservation District Use Permit and the application for this permit is attached to this environmental assessment. No other land use approvals or permits are requested.

V. AFFECTED ENVIRONMENT

EXISTING LAND USE

The proposed reservoir, access road and water lines are to be located within lands that currently are unused and have never been in any known recent use other than forested land.

The proposed project will have a minor impact on the forested area because of the small size of the project.

No significant adverse impacts on the existing land use are anticipated, since the proposed project will not significantly alter the existing land use.

TOPOGRAPHY

The project site is located approximately half a mile to the east of Lanai City. The project site varies in elevation from 1,900 feet to 2,060 feet above mean sea level. Located on the relatively steep slope of Puu Nene, the slope of the proposed project site varies between 20 to 30 percent with an average slope of about 25 percent.

The proposed project will have an impact on the topography of the project site since grading and excavation are required for the water lines, access road and the reservoir site.

CLIMATE

The climate of the project site and Lanai City area is sub-tropical. The project site receives abundant sunshine above the forest canopy during most of the year. The northeasterly tradewinds are the prevailing winds during most of the year. The average annual rainfall is approximately 35 inches. The average daily temperature ranges between the low 70's to the low 80's.

NEARSHORE AND MARINE ENVIRONMENT

The project site is located approximately five miles from the shoreline and the Pacific Ocean. Because of the distance between the proposed project and shoreline, no adverse impact on the nearshore and marine environment is anticipated.

GEOLOGY AND SOILS

According to the Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, by the U.S. Department of Agriculture, Soil Conservation Service, the proposed well site and the upper one third of the access road are in KRL, Koele Badland complex. The lower two thirds of the access road is in Waihuna clay. See Figure 6, Soil Map.

Koele soils are classified as a fine, kaolinitic, isothermic soil of the subgroup AridicHapluaasstoll, order Mollisole, in the greater soil group of alluvial soils. The Koele-Badland complex soils are similar to Koele silty clay loam, which has moderate to severe erosion hazard and medium runoff characteristics.

The Waihuna clay is classified as a fine kaolinitic, isothermic soil of the subgroup Typic Chromusterts, order Vertisols, in the greater soil group of Low Humic Latosols. The Waihuna clay soils have a slight to moderate erosion hazard and slight to medium runoff characteristics.

"The Detailed Land Classification - Island of Lanai," by the Land Study Bureau, designates the project site as Type "E" lands. The study rates the agricultural productivity of land on a scale of "A" to "E", from the most productive to least productive. Thus, the lands of the project site are considered to have the lowest agricultural productivity potential.

The Agricultural Lands of Importance to the State of Hawaii (ALISH) map no. L-3 does not classify the project site land.

Soils testing is proposed for the second phase to determine the stability of the project site. Soil excavated from the project site will be used as fill for the project, so no fill material is anticipated to be brought in. No adverse impact on the soils and geology of the project site is anticipated because the project will not significantly alter the geology and soil composition of the area.

HYDROLOGY AND DRAINAGE

No perennial streams or surface water sources are found on the project site. Drainage of the project site occurs by percolation or surface runoff in the form of sheetflow. Construction of the proposed project may create the potential for erosion and sedimentation. The project area is comprised predominantly of a closed canopy forest with sparse understory growth. Removal of the canopy will increase potential for erosion. To minimize potential erosion and sedimentation, grading, excavation and landscaping will be conducted in compliance with County grading and erosion ordinances.

Grading plans will also be submitted to the USDA Soil Conservation Service, Molokai/Lanai Office for review.

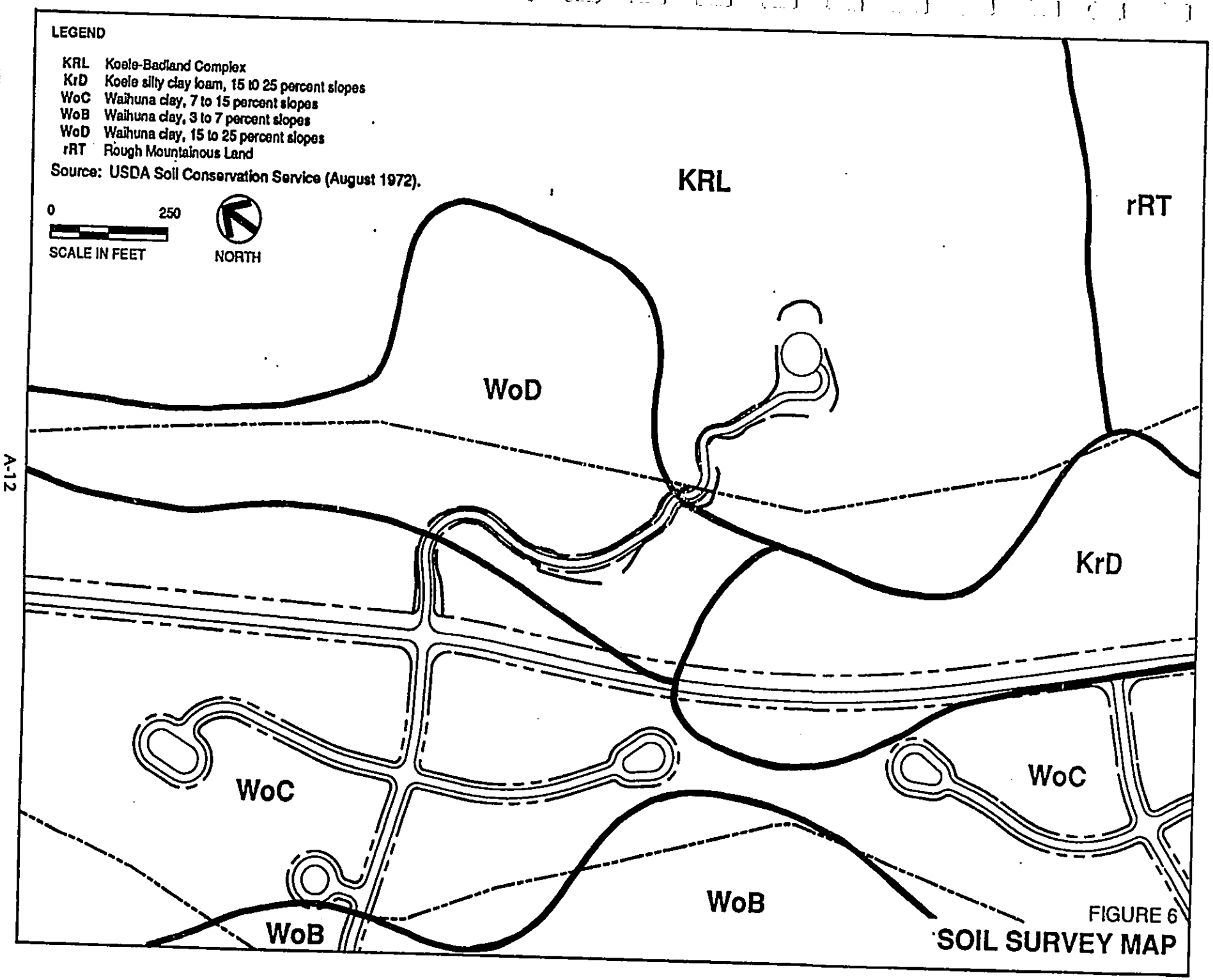


FIGURE 6
SOIL SURVEY MAP

In addition, the following measures are proposed for cut and fill slopes to reduce possible soil erosion:

1. Slopes will be no greater than 2:1 and compacted per the instructions of a geotechnical engineer.

2. As a short-term measure, erosion control blankets, e.g. straw/ coconut fiber matting, will be installed over the slopes to reduce erosion after construction.

3. As a long-term solution, groundcover vegetation, such as centipede grass which is hardy and will grow in shaded areas, will be planted in openings in the erosion control blankets. In some areas, trees, such as koa and eucalyptus, may also be planted.

4. To assist in establishing the new vegetation, the plants may be irrigated and fertilized.

FLORA

A biological survey of the project site was conducted by Kenneth M. Nagata on November 22, 1991. Refer to Appendix C, Biological Report. The survey identified 22 species of vegetation on the site. The vegetation consists largely of planted groves of non-native (alien) species. The vegetation can be characterized as a closed-canopied mixed forest. This forest consists mainly of Koa, Red Ironbard, Paperbark, Ironwood, Silk Oak, and Albizia falcataria. Strawberry guava and Christmas berry constitute the shrub layer. The herb layer is very sparse and consists of widely scattered tree seedlings, Boston fern and an Athyrium.

The lower portion of the access road passes through a large stand of koa that are about 20-25 feet tall and seem to occur in rows. Based on the non-random distribution and the similarity of the ages of these trees, it is believed that the grove is planted and not a native plant community. This stand of koa accounts for approximately 20% of the vegetational coverage on the project site. The upper portion of the access road passes through a dense stand of red ironbard 60 to 80 feet tall and groves of paperbark and Albizia. Ailk oak, Albizia and ironwood occupy the reservoir site and surrounding areas.

Of the 22 species of vegetation present, two are endemic or possibly endemic and four are indigenous or possibly indigenous. All of the native species are widespread and common throughout the State. No native plant communities or rare and endangered species were found. The proposed project is not anticipated to have any major adverse impact on the vegetation found on the project site.

In an addendum letter report dated November 7, 1992, Kenneth Nagata indicated that no endangered plants will be affected by the revised reservoir and access road location. Refer to Appendix D, Addendum Biological Letter Report.

FAUNA

A cursory inventory of birds and mammals was made by Kenneth M. Nagata on November 22, 1992, using observation and listening stations at regular intervals along the vegetational transects. Refer to Appendix C, Biological Report. The only birds observed or heard at the project site were the non-native Kentucky cardinal, Japanese white-eye and lace-necked dove. Deer trails and droppings were abundant in the property and six axis deer were observed. Field mice and one or more species of rats may also occur, although none were observed. No endangered or rare species of fauna are found on the project site.

HISTORICAL, CULTURAL AND ARCHAEOLOGICAL RESOURCES

An archaeological survey of the project site and surrounding area was conducted by Cultural Surveys Hawaii on October 24, 1991. Refer to Appendix E, Archaeological Survey. No surface historical, cultural, or archaeological resources were observed at the project site. Literature research also indicated the probable absence of any subsurface cultural deposits. If any cultural material is unearthed during construction, proper mitigating measures will be taken and coordinated with the State Department of Land and Natural Resources. No adverse impact on historical, cultural and archaeological resources is anticipated due to the absence of surface sites and presumed absence of subsurface cultural deposits.

In an addendum letter report dated October 27, 1992, Cultural Surveys Hawaii indicated no sites were believed to be impacted by the revised reservoir and access road locations. Refer to Appendix F, Addendum Archaeological Survey Letter Report.

VISUAL CHARACTER

The visual character of the area could be impacted. Although the reservoir will be situated within a cut in the slope, it could possibly be visible from the lower residential area. This impact will be reduced through the use of approved mitigative measures discussed in Section VII. No view planes will be blocked or impacted. The project site is located within a forested area in which the trees and shrubs will conceal most of the reservoir.

Temporary adverse impacts will occur during the construction of the access road and reservoir because of the removal of trees and vegetation. It is, however, anticipated that the vegetation will become reestablished after construction is completed. Where appropriate, the new vegetation will be irrigated and fertilized to assist it during the grow-out period.

AIR QUALITY

Temporary adverse impacts on air quality will occur during the construction of the proposed project. Heavy construction equipment that will be used during the construction phase emits exhaust and airborne particulates. The construction work will also produce dust. These impacts will be reduced through the use of approved mitigative measures discussed in Section VII. The nearest community is Lanai City which is approximately a half a mile away; this distance should allow dust and airborne pollutants to dissipate and disperse before reaching the area. The tradewinds that prevail during most of the year will also be helpful in dispersing the airborne pollutants. No adverse impacts are anticipated to occur after the construction phase.

Noise Impact

Temporary adverse noise impact will also occur during the construction of the proposed project. Noise impacts created by the construction equipment such as bulldozers, backhoes and dump trucks will be reduced through the use of approved mitigative measures discussed in Section VII. There are no sensitive noise receptors in the immediate area. The nearest receptors are located on the outskirts of Lanai City, approximately a half a mile from the project site. No long-term adverse impacts are anticipated to occur after the construction phase.

Natural Hazards

The proposed project site is not located within any major gulch or drainageway. The U.S. Federal Emergency Management Agency has not prepared a flood insurance map for the island of Lanai. Flood hazard is assumed to be low because the project site is not located within a major drainageway. Because of the distance from the ocean and its elevation, the project site is not located within any tsunami inundation zone.

Public Services and Facilities

No adverse impact on public facilities is expected since the project will not create any demand for public services or facilities. The project is a proposed privately owned facility that will provide water service to the residential development proposed for the Koele Project District and the upper portion of Lanai City.

Circulation

The proposed project site is not located on any main thoroughfare. The access road to the project site will only be used by maintenance personnel after all construction is completed. No long-term impacts on traffic circulation are anticipated as a result of the project.

Social Considerations

The proposed reservoir will not displace any land use and is required for the proposed residential development within the Koele Project District. It is an amenity that will be beneficial to the community. The proposed project will help to ensure the availability of an adequate potable water supply with sufficient fire flow pressure for the Koele Project District and the upper portion of Lanai City. The increase in fire flow pressure in the upper portion of Lanai City will be beneficial to public safety.

Economic Considerations

The proposed project will cost approximately $1 million to construct. It will be a source of employment during its construction phase. It will be a source of income for those that supply materials for the project construction. The construction workers employed for the project will receive income as a result of working on the project. Local, state and federal governments will also receive income through taxes paid by those involved directly and indirectly in the construction of the project.

VI. MAJOR IMPACTS AND ALTERNATIVES

MAJOR IMPACTS

No major impacts are anticipated as a result of this project. The only potential long-term adverse impact is on visual character. The proposed project will also have temporary short-term minor adverse impacts on the area's visual character, air quality, sonic quality and circulation during the construction of the project. All impacts will be reduced through the use of mitigation measures described in Section VII.

ALTERNATIVES

No Action Alternative

This alternative would not be a viable alternative since the objective of this project is to construct a reservoir that will provide an adequate and safe potable water supply and fire protection for the proposed residential development in the Koele Project and the upper portion of Lanai City.

Alternative Location

The proposed location was selected because of its elevation, its proximity to Koele Well No. 8 and its slope which is less than that of other sites considered. Alternative sites were rejected because they did not meet the minimum requirements for consideration. These sites were at too low an elevation, too steep, and not close enough to Koele Well No. 8 or Koele Well No. 3.

Sites outside the Conservation District were specifically examined and analyzed. The only potential site that met the elevation and slope requirements was farther than the proposed site to Koele Well No. 8 and was in proximity to archaeological sites. Further, more trees would have to be cut and pipelines would have to cross two deep gulches.

Alternative Use

No other use would be suitable for the project site due to the relatively steep slope and its location within the State Conservation District.

VII. MITIGATING MEASURES

The most noticeable impacts that would be generated by the proposed project would be those from construction work such as dust, erosion and noise. These impacts are temporary, minor in scale, and will last only during the period of construction. The use of mitigative measures will reduce or eliminate these impacts. The project site is located well away from any residents and should not have any significant adverse impacts on them.

Adequate dust control measures will be employed during construction to minimize airborne particles. The use of mitigative measures such as water sprinkling will reduce the potential for adverse impact on air quality.

The use of hydro-mulch is one possibility to mitigate any possible erosion. All construction work will adhere to approved erosion control plans and be monitored to prevent such erosion.

Construction activity will create a temporary increase in noise levels. Heavy equipment used for grading of the site will be a source of noise. Mitigating measures such as the use of mufflers and limiting construction to daylight hours will be employed. Noise levels shall comply with the State Department of Health noise regulations.

Heavy construction equipment will emit some air pollutants in the form of engine exhausts. With proper maintenance, emissions from this equipment can be minimized.

The reservoir could possibly have long-term impact on the visual character of the area. The reservoir will be painted green in an effort to blend into the natural environment and mitigate visual impact. Another mitigation measure is to plant trees such as eucalyptus or koa to obscure the view of most of the reservoir from inhabited areas.

VIII. DETERMINATION

This assessment shows that the proposed project is expected to have no significant adverse impact on the environment and an Environmental Impact Statement is not required. Therefore, in accordance with the provisions of Chapter 343, Hawaii Revised Statutes, a Negative Declaration is determined to be in order.

IX. FINDINGS AND REASONS SUPPORTING DETERMINATION

The following findings and reasons support the determination that there will be no significant effect on the environment as a result of this project.

1. There will be no adverse social or economic impacts as a result of the proposed project.

2. The adverse impacts that are associated with construction of the proposed project are temporary impacts that should not affect any residents. All short-term impacts will be mitigated and minimized in accordance with applicable Maui County, State of Hawaii and Federal rules and regulations.

3. No rare or endangered wildlife or flora will be affected by the proposed action.

4. No known archaeological, cultural or historical sites are located on the project site. Should any archaeological feature be found during construction work, the Department of Land and Natural Resources, Historic Preservation Program Division will be notified and the appropriate measures will be taken.

5. The proposed reservoir will provide storage for the water supply for the Koele Project District and the upper portion of Lanai City.

6. The proposed reservoir will be beneficial to the community because it will assure adequate fire flow pressure for the Koele Project District and the upper portion of Lanai City.

REFERENCES

Land Study Bureau, University of Hawaii. (May 1967). Detailed Land Classification - Island of Lanai. L.S.B. Bulletin No. 8. Honolulu, Hawaii.

United States Department of Agriculture, Soil Conservation Service. (August 1972). Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. Washington, D.C.

APPENDIX A

COMMENT LETTER FROM UH ENVIRONMENTAL CENTER

University of Hawaii at Manoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawaii 96822
Telephone: (808) 956-7361

Facsimile 956-3980

October 7, 1992
EA:00002

Mr. Roy Schaefer
Historic Preservation Division
Office of Conservation and Environmental Affairs
Department of Land and Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Schafer:

Draft Environmental Assessment
Koele Reservoir and Access Road
Lanai

The referenced project is intended to provide a means of storing water and conveying the supply to proposed residential development in the Koele Project District and upper portion of Lanai City. The project will involve three phases: 1) grading a roadway to provide access to the proposed reservoir site, 2) geological testing to determine the stability of the site for use as a reservoir, and 3) construction of a 500,000-gallon reservoir (approximately 33 feet high and 62 feet in diameter), water lines and access road. Our review of the Draft Environmental Assessment (EA) was prepared with the assistance of Paul Ekern, Agronomy and Soil Science (Emeritus); Michael Graves, Anthropology; Peter Nicholson, Civil Engineering; and Elizabeth Gordon, Environmental Center.

General Comments

Pursuant to the Environmental Impact Statement (EIS) Rules (Section 11-200-9; 11-200-10; 11-200-12, H.A.R.), Environmental Assessments are intended to provide sufficient information to evaluate the significance of potential impacts. Our reviewers have noted a number of areas in which additional information would contribute to a better basis for decision making, and we suggest that the present EA be expanded to accommodate these concerns.

Geology and Soils (p. A-10-11)

The site maps contained within this EA are not adequate for location of soil types. Our reviewers suggest that Plates 88 and 89 from Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii (United States Department of Agriculture, Soil Conservation Service 1972) would be a more suitable overlay for soils. The EA should also include additional information from the referenced soil surveys. For example, Koele is classified as Kaolin, Subgroup Aridic Haplustoll, Order Mollisols, in the greater soil group of Alluvial soils (USDA, Soil Conservation Service 1972: 204 [Table 5]).

Hydrology and Drainage (p. A-11)

Our reviewers are concerned that Maui County grading and erosion ordinances may not be sufficient for this particular site considering the grade and amount of vegetation removal planned. The potential erosion and runoff problem should be addressed in this specific case.

Historical, Cultural and Archaeological Resources (p. A-12)

Although the text of this EA refers to an "Appendix B, Archaeological Survey," this did not accompany the EA received by the Environmental Center from OEQC. "Appendix B" needs to be attached to the EA before the adequacy of the findings can be assessed.

OK!
Appendix E

Visual Character (p. A-12)

On page 12 of this EA it states that while "temporary adverse impacts will occur during construction of the access road and reservoir because of the removal of trees and vegetation, it is anticipated that the vegetation will become reestablished after construction is completed." However, due to the properties of the soil, it will be difficult to successfully re-establish plants after subsoil cuts unless there is irrigation and phosphorus or phosphorus-lime fertilizers are used (ref. USDA, Soil Conservation Service 1972: 141, 180-181 [Table 3]).

Thank you for the opportunity to review this EA. We hope that our comments are helpful.

Sincerely,

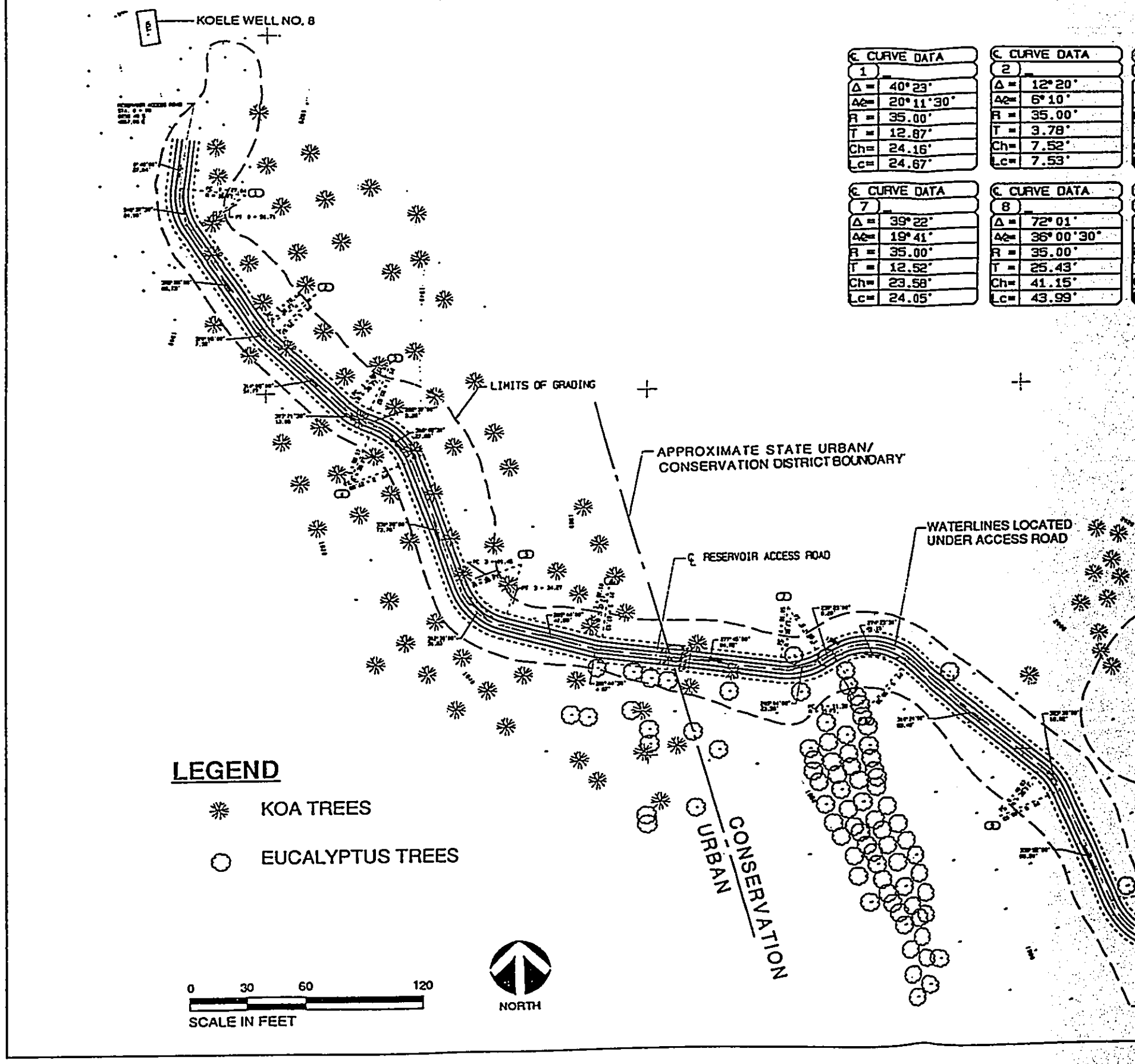
John T. Harrison, Ph.D.
Environmental Coordinator

cc: OEQC
Lanai Company, Inc.
Bert Collins and Associates
Roger Fujioka
Paul Ekern
Michael Graves
Peter Nicholson
Elizabeth Gordon

APPENDIX B

SITE PLAN AND SECTION FROM

DRAFT ENVIRONMENTAL ASSESSMENT



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00°
87°
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67°

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DATA
22°
41°
00°
52°
58°
05°

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Ch=	12.93°
Lc=	14.06°

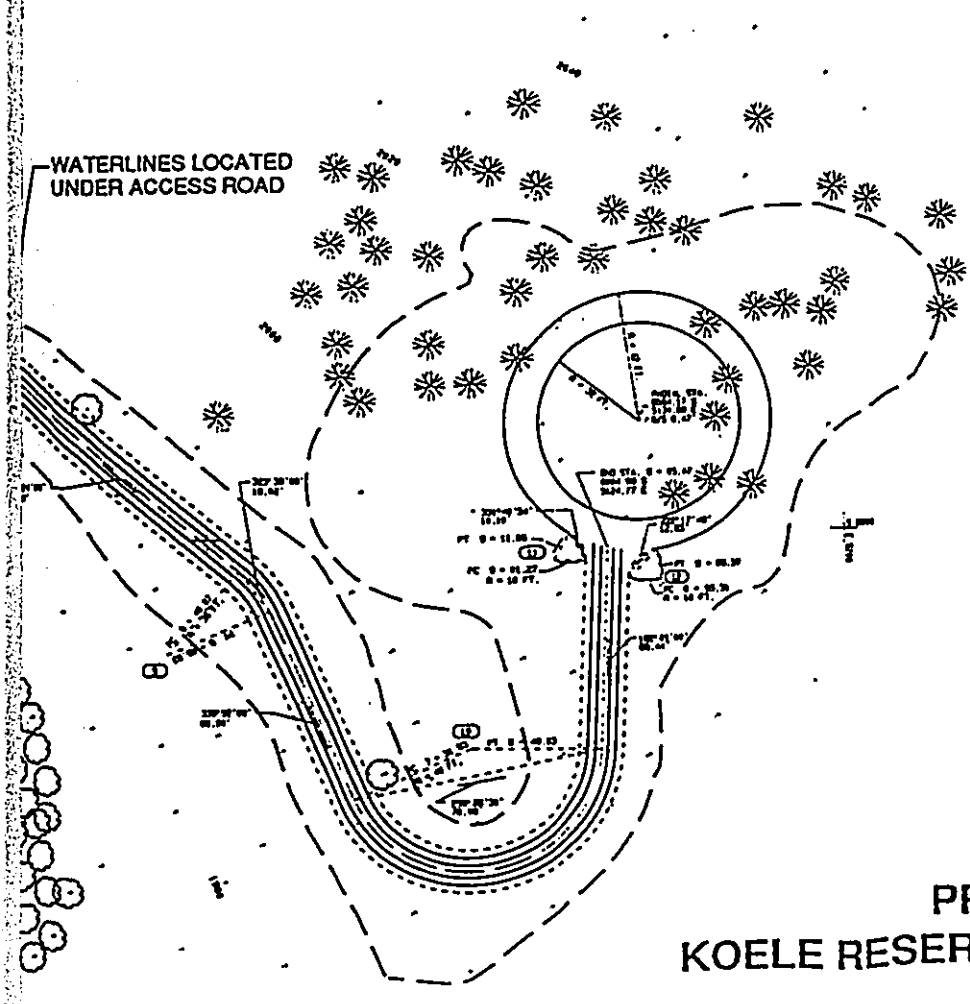
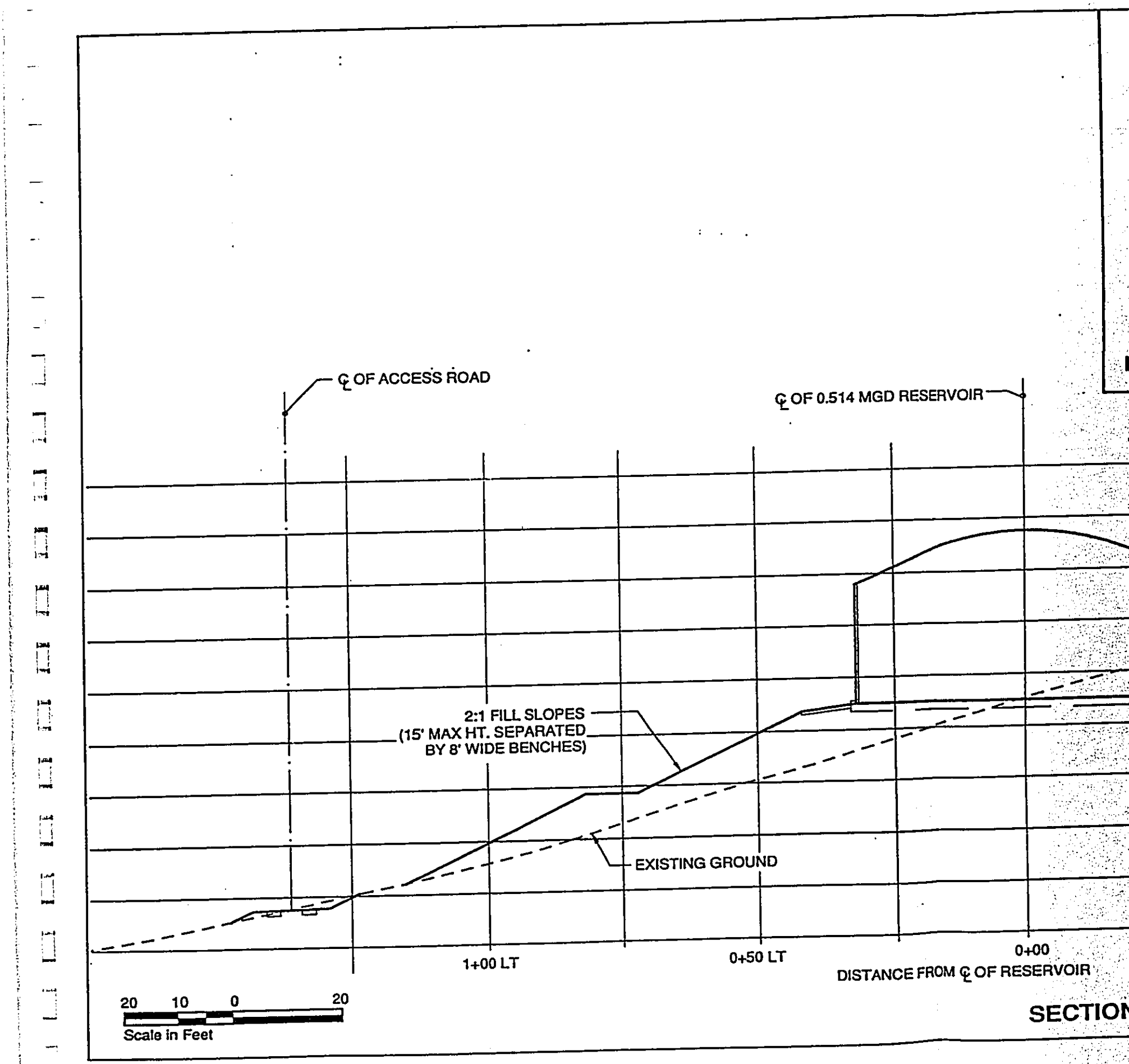
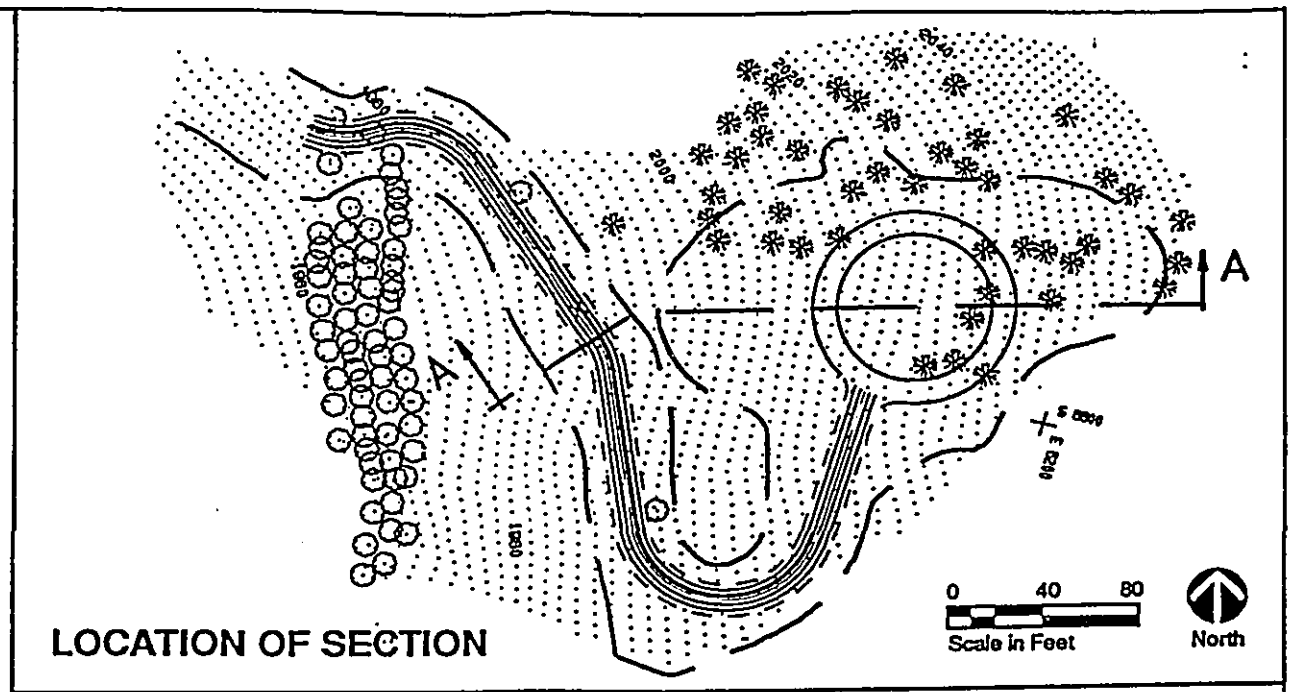


FIGURE 3
PROPOSED SITE PLAN FOR
KOELE RESERVOIR AND ACCESS ROAD


℄ OF ACCESS ROAD
℄ OF 0.514 MGD RESERVOIR
2:1 FILL SLOPES
(15' MAX HT. SEPARATED
BY 8' WIDE BENCHES)
EXISTING GROUND
1+00 LT
0+50 LT
0+00
DISTANCE FROM ℄ OF RESERVOIR
20 10 0 20
Scale in Feet

SECTION



LOCATION OF SECTION

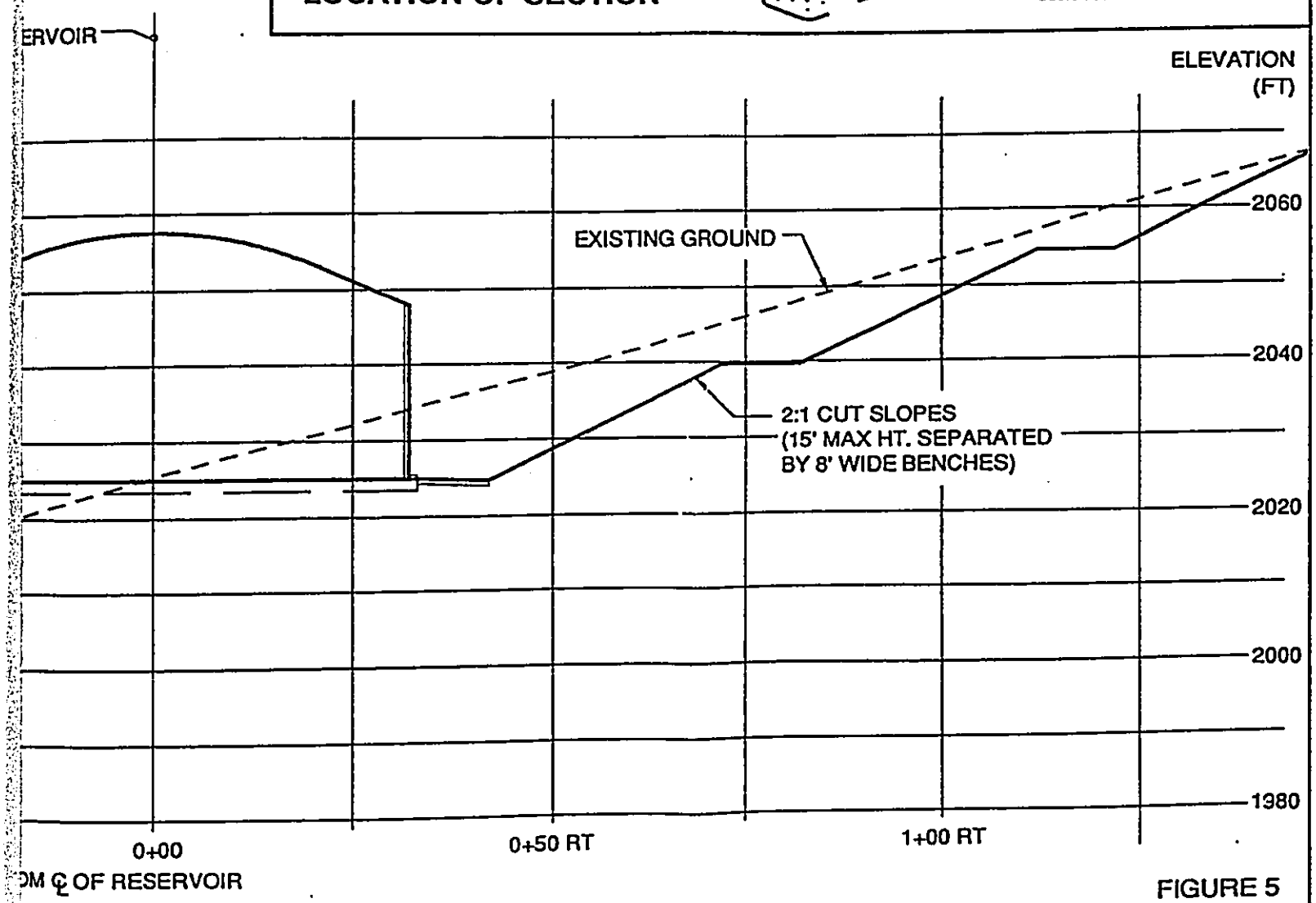


FIGURE 5

SECTION OF PROPOSED KOELE RESERVOIR AND ACCESS ROAD

APPENDIX C

BIOLOGICAL REPORT FOR

ORIGINAL RESERVOIR SITE AND ROAD ALIGNMENT

KOELE RESERVOIR

BIOLOGICAL REPORT

Prepared for: Belt Collins & Associates

By: Kenneth M. Nagata

28 November 1991

INTRODUCTION

The project site consists of a three acre parcel designated for a reservoir and an access road leading from the existing Well # 8. The property is located approximately 0.75 miles east of Lanai City in the foothills mauka of the newly constructed golf course. The elevation of the well is 1900' and the elevation of the proposed reservoir is approximately 2030'. The corridor for the proposed access road is approximately 1,000' long and 100' wide.

According to Ripperton and Hosaka (1942) the natural vegetation in the region is one of mixed open forest and shrubs (Zone C, low phase) and closed forest (Zone D, low phase). Characteristic shrubs in Zone C include guava (Psidium guajava) which is dominant below 1500' and koa-haole (Leucaena leucocephala) which is abundant below 700'. Lantana (Lantana camara) is of secondary importance. The herb layer which is well established in this zone is dominated by Bermuda grass (Cynodon dactylon), Natal redtop (Rhynchyletrum repens) and pilipiliula (Chrysopogon aciculatus). In the mauka areas the vegetation grades into Zone D, low phase which is characterized by closed-canopied forests of 'ohi'a-lehua (Metrosideros collina ssp. polymorpha), hala (Pandanus tectorius) and kukui (Aleurites moluccana). Guava continues to be a dominant shrub but above 2000' it is largely confined to ravines and gullies. The herb layer in this zone consists of Boston fern (Nephrolepis exaltata), Hilo grass (Paspalum conjugatum), rice grass (P. dilatatum), basketgrass (Oplismenus hirtellus) and honohono (Commelina diffusa).

The land in the vicinity of Lanai City has been modified to the extent that the natural vegetation as described by Ripperton and Hosaka essentially no longer exists (Nagata 1986). The natural vegetation in the 68 acre parcel surrounding Well # 8 has been replaced by a closed-canopied eucalyptus forest consisting of red ironbark (Eucalyptus sideroxylon) and swamp mahogany (E. robusta) (Nagata 1990). Forty-six plant species were found in this community but mostly in small to very small numbers. The shrub layer was dominated by Christmas berry (Schinus terebinthifolius) which formed dense stands in the north end of the parcel and strawberry guava (Psidium cattleianum) which was common throughout the forest. The poorly developed herb layer consisted mostly of Hilo grass. Numerous signs of Axis deer (Axis axis) were found in the forest but only few birds were seen or heard. Kentucky cardinal (Richmondena cardinalis) and Japanese white-eye (Zosterops japonica) were the most frequently encountered birds in the area.

METHODS

On 22 November 1991 a walk-through survey with 80% coverage was conducted to determine the floristic composition of the site. Special emphasis was given to native plant communities and Rare and Endangered Species. A cursory inventory of birds and mammals was also made using observation and listening stations at regular intervals along the vegetational transects. Nests were not examined, however, and quantitative techniques were not employed.

RESULTS

The vegetation in the project site was found to consist largely of non-native species (alien species). Stands of koa (Acacia koa), red ironbark, paperbark (Melaleuca quinquenervia), ironwood (Casuarina equisetifolia), silk oak (Grevillea robusta) and Albizia falcataria can be found in various portions of the site but the vegetation in general can be categorized as a closed-canopied mixed forest consisting of groves of these species. The lower portion of the access road passes through a large stand of koa about 20-25' tall. These trees all branch 4 - 5' above the ground and seem to occur in rows. Based on the non-random distribution and the similarity of the ages of these trees it is believed that this is a planted grove. This stand of koa probably accounts for nearly 20% of the total vegetational cover in the project site. The upper portion of the access road passes through a dense stand of red ironbark 60 - 80' tall and groves of paperbark and Albizia. Silk oak, Albizia and ironwood occupy the reservoir site and the surrounding area.

The understory of the red ironbark, paperbark, silk oak, Albizia and some portions of the koa stands is generally quite open with very few individuals of strawberry guava and Christmas berry constituting the shrub layer. In other areas it is dense with strawberry guava which forms a secondary canopy 10 - 20' in height. The herb layer throughout the site is very sparse and consists of widely scattered tree seedlings, an Athyrium and Boston fern. Leaf litter and detritus are abundant. The Athyrium fronds are only recently emergent and are sterile, making positive identification impossible at this time. It is tentatively identified as A. microphyllum.

Very few species were found in the vegetation associated with the project site. Of the 22 species present, two are endemic or possibly endemic and four are indigenous or possibly indigenous. All of the native species are widespread and common throughout the State. No native plant communities or Rare and Endangered Species were found. The koa grove is not considered a native plant community.

The only birds seen or heard in the site were the non-native Kentucky cardinal, Japanese white-eye and lace-necked dove (Streptopelia chinensis). Deer trails and droppings were abundant in the property and six axis deer were observed. Although none were observed, field mice (Mus musculus) and one or more species of rats (Rattus spp.) may also occur in the site.

SUMMARY

The vegetation in the project site consists mostly of planted groves of alien species. A large grove of koa is found in the site but it is believed to be planted and is not considered a native community. No native plant communities, Rare and Endangered plant species or native animals were found. The proposed project is not considered detrimental to the native biota of the region nor will it impact the native biota of Hawaii in general.

PLANT SPECIES CHECKLIST

Families are arranged alphabetically in two groups: Pteridophytes and Angiosperms (Dicotyledones). Genera and species are arranged alphabetically within each family. Taxonomy of the Pteridophytes follows that of W.H. Wagner's unpublished checklist. Taxonomy, common names and status of the Angiosperms follow those of Wagner (1990) and St. John (1973). The abundance determinations are relative and are dependent on the judgement of the investigator.

EXPLANATION OF SYMBOLS.

Species Status:

- E - Endemic to the Hawaiian Islands, ie. occurring naturally nowhere else in the world.
- I - Indigenous, ie. native to the Hawaiian Islands but also occurring naturally elsewhere.
- X - Exotic (alien), ie. plants introduced after the Western discovery of the islands.
- P - Polynesian introductions; plants introduced before the Western discovery of the islands.

Relative Abundance Ratings:

- A - ABUNDANT, generally the major or dominant species in a given area.
- C - COMMON, generally distributed throughout a given area in large numbers.
- O - OCCASIONAL, generally distributed through a major portion of a given area, but in small numbers.
- U - UNCOMMON, observed uncommonly but more than 10 times in a given area.
- R - RARE, observed 2 to 10 times in a given area.

ANIMAL SPECIES CHECKLIST

Families are arranged alphabetically and the genera and species are arranged alphabetically within each family. Taxonomy of the birds follows that of Berger (1981); taxonomy of the mammals follows that of Tomich (1969). Quantitative techniques were not employed and thus only presence is recorded.

EXPLANATION OF SYMBOLS

Species Status:

X - Exotic (alien), ie. animals introduced after the Western discovery of the islands.

Relative Abundance Ratings:

X - Indicates presence only.

CHECK LIST OF PLANT

SCIENTIFIC NAME	COMMON NAME	STATUS
PTERIDOPHYTES		
DAVALLIACEAE		
Nephrolepis exaltata (L.) Schott	Boston fern	I
POLYPODIACEAE		
Pleopeltis thunbergiana Kaulf.		E?
PSILOTACEAE		
Psilotum nudum L.	Moa	I
WOODSIACEAE		
Athyrium cf. microphyllum (Sm.) Alston		I?
ANGIOSPERMS - DICOTYLEDONES		
ANACARDIACEAE		
Schinus terebinthifolius Raddi	Christmas berry	X
ASTERACEAE		
Cirsium vulgare (Savi) Tenore	Bull thistle	X
Conyza bonariensis (L.) Cronq.	Hairy horseweed	X
CASUARINACEAE		
Casuarina equisetifolia L.	Common ironwood	X
EPACRIDACEAE		
Styphelia tameiameiae (Cham. & Schlechtend.) F.v. Muell.	Pukiawe	I
FABACEAE		
Acacia confusa Merr.	Formosan koa	X
A. koa A. Gray	Koa	E
Albizia falcataria (L.) Fosb.		X
Chamaecrista nictitans (L.) Moench	Partridge pea	X
MORACEAE		
Ficus elastica Roxb. ex Hornem.	Indian rubber tree	X
MYRTACEAE		
Eucalyptus robusta Sm.	Swamp mahogany	X
E. sideroxylon A. Cunn. ex Woolls	Red ironbark	X
Melaleuca quinquenervia (Cav.) S.T. Blake	Paperbark	X
Psidium cattleianum Sabine	Strawberry guava	X
P. guajava L.	Guava	X
OXALIDACEAE		
Oxalis corniculata L.	Yellow wood sorrel	P?

S T O F P L A N T S

E	STATUS		RELATIVE ABUNDANCE
	I		O
	E?		U
	I		U
	I?		O
ry	X		O
	X		U
ed	X		R
od	X		O
	I		U
	X		R
	E		O
	X		U
a	X		R
r tree	X		R
y	X		U
	X		O
	X		O
ava	X		C
	X		U
sorrel	P?		R

CHECK LIST OF PLA

SCIENTIFIC NAME	COMMON NAME	ST
PROTEACEAE Grevillea robusta A. Cunn. ex R. Br.	Silk oak	
VERBENACEAE Lantana camara L.	Lantana	
CHECKLIST OF ANIMALS		
BIRDS		
COLUMBIDAE Streptopelia chinensis	Lace-necked dove	
PLOCEIDAE Richmondena cardinalis	Kentucky cardinal	
ZOSTEROPIDAE Zosterops japonica	Japanese white-eye	
MAMMALS		
CERVIDAE Axis axis	Axis deer	

ST OF PLANTS

E	STATUS			RELATIVE ABUNDANCE									
	X			U									
	X			R									
d dove	X			X									
ardinal	X			X									
ite-eye	X			X									
	X			X									

APPENDIX D

ADDENDUM BIOLOGICAL LETTER REPORT FOR REVISED RESERVOIR SITE AND ROAD ALIGNMENT

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Wagner, W.L., D.R. Herbst & S.H. Sohmer. 1990. Manual of the Flowering Plants of Hawaii. 2 Vols. Univ. of Hawaii Press & Bishop Museum Press. Honolulu. 1853 pp.

7 November 1992

Mr. Ed Kuniyoshi
Belt Collins & Associates
680 Ala Moana Blvd.
Honolulu, Hawaii 96813-5406

Dear Ed,

I have completed my walk-through biological survey of the revised alignment of the Koele Reservior and Access Road and find the vegetation and the fauna to be essentially identical to those of the original alignment. The vegetation type and species composition (with few exceptions) are identical to that of the original alignment. The exceptions are the absence of Indian rubber tree (Ficus elastica) and ironwood (Casuarina equisetifolia) and fewer koa (Acacia koa) in the new road alignment and fewer silk oak (Grevillea robusta) and albizia (Albizia falcataria) and correspondingly more strawberry guava (Psidium cattleianum) in the new reservior site. These differences are considered inconsequential. There is no difference between the faunal composition of the old and new alignments.

Please call me if you have any questions.

Aloha,

Kenneth M. Nagata

Kenneth M. Nagata
BOTANICAL CONSULTANT
46-270 Kahuhipa St. A-421
Kaneohe, Hi 96744

APPENDIX E

ARCHAEOLOGICAL REPORT FOR

ORIGINAL RESERVOIR SITE AND ROAD ALIGNMENT

Archaeological Survey for the Proposed Kō'ele Reservoir and Access Road, Kamoku, Lāna'i, Hawai'i

by

Douglas F. Borthwick, B.A.
Hallett H. Hammatt, Ph.D.

for
Belt Collins and Associates

by

Cultural Surveys Hawaii
January 1992

Abstract

Cultural Surveys Hawai'i conducted an archaeological assessment for the proposed Kō'ele Reservoir and access road within the land of Kamoku, Lāna'i Island, Hawai'i. The assessment, done at the request of Belt Collins and Associates, included survey of the reservoir site and access road, and archaeological background research.

There were no archaeological sites observed during the survey of the approximately 5-acre project area. The historical and archaeological background research indicated the absence of any known sites. Based on the absence of surface sites, the type of terrain, (i.e. steep soil slope) and the background information gathered, no adverse effects to archaeological resources were anticipated. However, because of the possibility of unearthing sub-surface cultural deposits, on-site monitoring during the initial stages of construction was recommended.

Table of Contents

List of Figures

Introduction and Scope of Work

Cultural Surveys Hawai'i conducted an archaeological assessment for the proposed Kō'ele Reservoir. The purpose of the assessment was to evaluate archaeological resources within the proposed reservoir site and access road. The assessment includes the results of a complete surface survey and review of pertinent archaeological and historical literature.

The survey was conducted on October 24, 1991 by Douglas F. Borthwick. Fieldwork included coverage of a 100-foot wide, 900-foot long access road corridor and a roughly 3-acre reservoir site. The access road and reservoir site had been staked out by surveyors prior to our fieldwork which allowed for precise locational information.

Review of pertinent literature included readily available archaeological and historical sources. The purpose of the review was to check for known archaeological sites as well as the potential for archaeological resources within the project area.

Project Area Description

The project area is situated on the west facing slope below Pu'u Nēnē (Figs. 1 to 4). The elevation range is between 1900 and 2060 feet (AMSL). The soils within the project area are part of the Kō'ele-Badland (KRL), which is described as silty clay loam soil except where there is exposed highly weathered rock (Foote et

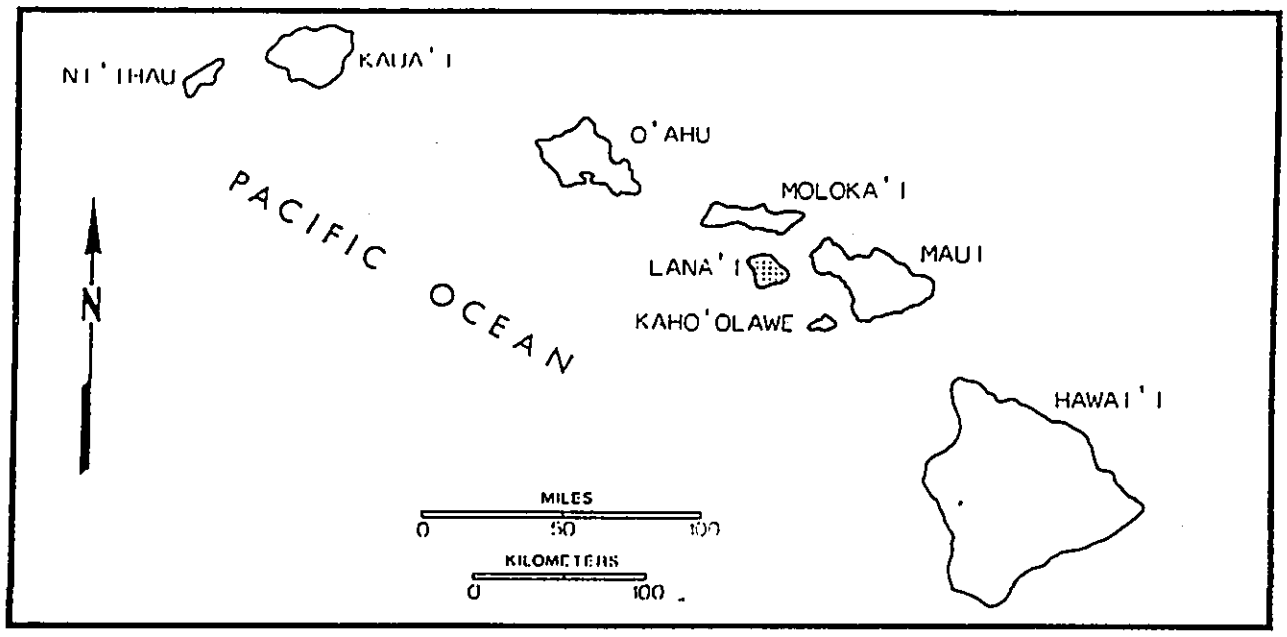

Fig. 1. State of Hawaii.

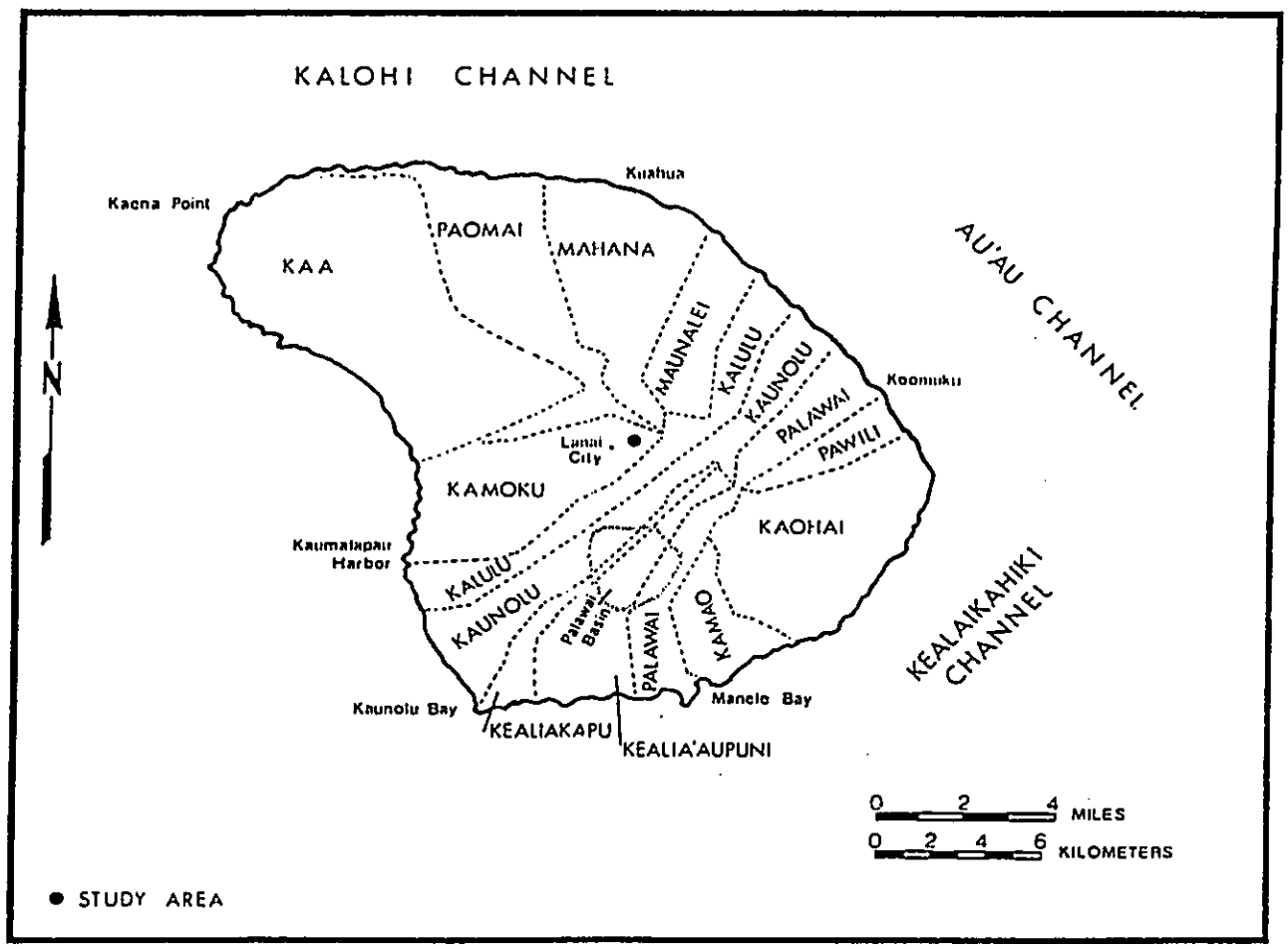

Fig.2. General Location Map Lana'i Island.

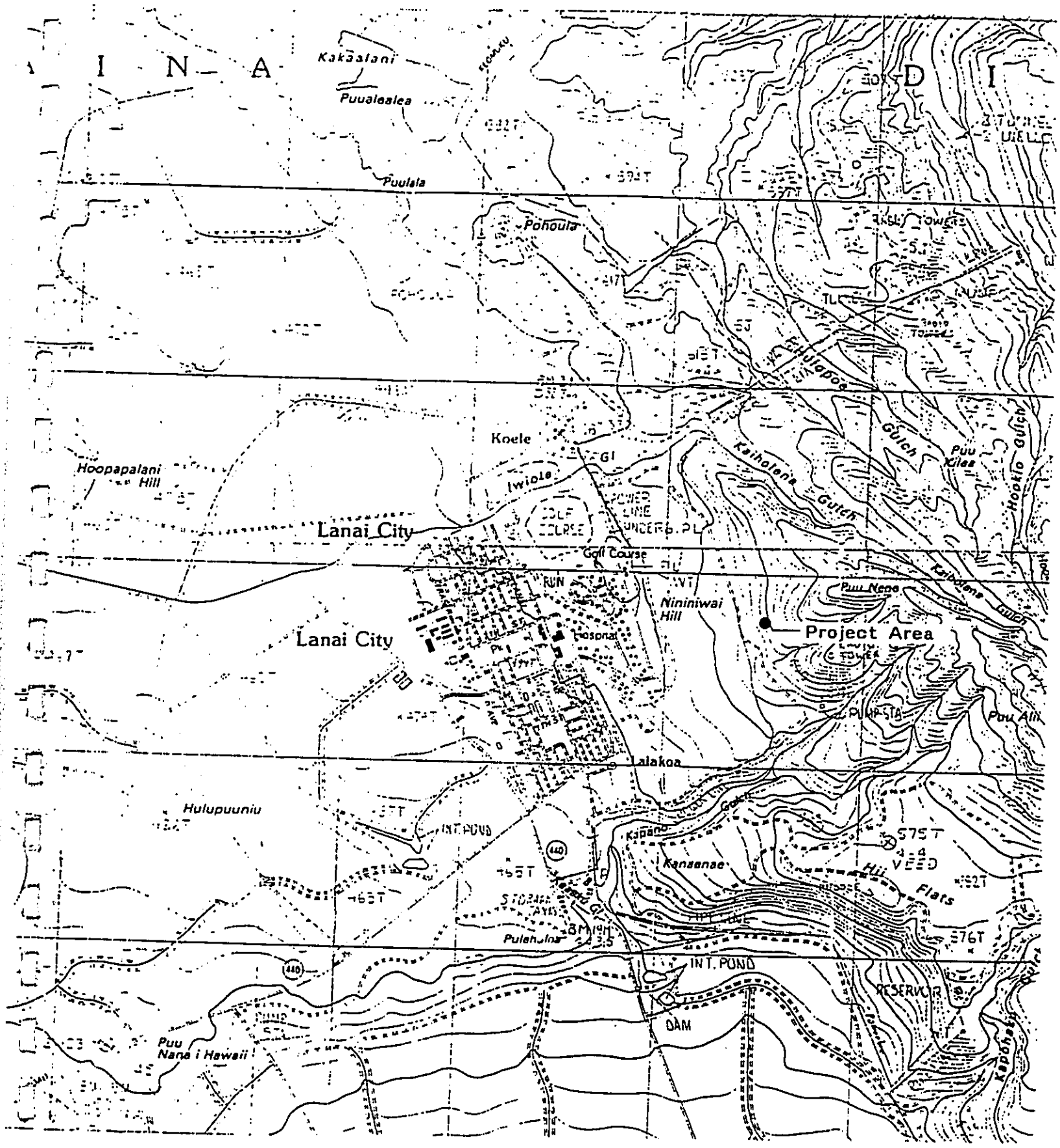

Fig. 3 U.S.G.S. Map of Lāna'i (1" =25,000) Showing Project Area

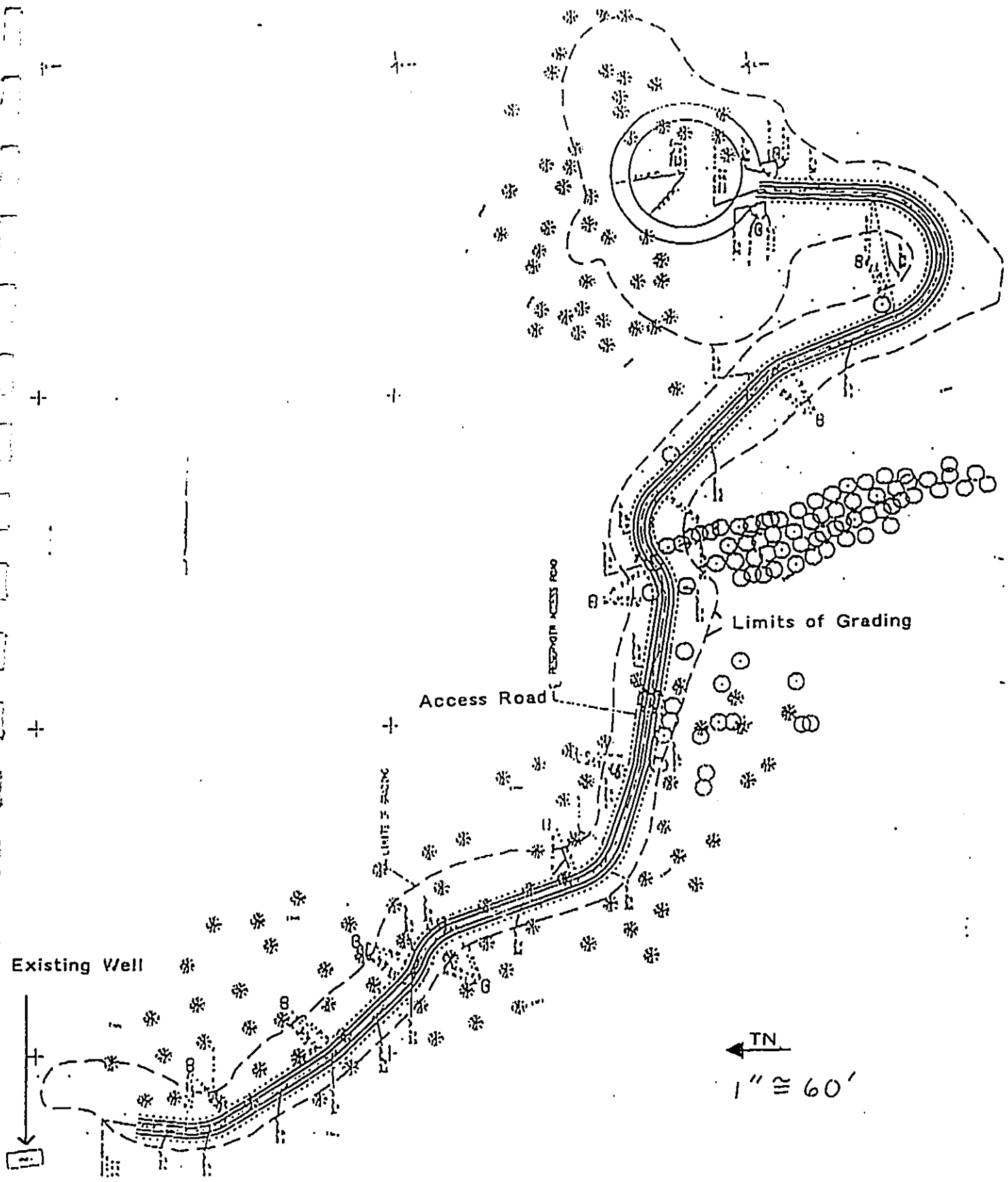

Fig. 4 Reservoir and Access Road, Plan View

al., 1973:71). The vegetation is dominated by introduced trees such as Eucalyptus with a few Koa trees in the general vicinity. Rainfall averages 35 inches per year. In general, the project area is characterized by a steep soil slope with tall trees and sparse understory shrubbery which allowed for good survey visibility.

Previous Archaeological Research

In 1990 Cultural Surveys Hawai'i conducted an archaeological survey (Hammatt and Borthwick, 1990) of an approximately 100-acre parcel that covered a portion of the present project area. There were no archaeological sites observed during that survey within the project area, however two probable agricultural terraces were noted. These terraces were located on the same steep soil slope, but located well north of the present project.

The presence of these terraces does indicate probable traditional Hawaiian utilization of the slope area, though no evidence for this utilization was observed during the present survey.

Kenneth P. Emory's Lāna'i Island Survey (Emory, 1969) conducted in the early 1920s did not locate any archaeological sites within or near the present study area. However, Emory's report suggests the possibility of unmarked burials present within slope areas east of Lāna'i City. He stated "unmarked, flexed burials are frequently exposed in eroding banks on the plateau lands. The sides of Pohoula Hill, near the summit, were used as a burial ground" (Emory, 1969:73). Though the reference is vague Pohoula Hill is located on the same western facing

slope as the project area but is over a mile to the north.

Emory's report gives an overview of Lāna'i Island's cultural background with little specific reference to the project location. Recent archaeological reports have detailed the cultural background of the *ahupua'a* of Kamoku in which the project area is situated. These reports include: *Archaeological Investigations of the Ranching Era at Kō'ele, Lāna'i* (Hammatt et al., 1988), *Archaeological Investigation at Lalakoa, Kamoku, Lāna'i: Lālākoa III Subdivision*.(Hammatt and Borthwick, 1988), and *Archaeological Reconnaissance Survey of the Proposed Kō'ele Single Family Housing, Queens Multi-Family, and Wailua Annex Subdivision, Lāna'i Island, Hawai'i* (Hammatt and Borthwick, 1989). The reader is referred to these reports for a detailed overview of the cultural and historical background relevant to the project area.

In brief, the background literature indicates no known traditional Hawaiian sites within the project area. The closest Land Commission Award (LCA) was located on the flats *makai* (west) of the project area and it was awarded to Noa Pali (LCA 10,630; Fig. 5). Noa Pali was *konohiki* of Kamoku *Ahupua'a* during the Mahele period (i.e., mid 1800s). The bulk of Pali's large *kuleana* (ca. 112 acres) was grassland, but he did have "areas for cultivation of sweet potatoes and gourds" as well as a house site.

By the late 1880s unrestricted sheep and goat ranching had caused widespread defoliation and subsequent severe erosional problems. This probably

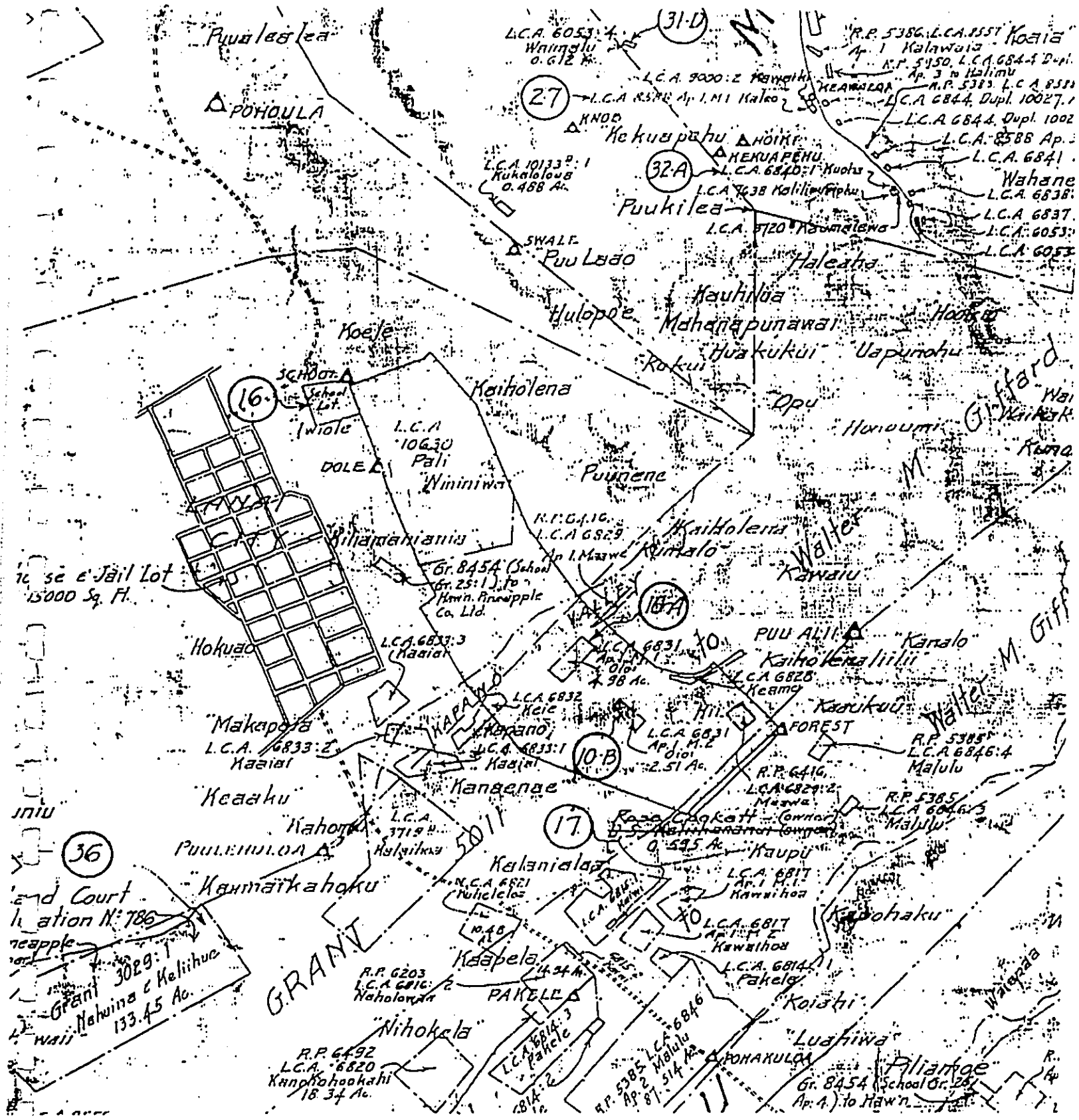

Fig. 5 Portion of the 1929 Hawaiian Territorial map, Island of Lānaʻi

would have left the project area bare of vegetation. Reforestation began in the early 1900s along with conversion to cattle ranching and elimination of the feral goat and sheep population. In the project area this is manifested as rows of large Eucalyptus trees.

In the 1920s pineapple cultivation began along with the construction of Lāna'i City. The pineapple industry dominated Lāna'i's economy till the present, however commercial cultivation was never practiced within the project area due to the steepness of the slope.

Presently, tourism is the main economic focus on Lāna'i. Downslope of the project area, in the area formerly occupied by Pali's LCA and pineapple fields, is a portion of the newly completed Kō'ele Golf Course. Immediately adjacent (west) to the study area upscale housing is being proposed.

Historically the project area has been unutilized mainly because of the steep slope. Based on review of the archaeological reports and traditional literature it also appears as if there was no major traditional usage either.

Summary and Recommendations

No archaeological surface sites of any kind were observed during the survey. The literature research also indicated the probable absence of any subsurface cultural deposits.

The surface survey started at the existing well site and progressed upslope on the western and southern sides of the centerline of the 100-foot wide access

road corridor. The corridor was well marked (survey stakes) with centerline and outer boundary flags. The reservoir site was also well marked with center and perimeter flags. The return to the starting point was done on the northern and eastern side of the access road's centerline, thus completing the survey.

The literature research included review of readily available sources; no known archaeological sites exist within the project area. The literature review also indicates that, other than reforestation activities, no major historic land utilization has taken place within the project area.

Based on review of Land Commission Awards (LCAs) for Kamoku and other *ahupua'a* on Lāna'i, the project area was not used for intensive cultivation or habitation. This was probably due to the steepness of slope and associated erosional problems. It is suggested that a pattern of using the flats at the base of the slopes and along major drainages, for cultivation and habitation, were practiced during the pre-contact period (i.e., pre A.D. 1776) as it was during the mid 1800s.

No further archaeological work, except on-site monitoring during initial construction activity, is deemed necessary. This is due to the absence of surface sites as well as the presumed absence of sub-surface cultural deposits. The monitoring is recommended as a method to clearly define slope stratigraphy and inspect for possible subsurface deposits. The subsurface deposit could include burn layers, cultural deposits of midden and artifacts, buried structural features and possibly burials. Though the presence of any subsurface archaeological

deposits appears unlikely, having a qualified archaeologist conduct on-site inspections during the initial construction phase could provide a degree of professional assistance in the unlikely event cultural material is unearthed. The archaeologist should be given at least 2 weeks notice of the start of grading for this project.

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Fig. 6 Project Area, Access road, View to Northwest

Fig. 7 Project Area, Access Road, View to Southeast

Fig. 8 Project Area, Reservoir Site, View to Southeast

Fig. 9 Project Area, Reservoir Site, View to North

APPENDIX F

ADDENDUM ARCHAEOLOGICAL LETTER REPORT FOR REVISED RESERVOIR SITE AND ROAD ALIGNMENT

CULTURAL SURVEYS HAWAII
Archaeological Studies

Hallett H. Hammatt, Ph.D.
733 N. Kalaheo Avenue, Kailua, Hawaii 96734
Bus: (808) 262-9972/ Fax: 262-4950

October 6, 1992

Mr. Ed Kuniyoshi
Belt Collins and Associates
680 Ala Moana Blvd #200
Honolulu, Hawaii 96813

Subject: Addendum to *Archaeological Survey for the Proposed Kōele Reservoir and Access Road Kamoku, Lāna'i, Hawai'i* by Borthwick and Hammatt, January, 1992

Dear Ed:

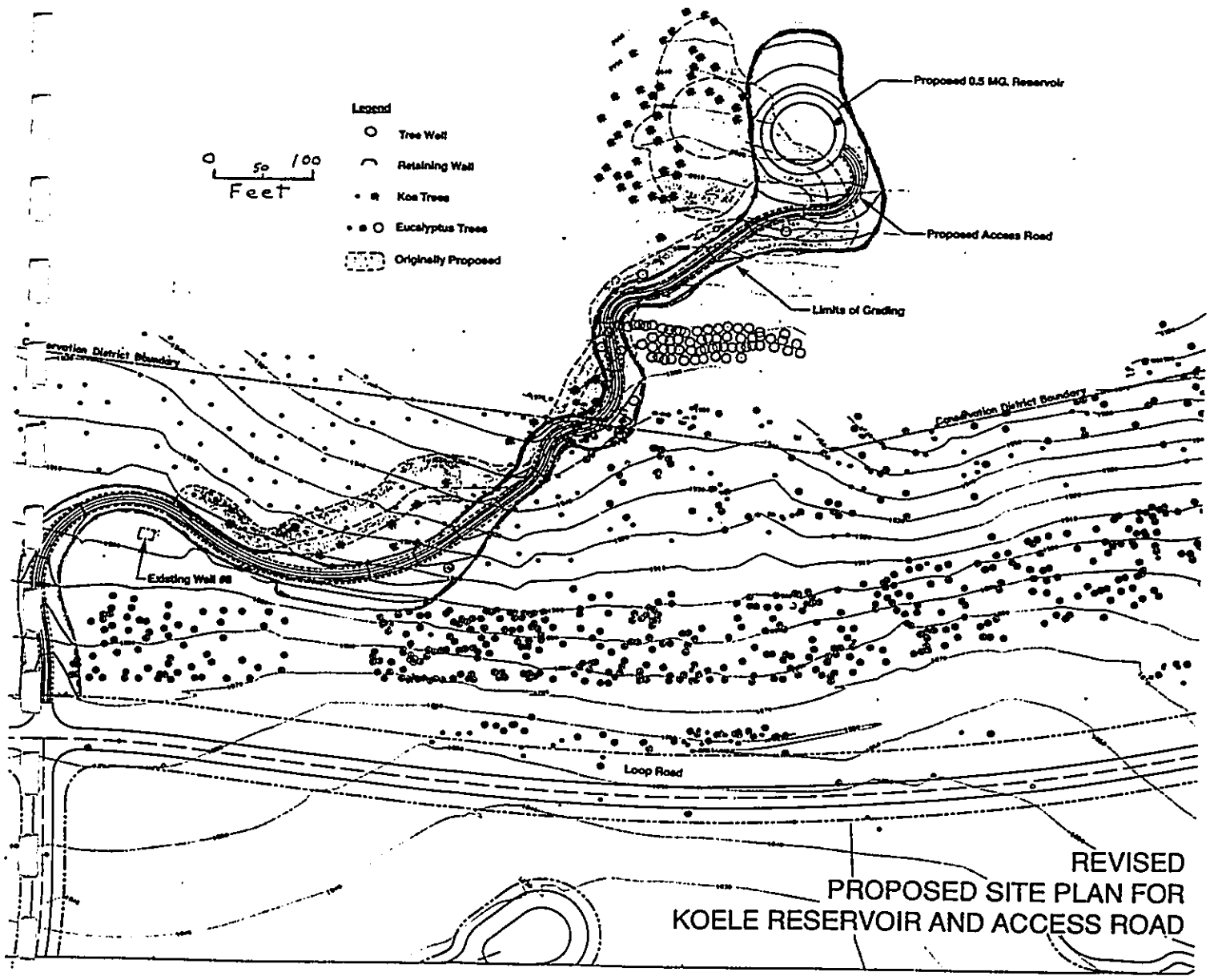
I have reviewed the map you have sent to us showing the slightly revised project area for the reservoir and access road. Since our survey field coverage was 100 feet or more on either side of the original staked alignment we feel confident that we have covered this new alignment in our original survey. The visibility of the ground surface was excellent during our fieldwork and if archaeological sites were present in this area we would have observed them. For these reasons I am of the opinion that there will be no archaeological impact caused by the construction of the reservoir and access road in its slightly adjusted location. This location is shown in the enclosed map. Thank you.

Sincerely,

Hallett H. Hammatt

Hallett H. Hammatt, Ph.D.

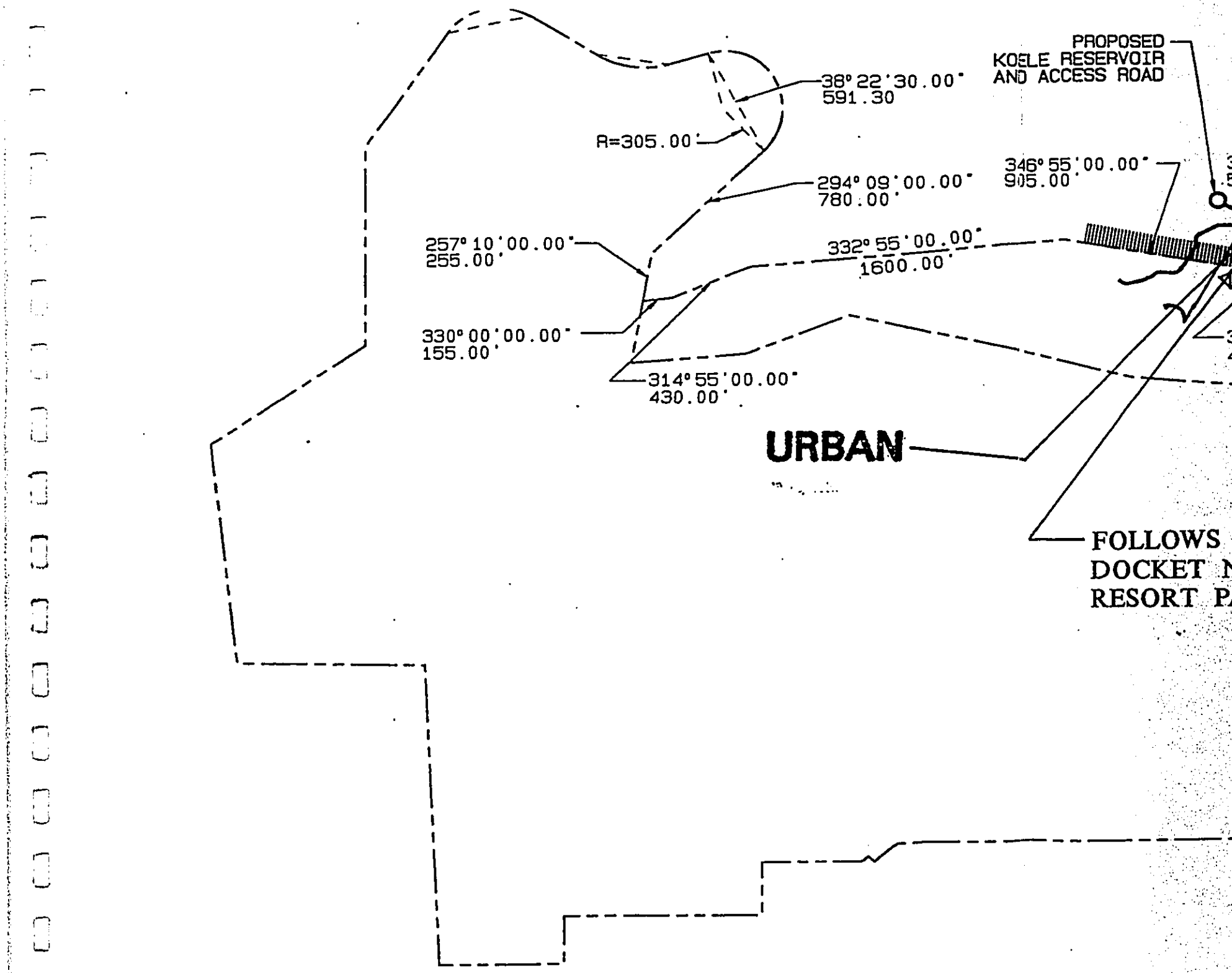
Enclosure



REVISED
PROPOSED SITE PLAN FOR
KOELE RESERVOIR AND ACCESS ROAD

APPENDIX G

BOUNDARY INTERPRETATION OF THE STATE CONSERVATION DISTRICT LINE

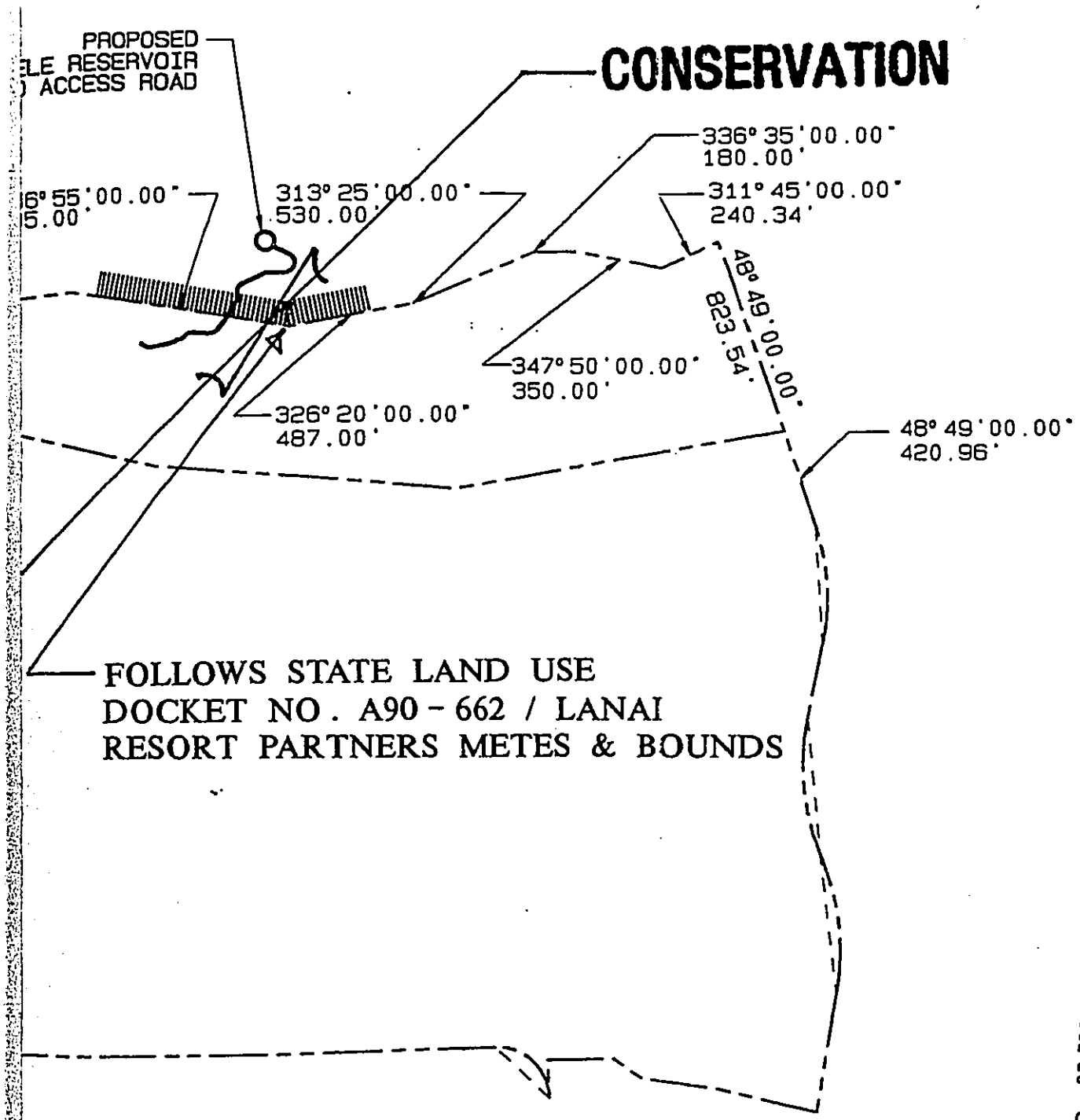


PROPOSED KOELE RESERVOIR AND ACCESS ROAD AT KOELE PROJECT DISTRICT

Project: Koele Reservoir
For: Lanai Company
By: Belt Collins & Associates
Date: July 8, 1992

NORTH

0 300 600 1200
SCALE IN FEET

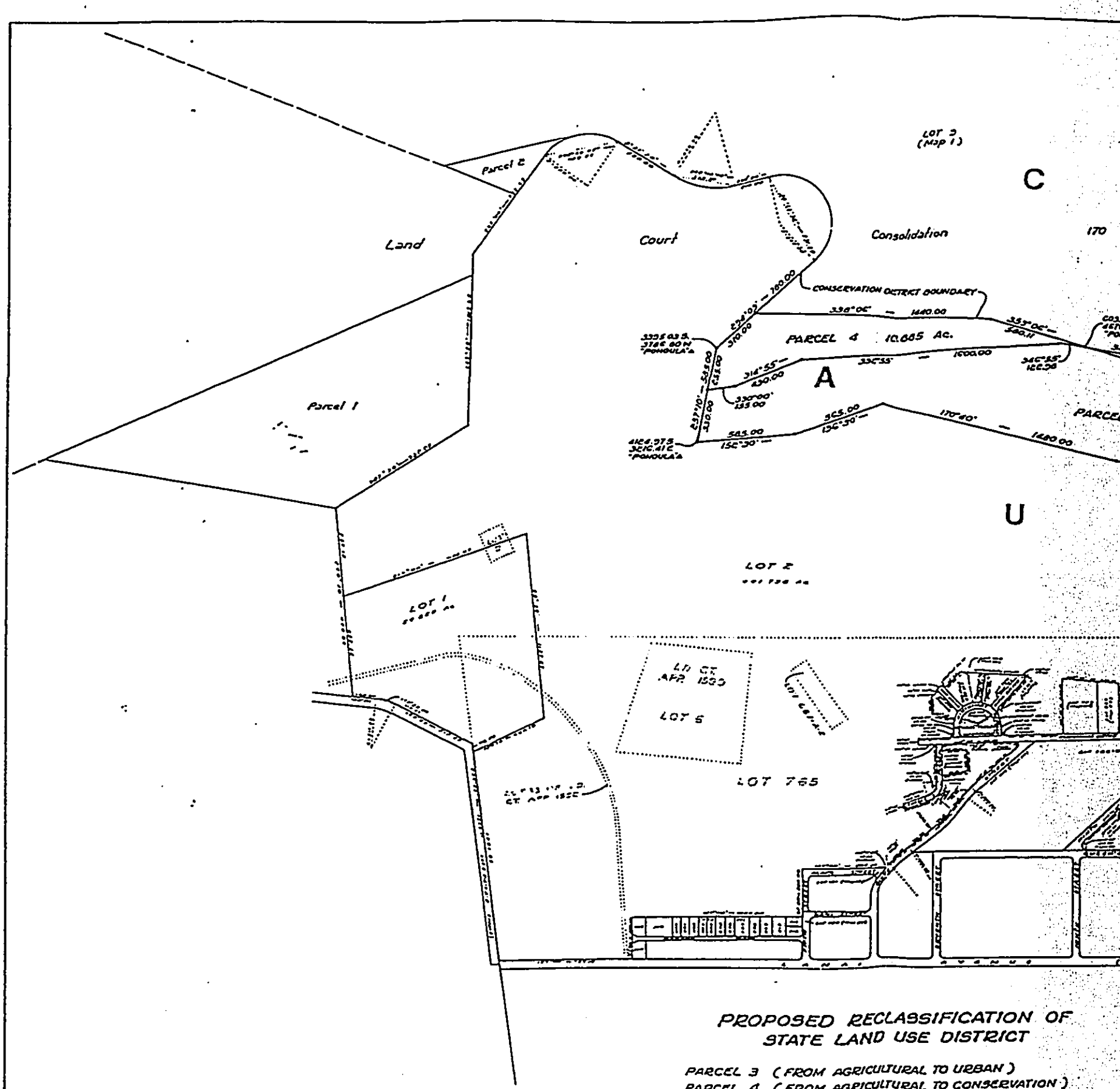


The boundary as located, named and delineated is hereby certified as the actual Land Use District Boundary adopted by the State Land Use Commission, Honolulu, Hawaii.

JUL 30 1992 by _____
Date Executive Officer

LAND USE COMMISSION
STATE OF HAWAII
Jul 28 3 15 PM '92

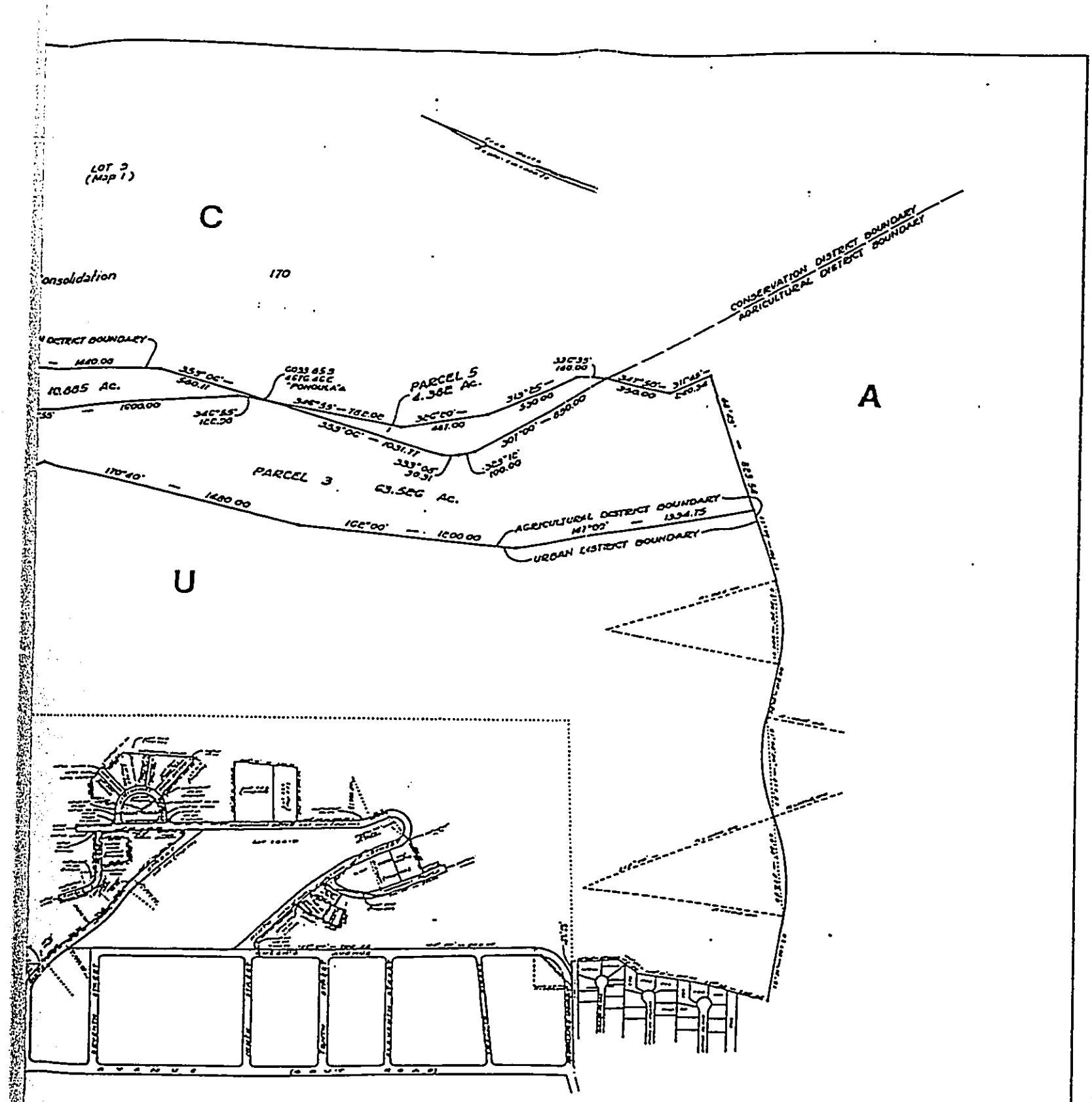
Boundary Interpretation No. 92 34



PROPOSED RECLASSIFICATION OF STATE LAND USE DISTRICT

PARCEL 3 (FROM AGRICULTURAL TO URBAN)
PARCEL 4 (FROM AGRICULTURAL TO CONSERVATION)
PARCEL 5 (FROM CONSERVATION TO URBAN)

SITUATED AT LANAI CITY, ISLAND OF LANAI, HAWAII
TAX MAP KEY: 4-9-2. PORTION 1



CLASSIFICATION OF
D USE DISTRICT

ULTURAL TO URBAN)
ULTURAL TO CONSERVATION)
RVATION TO URBAN)

ISLAND OF LANAI, HAWAII
4-9-2 · PORTION 1

1001 Bishop Street
Honolulu, Hawaii
November 15, 1990

LAURANCE U MASUDA
REGISTERED PROFESSIONAL LAND SURVEYOR
No. 4128
HAWAII, U.S.A.

M4E PACIFIC, INC.

Laurance M. Masuda

Registered Land Surveyer
Certificate No. 4128
Registered Land Court Surveyer
Certificate No. 131