DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

November 6, 2001

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

FINAL ENVIRONMENTAL ASSESSMENT (FEA)
FINDING OF NO SIGNIFICANT IMPACT (FONSI)
PUAPUAA 2.0-MG CONCRETE RESERVOIR AND SUPPORTING FACILITIES
PUAPUAANUI, NORTH KONA DISTRICT, ISLAND OF HAWAII
TAX MAP KEY: 7-5-017:PORTION 001

The Department of Water Supply (DWS), County of Hawaii, has reviewed comments received during the 30-day public comment period, which began on September 8, 2001. The DWS has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact (FONSI). Please publish this notice in the November 23, 2001, OEQC Environmental Notice.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final Environmental Assessment for your use.

If there are any questions, you may contact Mr. Glenn Ahuna of our Water Resources and Planning Branch at (808) 961-8070, extension 260.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

GGA:jkh

Enc.

copy - Inaba Engineering, Inc .

FINAL ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

2001-11-23-HI-FEA-

PUAPUAA 2.0-MG CONCRETE RESERVOIR AND SUPPORTING FACILITIES

Puapuaanui, District of North Kona
Island of Hawaii
State of Hawaii

November 2001

Prepared For:

DEPARTMENT OF WATER SUPPLY
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Prepared By:
Inaba Engineering, Inc.
273 Waianuenue Avenue • Hilo, Hawaii 96720
Ph. 808.961.3727 • Fx. 808.935.8033

FINAL ENVIRONMENTAL ASSESSMENT

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

PUAPUAA 2.0-MG CONCRETE RESERVOIR AND SUPPORTING FACILITIES

Puapuaanui, District of North Kona
Island of Hawaii
State of Hawaii

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SUMMARY SHEET

Project:	PUAPUAA 2.0 MG CONCRETE RESERVOIR AND SUPPORTING FACILITIES
Applicant:	Department of Water Supply County of Hawaii 345 Kekuanaoa St., Suite 20 Hilo, Hawaii 96720
Land Owner:	Water Board of the County of Hawaii County of Hawaii 345 Kekuanaoa St., Suite 20 Hilo, Hawaii 96720
Proposing Agency:	Department of Water Supply County of Hawaii
Project Location:	Puapuaanui, North Kona District County of Hawaii, Island of Hawaii
Tax Map Key:	3rd Div. 7-5-17: Portion 1
Land Area:	Tank Site Approximately 1.59 Acres. Water Line Alignment Approximately 700 L.F.
Existing Use:	Vacant, Cattle Grazing.
State Land Use Designation:	Agricultural
County General Plan:	Low Density
Existing Zoning:	Ag-5a (Agricultural 5 acres)
SMA:	Outside SMA area.
Contact Person:	Mr. Glenn Ahuna, P.E. Department of Water Supply County of Hawaii 345 Kekuanaoa St., Suite 20 Hilo, Hawaii 96720 Phone: 808.961.8070 x260 Fax:808.961.8080

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PART 1

DESCRIPTION OF PROPOSED ACTION

A. Project Location

The proposed activity is located in the lands of Puapuaanui, North Kona District, Island of Hawaii (See Figure 1, 2). The proposed 2.0 million gallon concrete reservoir will be located on a portion of TMK: 7-5-17: 01 which is being subdivided out from the main parcel and will be deeded to the Department of Water Supply. The main parcel is bounded by Queen Kaahumanu Highway to the east and Kuakini Highway to the west. The tank site of approximately 1.6 acres will be at the south corner of the lot which abuts the old Kailua-Keauhou Middle Road. The influent and effluent waterlines will run from the tank site to Kuakini Highway along the old Kailua-Keauhou Middle Road for about 700 lineal feet. These waterlines will connect to existing waterlines within the Kuakini Highway right of way.

B. Project Description, Purpose and Objectives of Project

The County of Hawaii Department of Water Supply (DWS) plans to construct a new 2.0 million gallon concrete water tank and related site improvements and approximately 700 lineal feet of 12" influent and 12" effluent waterlines to service the new reservoir. Tank site improvements will consist of grading, a concrete post tensioned water tank, paved access road, drainage facilities, site piping, fencing and planting. Provisions such as effluent stub outs from the tank will also be installed to accommodate future pumping facilities that will allow distribution of water to services zones at elevations above 325'. The concrete tank will have a diameter of approximately 138 feet and be about 22' tall.

This site was originally slated for a temporary 100,000 gallon water tank to be developed by the Pualani Estates Subdivision with provisions for a 1.0 million gallon water tank to be built at a later date. This 100,000 gallon tank was not constructed due to economic downturn.

The purpose of this project is to provide additional storage capacity for the North Kona water system from the lands of Puapuaa and north to Kailua in the service zone below elevation 225'. This zone represents a large portion of the urban core of the Kailua

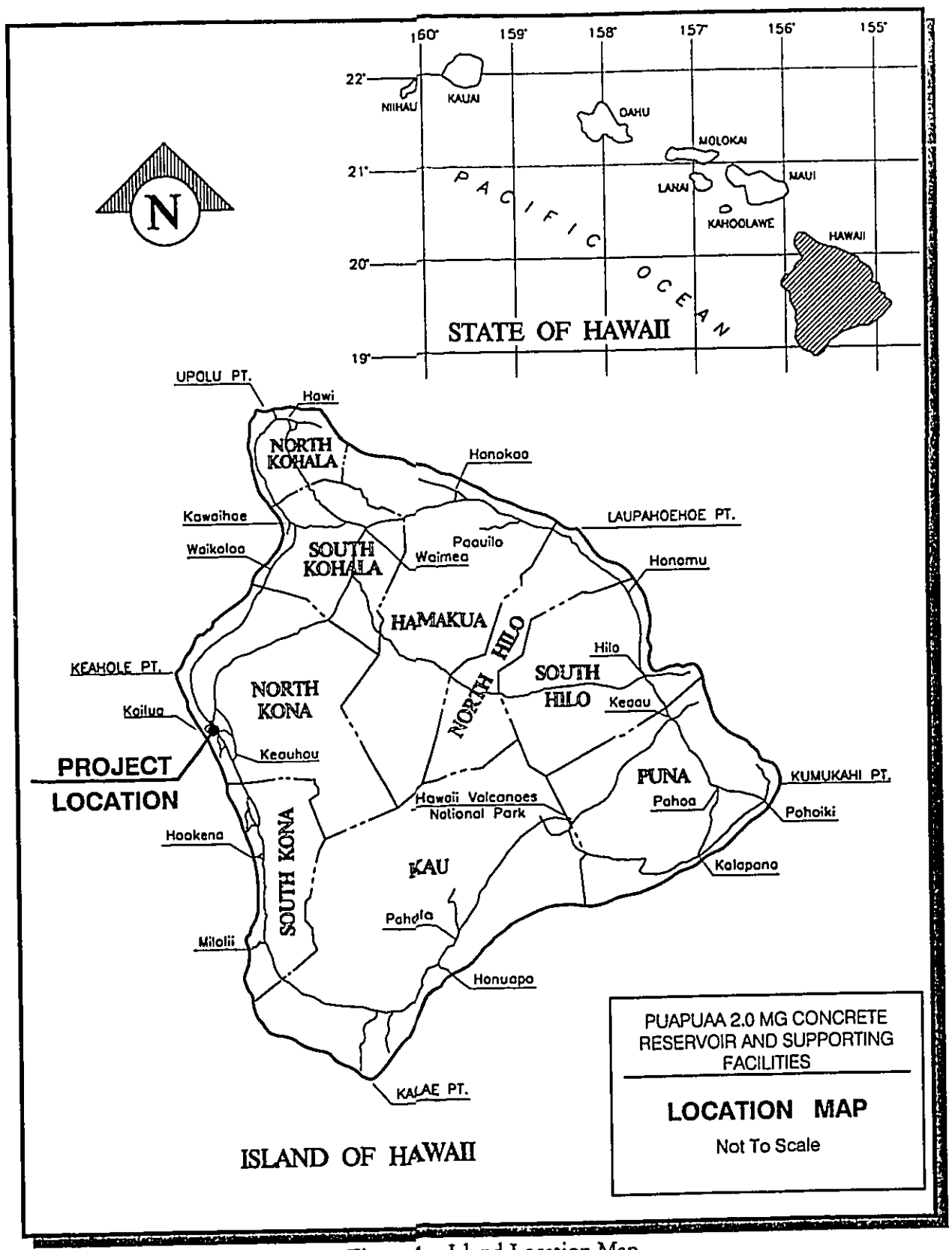


Figure 1 - Island Location Map

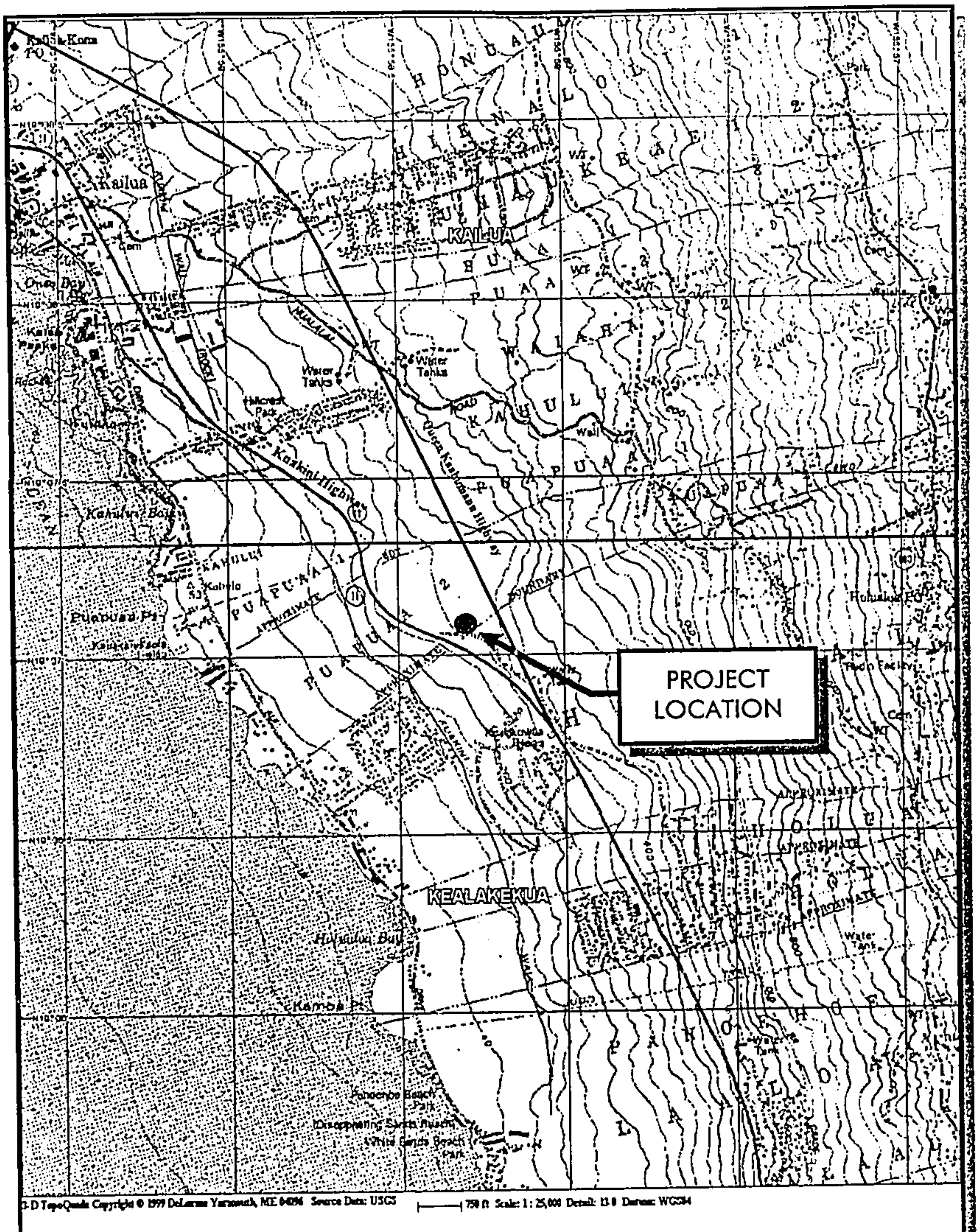


Figure 2 - USGS Vicinity Map

Kona area including beach resorts, commercial and light industrial areas, condominiums and residential areas. Basic criteria for reservoir capacity of the water system standards recommends that reservoirs meet maximum daily consumption and be full at the beginning of the 24 hour period with no source input, or meet maximum day rate plus fire flow for the duration of fire. Based on analysis and review of the existing system by the DWS, it was determined that the existing storage capacity for the service zone below elevation 325 is in deficit by about four million gallons. Recent increases in population growth and development has fueled demand for additional water hookups. Current storage is not adequate and not able to sustain this additional development and thus would hinder normal economic growth.

The objectives of this project are to address the storage deficit for this system.. Benefits gained will be the ability of the DWS to increase storage capacity to meet demands for the system service area which includes storage for daily demands and fire flow requirements.

C. Ownership

The 2.0 million gallon concrete reservoir, waterline and appurtenances will be owned by the Department of Water Supply, County of Hawaii. The approximately 1.6 acre tank site has been acquired by the Department of Water Supply. The waterline will be installed in the road rights of ways which are owned by the County of Hawaii and the State of Hawaii.

D. Project Schedule and Cost

The proposed project schedule which is subject to change is as follows:

Proposed Project Schedule:	
Public Process:	August 2001 - November 2001
Field Survey:	March- April 2001
Engineering Design and Review:	August 2001 - December 2001
Bid Process	January 2002
Award & Execution of Contract:	February 2002 - March 2002
Construction:	April 2002 - August 2002

The estimated preliminary construction cost of the project is approximately three million

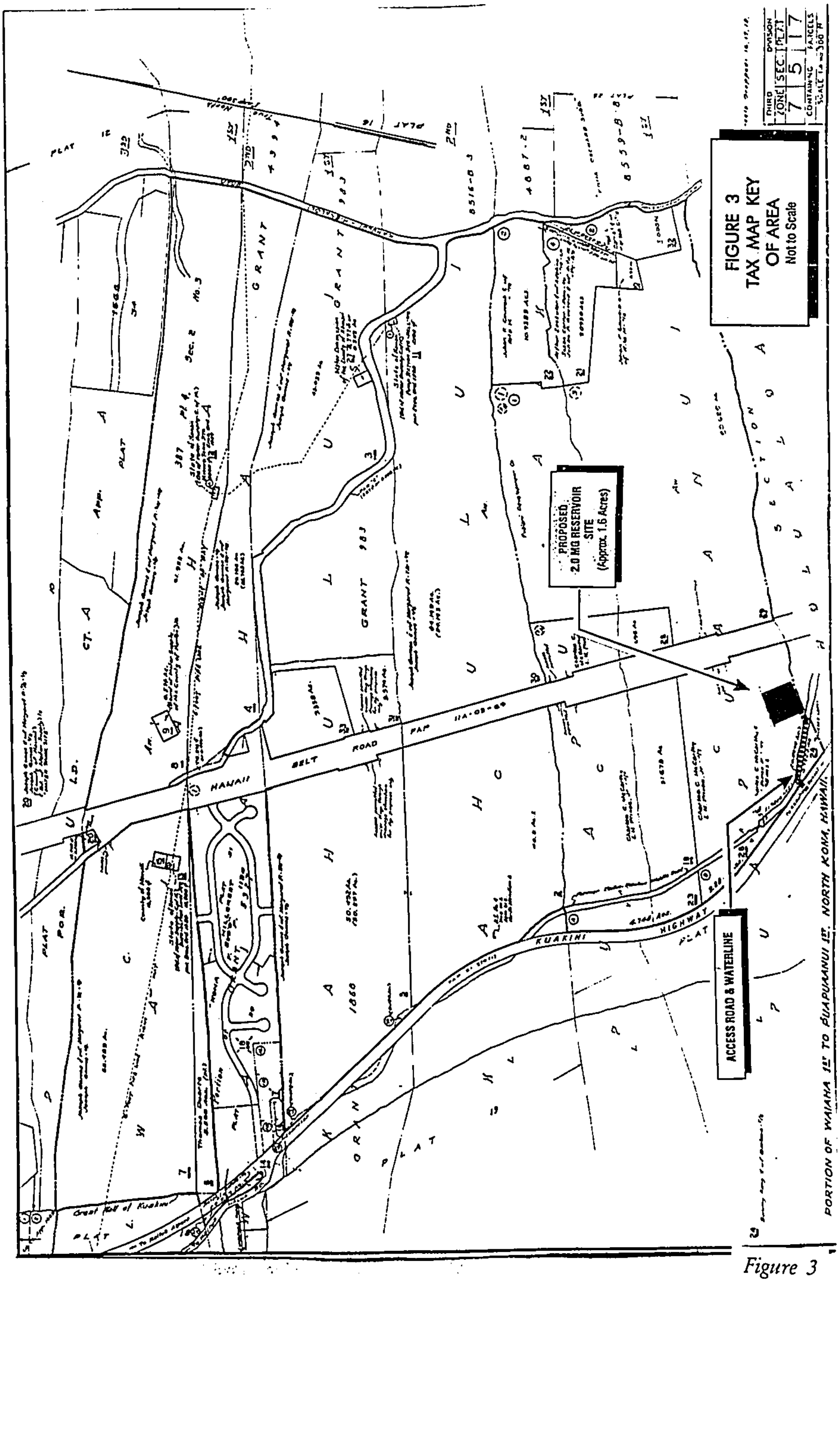


FIGURE 3
TAX MAP KEY
OF AREA
Not to Scale
PROPOSED
2.0 MG RESERVOIR
SITE
(Approx. 1.6 Acres)
ACCESS ROAD & WATERLINE
HAWAII BELT ROAD
KUAKINI HIGHWAY
GRANT
PLAT

Figure 3

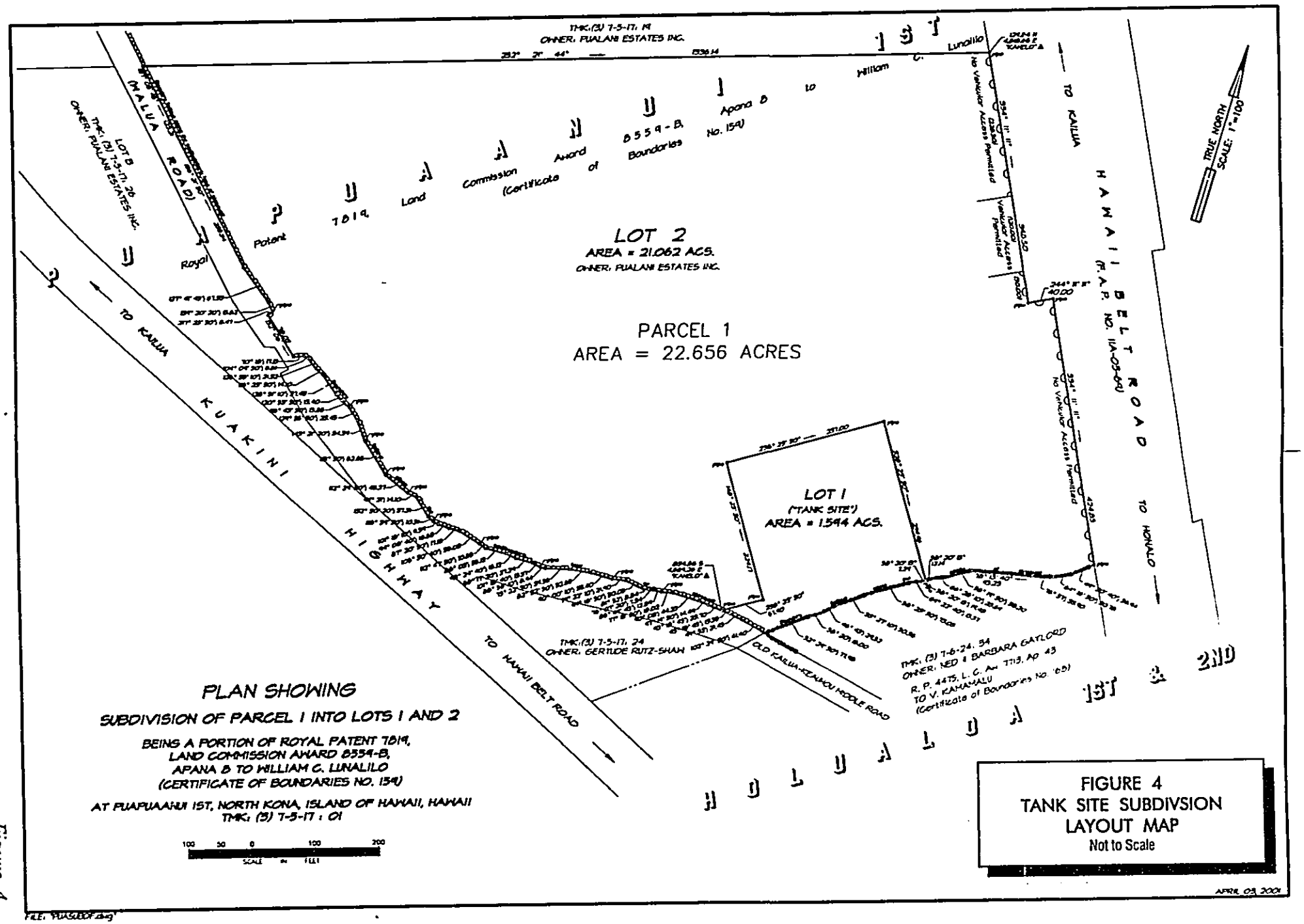
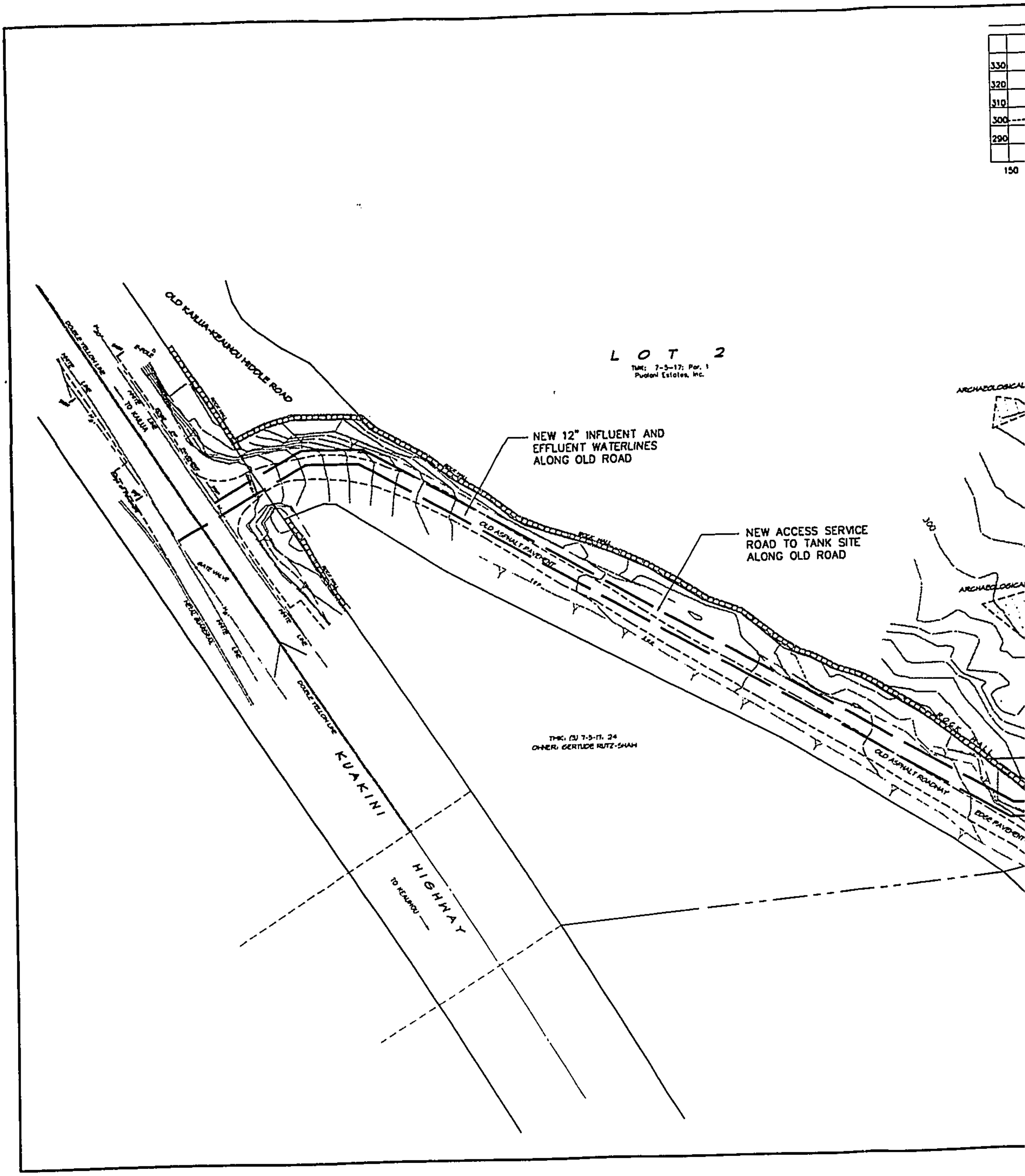
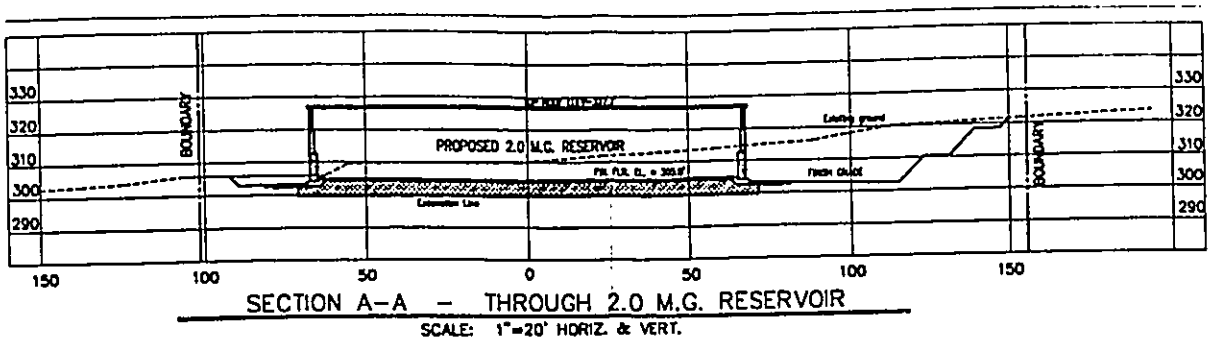

TMK:(3) 7-5-17: 19
OWNER: PUALANI ESTATES INC.
253° 21' 44" 1536.14
William C. Lunalilo
Apana 8 to William C. Lunalilo No. 159
Land Commission Award 8559-B, (Certificate of Boundaries
Royal Patent 7819,
LOT 2
AREA = 21.062 ACS.
OWNER: PUALANI ESTATES INC.
PARCEL 1
AREA = 22.656 ACRES
LOT 1
(TANK SITE)
AREA = 1.594 ACS.
MALUA ROAD
TO KAILUA
KUAKINI HIGHWAY
TO HAWAII BELT ROAD
HAWAII BELT ROAD (F.A.P. NO. 11A-05-(4))
TO KAILUA
TO HONALO
No Vehicular Access Permitted
TRUE NORTH
SCALE: 1"=100'
TMK:(3) 7-5-17: 24
OWNER: GERTUDE RUTZ-SHAH
OLD KAILUA-KEAHOU MOOLE ROAD
TMK: (3) 7-6-24: 34
OWNER: NED & BARBARA GAYLORD
R. P. 4475, L. C. Aw. 7713, Ap. 43
TO V. KAMAHALU
(Certificate of Boundaries No. 65)
PLAN SHOWING
SUBDIVISION OF PARCEL 1 INTO LOTS 1 AND 2
BEING A PORTION OF ROYAL PATENT 7819,
LAND COMMISSION AWARD 8559-B,
APANA 8 TO WILLIAM C. LUNALILO
(CERTIFICATE OF BOUNDARIES NO. 159)
AT PUAPUAAHU 1ST, NORTH KONA, ISLAND OF HAWAII, HAWAII
TMK: (3) 7-5-17 : 01
100 50 0 100 200
SCALE IN FEET
FIGURE 4
TANK SITE SUBDIVSION
LAYOUT MAP
Not to Scale
APRIL 03, 2001

Figure 4

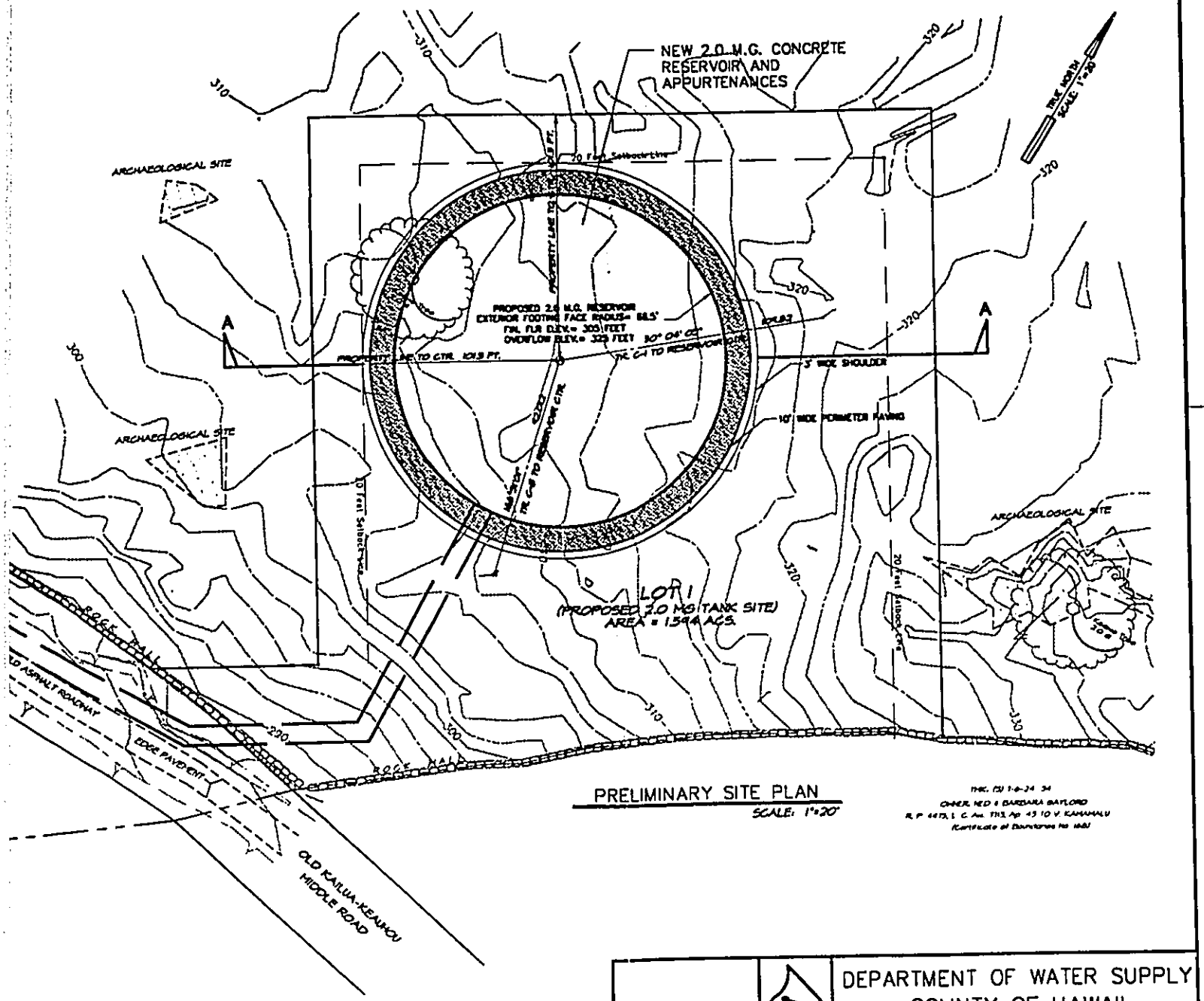


330
320
310
300
290
150
LOT 2
TMK: 7-5-17: Por. 1
Puolani Estates, Inc.
OLD KAILUA-KEAUHOU MIDDLE ROAD
NEW 12" INFLUENT AND
EFFLUENT WATERLINES
ALONG OLD ROAD
NEW ACCESS SERVICE
ROAD TO TANK SITE
ALONG OLD ROAD
ROCK WALL
OLD ASPHALT PAVEMENT
OLD ASPHALT ROADWAY
EDGE PAVEMENT
ARCHAEOLOGICAL
300
DOUBLE YELLOW LINE
WHITE LINE
GATE VALVE
TO KAILUA
KUAKINI
HIGHWAY
TO KEAUHOU
OWNER: GERTUDE RUTZ-SHAH



SECTION A–A – THROUGH 2.0 M.G. RESERVOIR

SCALE: 1"=20' HORIZ. & VERT.



PRELIMINARY SITE PLAN

SCALE: 1"=20'

GRAPHIC SCALE

REDUCED PLAN

DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII

PROJECT: PUAPUAA 2.0 MG CONCRETE RESERVOIR AND SUPPORTING FACILITIES

SHEET NO.

GENERAL LAYOUT

OF SHEETS

JOB NO. 99-754

Figure 5

($ 3,000,000.00). Funding for this project will come from the Department of Water Supply Capital Improvement Project (CIP) monies.

E. Consultation with Agencies, Organizations and Individuals

The following have been contacted during the preparation of this environmental assessment.

County Department of Water Supply
County Department of Public Works
County Planning Department
State Department of Land & Natural Resources Historic Preservation Division

This draft environmental assessment was prepared using information gathered from previously published documents (See Reference Listing) and formal and informal contacts with the agencies listed above.

PART 2

ENVIRONMENTAL SETTING

Physical Environment Characteristics

A. Soils

Soils in the area are classified as *rPYD & rKED* per the "Soil Survey of Island of Hawaii, State of Hawaii," by the Soil Conservation Service.

Symbol *rPYD* represents "Punaluu extremely rocky peat, 6 to 20 percent slopes" soil series, with erosion factor K=0.02, and falls in hydrologic group "D." The Punaluu series consists of well-drained thin organic soils over pahoehoe lava bedrock. These soils are gently sloping to moderately steep. They are generally at an elevation ranging from near sea level to 1,000 feet and may receive 20 to 50" of rainfall annually. These areas are characterized by rock outcrops occupying 40 to 50 percent of the surface of this soil. This soil is low on the leeward side of Mauna Loa. The peat is rapidly permeable whereas the pahoehoe is very slowly permeable. Runoff is slow and the erosion hazard is slight. These soils are generally used for pasture. The natural

vegetation might consist of koa haole, Christmas berry, guinea grass, natal redtop, and sand bur.

Symbol *rKED* represents "Kaimu extremely stony peat, 6 to 20 percent slopes" soil series, with erosion factor K=0.02, and falls in hydrologic group "A.". The Kaimu series consists of well-drained thin organic soils over Aa lava. These soils are gently sloping to moderately steep. They are generally at an elevation ranging from near sea level to 1,000 feet and receive 40 to 60" of rainfall annually. Permeability is rapid, runoff is slow, and the erosion hazard is slight. This soil is not suited for cultivation. Small areas are used for pasture. The natural vegetation might consist of Christmas berry, guava, guinea grass and lantana.

B. General Climate

Average annual rainfall ranges from 20 to 50 inches and with temperatures ranging in the 60's to the 80's Fahrenheit. Winds are light and variable generally from the south west. The ground elevation at the tank site is about 325 feet above sea level.

C. Flood Hazards

Federal Insurance Rate Maps (FIRM), indicates the project area to be in "Other Areas Zone X." These are areas determined to be outside 500-year flood plain. Installation of the proposed improvements does not present a flood hazard to surrounding areas, nor will it be susceptible to flooding damage from the surrounding area.

D. Volcanic and Seismic Hazard

Puapuaanui is located on the lower southern slopes of Hualalai Mountain which is one of five major volcanoes forming the island of Hawaii. The slopes of Hualalai are located in Volcanic Hazard Zone 4. The island of Hawaii is divided into zones according to the degree of hazard from lava flows. Zone 1 is the area of greatest hazard and Zone 9 is of the least hazard.

Per the Uniform Building Code, the entire Island of Hawaii has been classified to be in Seismic Zone 4. Design of buildings and structures must comply with seismic Zone 4 criteria. The design of the concrete reservoir will comply with seismic zone 4

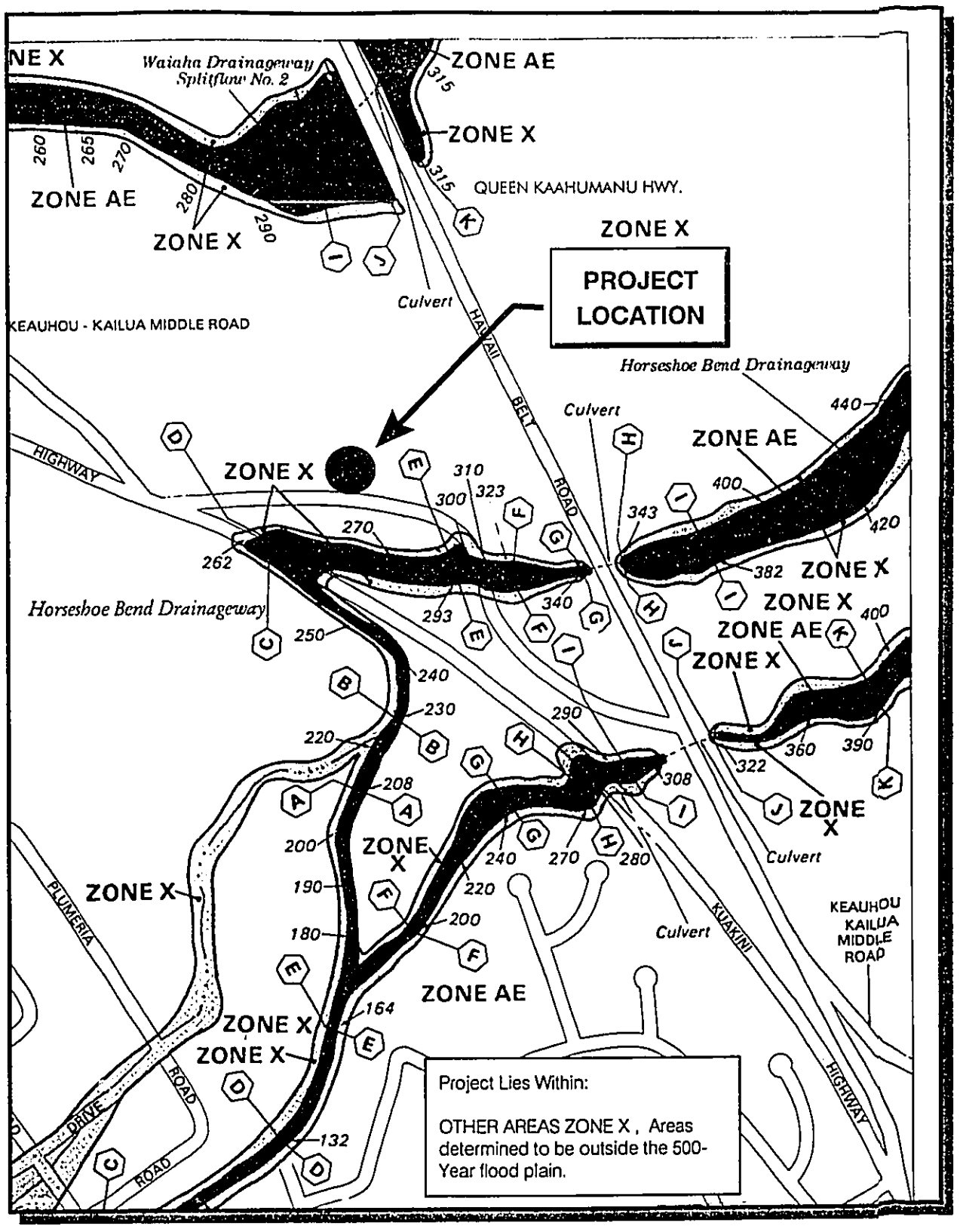


Figure 6 - Portion of Flood Rate Insurance Map, (FIRM)

requirements.

E. Flora and Fauna

The alignment of the waterline will be mostly under and along existing roadway pavement and connecting to existing waterlines and therefore should have no effect to flora or fauna along the new pipeline. A small section of line will be under undeveloped lands will affect vegetation as described for the tank site below. None of these types of growth are considered threatened or endangered.

The proposed tank site and adjoining area vegetation generally consist of kiawe, opiuma, Monkey Pod, kukui, koa haole, lantana, bitter yam, lauae, air plant, panini and grasses. None of these types of growth are considered threatened or endangered.

No protected or endangered animal species are known to be in the 1.6 acre project site and none are expected to be affected during construction of the project and during its eventual operation.

F. Historic Sites

A number of archaeological studies were done on the subject parcel. All work was coordinated with the State Department of Land and Natural Resources Historic Preservation Division (SHPD). Attached in Appendix "B" are various letters from the SHPD indicating acknowledgment and approval of the studies and addressing of their concerns regarding the affected archaeological sites for this project.

Initial consultation for this project with SHPD on archaeological site mitigation for the tank site determined that additional data recovery for Site 14130 and Site 19387 was required. An archaeologist was then retained to perform the data recovery for review and approval from SHPD. Further consultation with SHPD led to determination that data recovery for Site 19387 within the tank site was unnecessary. Data recovery for the remaining Site14130 was completed and approved. The report titled *Archaeological Data Recovery Site 14130, Land of Puapuaa 2nd North Kona District, Island of Hawaii, (TMK:3-7-5-17Por.1)*, June 2001, Alan E. Haun, Dave Henry, Haun & Associates, is attached in Appendix "B".

The related archaeological studies/reports for this land parcel which were used as reference are as follows:

Archaeological Inventory Survey, Pualani Development - Phase II, Lands of Puapuaa 1st and 2nd, North Kona District, Island of Hawaii, June 1990, Paul H. Rosendahl, Arne K. Carlson, PHRI, Inc.

Archaeological Inventory Survey, Pualani Estates Subdivision Water Transmission System, Land of Puapuaa 2nd North Kona District, Island of Hawaii, (TMK:3-7-5-17: Por.1), February 1996, James Head, Paul Rosendahl, PHRI, Inc.

Copies of these surveys are available for viewing at either the SHPD Honolulu or Hilo Office and the Department of Water Supply in Hilo.

G. Existing Land Use

The waterline will run along the old Kailua-Keauhou Middle Road and undeveloped land. This road is abandoned and not open to the public. It will also serve as the service access road to the tank site. The undeveloped land use is vacant and is in pasture for cattle grazing.

The tank site is currently vacant with use as pasture for cattle grazing. Previous use was most likely cattle grazing as well.

Lands to the north and east of the site are vacant and likely used for cattle grazing. Lands makai and across Kuakini Highway are currently being developed and construction has started. Lands to the east and mauka of Queen Kaahumanu Highway represent the planned Pualani Estates Subdivision which is a large residential development of over 100 acres and 385 lots. Grading and portions of infrastructure have been built but the subdivision has not been completed. Lands to the south are established residential subdivisions and commercial businesses. The adjacent lot to the south has been graded and leveled.

State Land Use District classification system designates the area as *Agricultural.* The County of Hawaii General Plan land use allocation designates the area as *Low Density.* Current County of Hawaii zoning is Ag-5a or Agricultural 5 acres.

H. Cultural Resources

In terms of cultural resources, this project is not expected to significantly affect traditional native Hawaiian cultural practices or other traditional cultural practices that might be occurring in the surrounding areas. An informal discussion with one of the

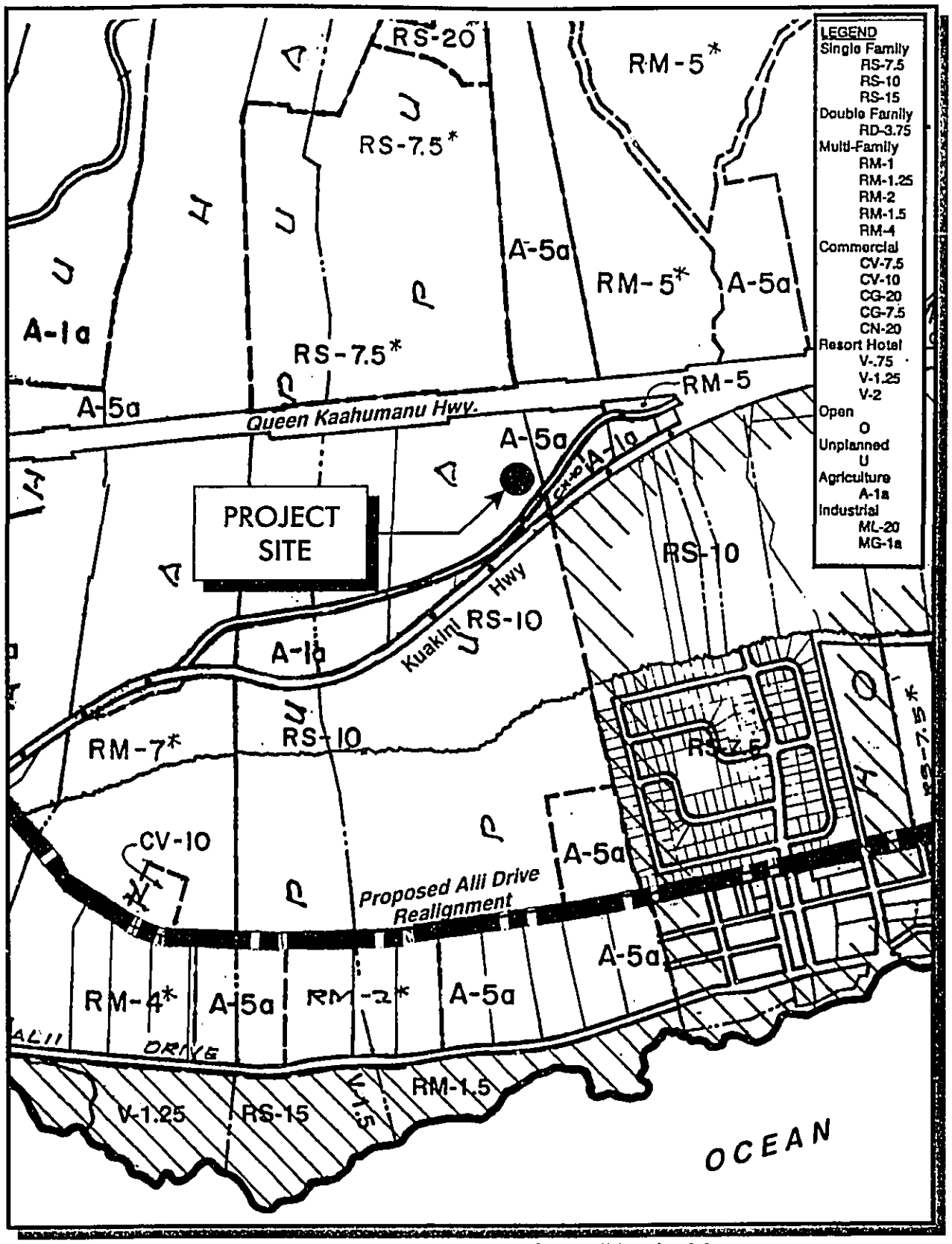


Figure 7 - Portion County of Hawaii Zoning Map

descendants of the previous owner of the property indicated that he was not aware of use of the property as a gathering or cultural area. While there are historical sites addressed in the archeological studies, there is no known traditional or cultural practices occurring on the 1.6 acre project site. The larger original lot is currently fenced with barbed wire and is still serving as grazing pasture for cattle. It has been used as pasture land for decades.

The project site will occupy approximately 1.6 acres out of 26 acres of the total lot size. The mauka and makai boundaries of the lot are bounded by Queen Kaahumanu Highway and Kuakini Highway respectively. As such, the project would not restrict access to surrounding areas which may be used for cultural practices. This project will also not restrict access to makai shoreline areas or mauka mountain areas which might be used for cultural practices.

I. Scenic Resources

The proposed 2.0 M.G. reservoir will be approximately 22 feet high and 137 feet in diameter. The reservoir site will have substantial excavation which will partially obscure the tank from mauka and northern view planes. (See Figure 5) The tank will be visible from a short segment of Kuakini Highway just south of the site and is generally not visible from the Queen Kaahumanu Highway immediately mauka and to the north. The tank will not likely be visible from the Kailua Village resort area since the site is on the southern slope of a ridge. The tank will generally be visible from makai and coastal areas of Puapuaa, south to Keauhou. Visibility of the tank from Alii Drive will vary depending on vegetation and buildings along the roadside. See Appendix D for photos of site and visibility from Keauhou exposures.

The general vicinity of the reservoir site is not listed in the County General Plan (GP) as characteristic of natural beauty and scenic vista. Although the GP goals and policies encourage preserving scenic vistas and areas of natural beauty, the County of Hawaii does not currently have established regulations or criteria in place to comply with.

The proposed project will result in a new 2.0 m.g. reservoir tank being visible from various points south of the site. To minimize visual impact, the tank will be designed to blend in to the topography as much as practicable. The use of tall, spreading tropical planting and painting the tank to match the surroundings will be considered in the design process. Only the necessary amount of clearing and grading around the tank site will be allowed so that the surrounding kiawe trees and vegetative growth might act as a visual screen.

PART 3

SUMMARY POTENTIAL IMPACTS AND MITIGATION MEASURES

A. Short Term Construction Impacts

Construction activity related to the proposed waterline, concrete water tank and appurtenances will create short term impacts on the surrounding environment such as noise, dust, and traffic impacts. These impacts would occur only during the construction phase of the project and is temporary in nature.

Heavy equipment noise may be mitigated by allowing work only during normal working hours. The contractor shall also be required to maintain his equipment with appropriate mufflers and noise suppressors in accordance with state regulations.

Ambient air quality will be affected by equipment emissions and construction generated dust. Dust can be managed by the Contractor using water sprinkling, limiting exposed areas, and covering the exposed trench areas with trench plates as soon as practicable. Equipment must be properly maintained to assure efficient operation in terms of fuel combustion to assure the cleanest possible exhaust emissions.

To minimize soil erosion, runoff, and sedimentation, the Contractor shall employ necessary measures to insure compliance with the County of Hawaii Grading Ordinance, and the applicable State Department of Health Pollution Control Standards. If construction dewatering is to be done, the contractor shall obtain necessary permits for the discharge of construction dewatering. The Contractor shall also be required to implement a Best Management Practices Plan as prescribed by the National Pollution Discharge Elimination System (NPDES) permit as administered by the State Department of Health, if required.

Traffic impacts will be mitigated by instituting a traffic control plan approved by the County of Hawaii Department of Public Works and the State Department of Transportation for work within their respective jurisdictions. Construction road work and material deliveries shall be scheduled to minimize the disruption to traffic.

B. LONG TERM IMPACTS

No long term major negative impacts are expected as a result of this project. This project will benefit the local community by increasing the dependability of the North Kona water system.

C. PERMITS AND APPROVALS

Construction plans will submitted to the following agencies for review and approval signatures:

Department of Water Supply
Department of Public Works
Planning Department
State Department of Health

The following is a list of permits that may be required:

State of Hawaii Dept. Of Health
NPDES General Permit Coverage:
Hydro Testing Water
Community Noise Permit for Construction.
County Grading Permit
County Building Permit

PART 4

ALTERNATIVES TO THE PROPOSED ACTION

A. No Action

The "No Action" alternative will not allow the objectives of the proposed project to be achieved. This alternative will result in no physical change to the water system and surrounding area and have no impacts. Storage capacity and fire flow protection will not be improved. The Department of Water Supply will not be able to provide dependable water service to the public.

There will be no benefits realized by the community.

B. Alternate Action

The proposed plan to build a single 2.0 MG concrete reservoir came about after previous plans and proposals either did not proceed for various reasons or were not deemed sufficient to handle current and future water system requirements. The first plan by developer Pualani Estates, Inc. (1995) proposed a temporary 50,000 gallon water tank to accommodate the Pualani Estates Subdivision needs. A 1.0 million gallon tank would then be built at a later date as demand increased. The subdivision and tank were never built.

Since then, the DWS still needed to increase the storage capacity of the North Kona water system. Initial proposals were to provide a 1.0 mg concrete reservoir. After review of daily demands and storage capacity of the investigation, DWS decided that a 2.0 mg tank would be necessary to help alleviate the storage deficit of the system.

PART 5

RELATIONSHIP TO PLANS AND POLICIES

A. Kona Regional Plan (1982):

Some of the goals and policies of the Kona Regional Plan for Water Infrastructure,

Chapter V, include the following:

- Ensure that adequate, efficient and dependable public utility services will be available to users.
- Maximize efficiency and economy in the provision of utility services.
- Improve and replace inadequate systems.
- The fire prevention distribution system shall be coordinated with water distribution systems in order to ensure water supplied for fire-fighting systems.

Recommendations of the plan included:

- Implement the improvements proposed for Kona by the Water Master Plan, dated December 1980, and
- The location and timing of major water system improvement should be coordinated with other infrastructural improvement and with overall community priorities.

Implementation of this project meets objectives of the Kona Regional Plan Goals, Policies and Standards listed above. Construction of this 2.0 mg water tank and appurtenances will ensure that adequate, efficient and dependable utility services such as water will be available to users.

B. The General Plan Hawaii County, November 1989:

Some of the listings under Section 4. Goals, Policies and Standards, Public Utilities, WATER, POLICIES, are as follows:

- Water system improvements and extensions shall promote the County's desired land use development pattern.
- All water systems shall be designed and built to Department of Water Supply standards
- Improve and replace inadequate systems.
- Water system improvements should be first installed in areas which have established needs and characteristics, such as occupied dwellings and other uses, or in areas adjacent to them if there is need for urban expansion, or to further the expansion of the agricultural industry.
- The fire prevention systems shall be coordinated with water distribution systems in order to ensure water supplies for fire protection purposes.

Under STANDARDS, the following:

- Water Systems shall meet the requirements of the Department of Water Supply and the Subdivison Control Code.

And under G. SOUTH KONA, (5) PUBLIC UTILITIES, (a) WATER, Courses of

Action, the following:

- Increase the capacity of the booster pump stations as required.
- Improve the system along Alii Drive. Reservoirs to serve this area should be balanced with the Kailua and Keauhou reservoirs.
- Improve the size of the water line and provide an additional reservoir in the Keauhou area.
- Construct new reservoirs as needed.

Under (8) LAND USE, Courses of Action, the following:

(a) SINGLE FAMILY DEVELOPMENT

- Improve and develop roadways, water and sewerage systems, and other basic facilities necessary to encourage development of lands suitable for residential use.

(c) RESORT

- Improve and provide adequate roadways, sewer and water systems, and other basic amenities in all areas where higher density uses are allowed.

Implementation of this project would comply with many objectives of the General Plan Goals, Policies and Standards listed above.

PART 6

DETERMINATION

The proposed project is intended to benefit residents, farmers, tourists, agricultural and commercial activities for North Kona and is not expected to significantly impact the surrounding environment. Any impacts will likely be short term and minimal, and generally be related to the construction activity. Therefore, it is determined that the issuance of a Finding of No Significant Impact (FONSI) declaration is appropriate for this project.

PART 7

FINDINGS AND REASONS

In determining the issuance of a Negative Declaration and Finding of No Significant Impact (FONSI), the proposed action was reviewed and found to have no significant impact on the following significance criteria.

- Involves the loss or destruction of any natural or cultural resource;
  The proposed project involves some loss of archaeological sites. Any archaeological sites known to exist within the tank site have been recorded and documented and concerns related by the State have been addressed and mitigation action has received approval by the SHPD. The project is not anticipated to affect any natural or cultural resource other than the identified archaeological sites.

- Curtails the range of beneficial uses of the environment.
  This project will not curtail beneficial use of the environment. The area is developed and the project purpose is to satisfy demands on the existing water system which will maximize and benefit current use of the agricultural, residential, resort and commercial areas affected.

- Conflict with the State's long-term goals or guidelines and expressed in Chapter 344 HRS.
  This proposed project is consistent with the Environmental Policies established in Chapter 344 HRS.

- Substantially affect the economic or social welfare of the community or state.
  The proposed project is intended to help provide adequate uninterrupted water flow and fire protection. The existing system is currently under stress with a storage deficit. Installation of the water tank and waterline will enhance the conditions of the area. Short term economic benefits will be realized by construction employment and spending in the area. Long term effects would be to allow normal economic growth to proceed without costly delays. Water users in the area will be assured of higher reliability and comfort in the delivery of water by the upgraded system.

- Substantially affects public health.
  This project will not substantially affect public health. Any probable public health effects would be related to construction activity which is temporary and short term in nature. The contractor is required to comply with all Department of Health rules and regulations related to his actions.

- Involves substantial secondary effects such as population changes or infrastructure demands.
  The proposed waterline replacement is intended to provide adequate uninterrupted water flow and fire protection because the existing system storage capacity is currently inadequate. These improvements are intended to satisfy existing water usage demands and to accommodate planned economic growth patterns of the area. This project will help to relieve demands on the water infrastructure.

- Involves substantial degradation of environmental quality.
  Once completed, the waterline will not affect environmental quality. Any effects on environmental quality will be short term and related to construction activity. The contractors are required to comply with all Department of Health environmental and pollution control rules and regulations.

- Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment to larger actions.
  The proposed waterline replacement is intended to upgrade portions of the existing system. Installation of the proposed improvements are intended to satisfy existing demands on the water system.

- Substantially affects a rare, threatened or endangered species or its habitat.
  There will be no known effect to rare, threatened or endangered species or its habitat as a result of the proposed improvements.

- Detrimentally affects air or water quality or ambient noise levels.
  Once completed, the reservoir and waterline will not detrimentally affect air or water quality or ambient noise levels. Any effects to be noted will be short term and related to construction activity. During construction the contractor is required to comply with all state and county regulations related to air and water quality and to mitigate noise levels related to his construction equipment and activity.

- Affects an environmentally sensitive area, such as a flood plain, tsunami zone or erosion prone area, geologically hazardous land, estuary, freshwater area, or coastal waters.
  The improvements will not affect any environmentally sensitive area.

- Substantially affects scenic vistas and view planes identified in county or state plans or studies.
  This project will not substantially affect scenic vistas or view planes.

- Requires substantial energy consumption.
  This project will not require substantial energy consumption.

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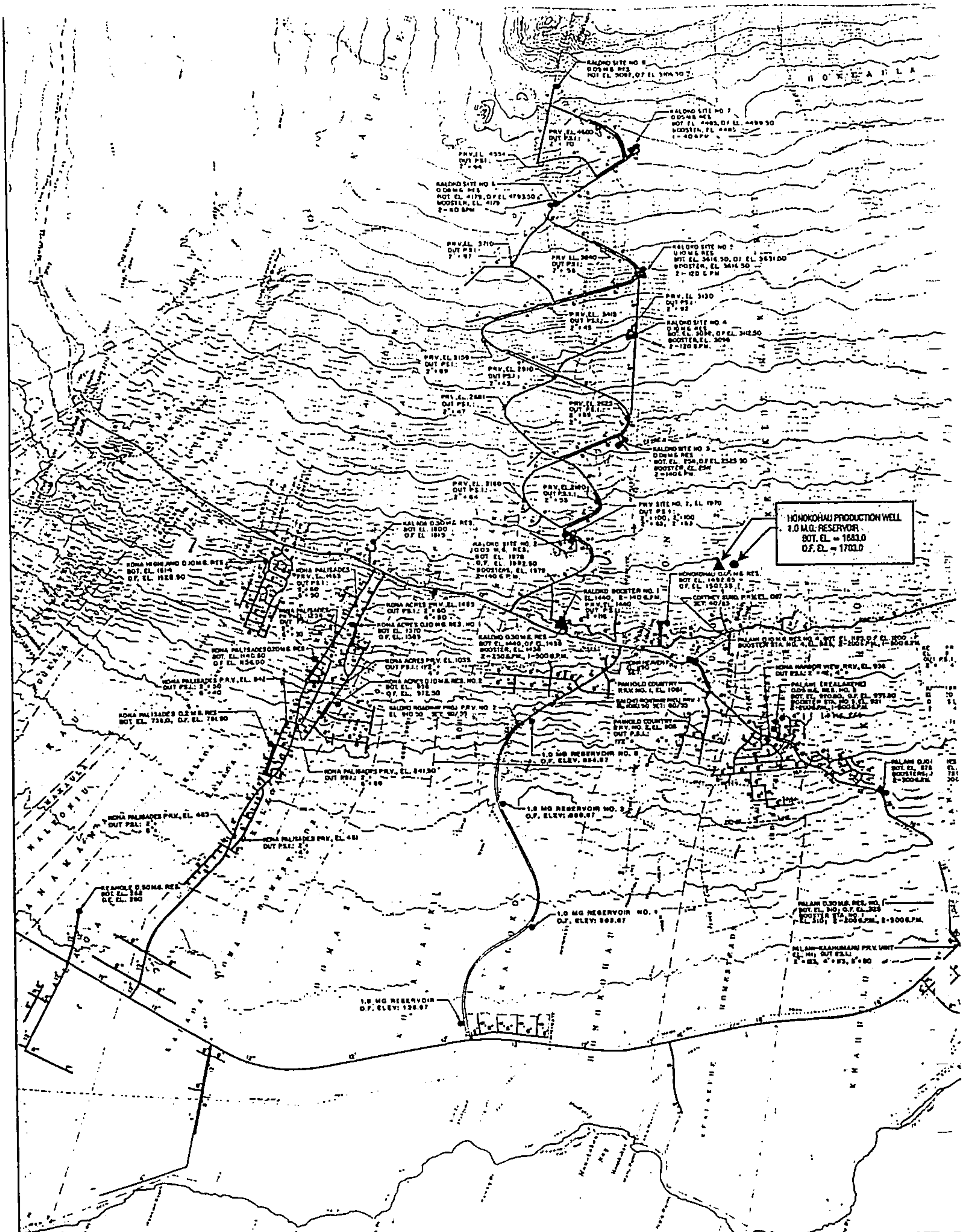
Archaeological Data Recovery Site 14130, Land of Puapuaa 2nd North Kona District, Island of Hawaii, (TMK:3-7-5-17Por.1), June 2001, Alan E. Haun, Dave Henry, Haun & Associates.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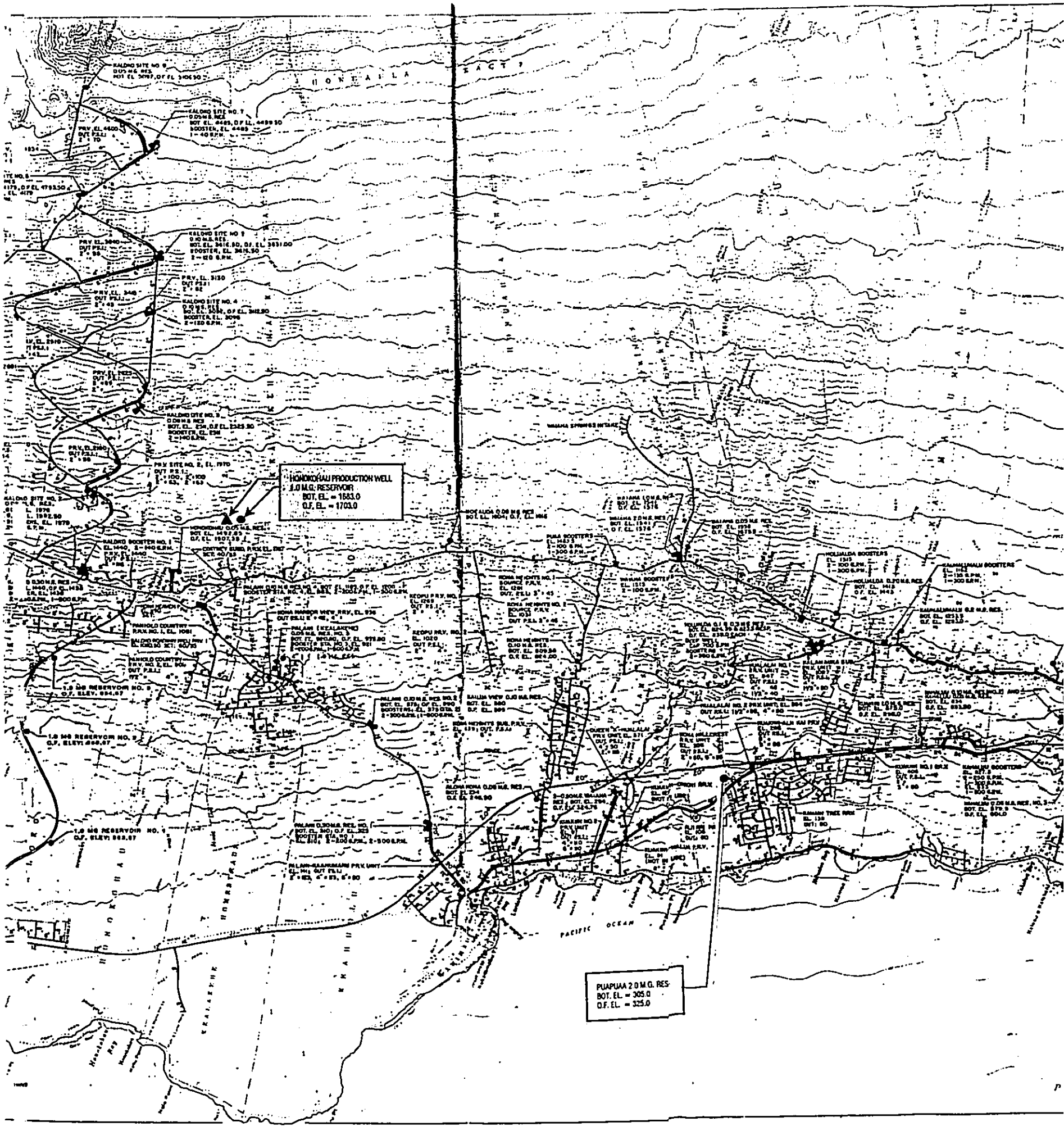
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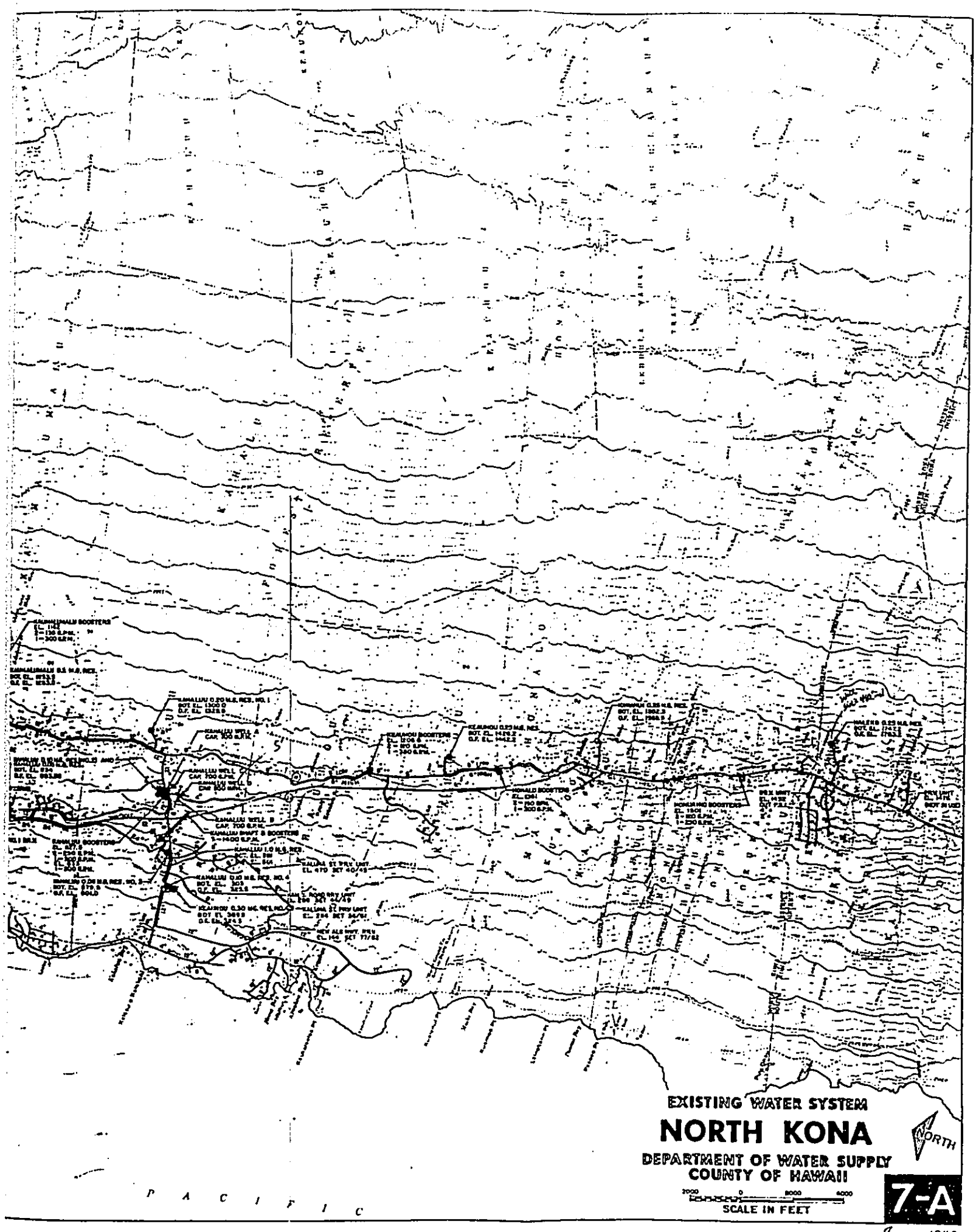
PACIFIC OCEAN



June, 1990

APPENDIX A

APPENDIX B

Correspondence From:
Dept. of Land and Natural Resources, Historic Preservation Division (SHPD)

and

Archaeological Data Recovery Report

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

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

July 11, 2001

LOG NO: 27788 ✓
DOC NO: 0107PM04

Dr. Alan Haun
Haun & Associates
HCR 1 Box 4730
Keaau, Hawaii 96749

Dear Dr. Haun:

SUBJECT: ***Draft Report: "Archaeological Data Recovery Site 14130, Land of Puapua'a 2, North Kona District, Island of Hawaii" (Haun and Henry 2001)***
TMK: 7-5-17: Por. 1

Thank you for your letter of June 5, 2001 and the opportunity to review and comment on the subject report.

Data recovery excavations were undertaken at Site 14130, a C-shaped terrace that was identified in an archaeological inventory survey of the Pualani Estates Subdivision. The primary objectives of the excavations were to establish the age of the site, and to obtain additional information for interpreting the type and variety of activities that took place there.

We believe that the fieldwork fulfilled the scope of work and that the limited research objectives were adequately addressed. The site would appear to have both a prehistoric and historic component.

Two replacement pages were received via fax on July 2, 2001. With the receipt of these pages your report now meets with our approval. Would you please see that Marc Smith receives a copy of the final revised report for our Hilo office library.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Keaau, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

Proposal No. 041-091900

A Proposal For

Archaeological Data Recovery at Site 14130, Land of Puapua'a 2nd, North Kona, Island of Hawaii

At the request of Inaba Engineering, Inc., Haun & Associates proposes to prepare and implement data recovery plan for Site 14130, a temporary habitation feature, situated within TMK: 7-5-017:Por. 2, Puapua'a, North Kona, Island of Hawaii. Consultation with Dr. Ross Cordy, Archaeology Branch Chief of the Department of Land and Natural Resources-Historic Preservation Division (DLNR-HPD), on September 19, 2000, led to Dr. Cordy's concurrence that data recovery for the portion of the agricultural complex, Site 19837, within the proposed tank site was unnecessary.

The project objective is to satisfy current historic preservation regulatory review data recovery requirements of DLNR-HPD, contained within Hawaii Administrative Rules; Title 13, DLNR; Subtitle 13, State Historic Preservation Rules; Chapter 278, Rules Governing Standards for Archaeological Data Recovery.

SCOPE OF WORK

1. Prepare a Data Recovery Plan (DRP) for DLNR-HPD review and approval;
2. Upon plan approval, conduct archaeological data recovery fieldwork;
3. Data analysis including radiocarbon dating of a maximum of two samples;
4. Prepare and submit a Final Report in conformance with regulatory agency requirements for data recovery reports; and
5. Revise and resubmit Final Report, if necessary, in response to DLNR-HPD comments.

SCHEDULE

The DRP would be completed within 2 weeks following proposal acceptance and notice to proceed. The data recovery fieldwork would be completed within 4 weeks

ARCHAEOLOGICAL DATA RECOVERY

SITE 14130

LAND OF PUAPUA'A 2nd, NORTH KONA DISTRICT,

ISLAND OF HAWAII

(TMK:3-7-5-17:Por. 1)

By:

Alan E. Haun, Ph.D.

and

Dave Henry, B.S.

Prepared for:

Inaba Engineering, Inc.
273 Waianuenue Ave.
Hilo, Hawaii 96720

June 2001

Haun & Associates

Archaeological, Cultural, and Historical Resource Management Services
HCR 1 Box 4730, Kea'au, Hawaii 96749 Phone: 982-7755 Fax: 982-6343

SUMMARY

At the request of Inaba Engineering, Inc., Haun & Associates conducted archaeological data recovery at Site 14130 located within the Land of Puapua'a 2nd, North Kona District, Island of Hawaii (TMK: 3-7-5-17:Por. 1). The objective of the program was to mitigate impacts to State Inventory of Historic Places (SIHP) Site 14130 in accordance with data recovery requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, SHPD Rules, Chapter 278.

The results of the data recovery efforts at Site 14130, a C-shaped wall on an outcrop, indicate an historic and a prehistoric period of use. The presence of an intact prehistoric cultural deposit, located beneath the structural rock layer on the north side of the site indicates that the surface of the outcrop was utilized prior to the construction of the C-shape wall. This is supported by the absence of prehistoric habitation debris within the rock layer and the presence of the bottle fragments from the rock layer. The interior deposits contained probable prehistoric to early historic artifacts (volcanic glass flakes) and food remains.

Prehistoric use of the site dates to between AD 1490 and 1675. Historic use of the site initially began with the construction of the C-shaped wall based on the presence of bottle fragments in the wall, which indicate a mid- to late 1800s age for the construction of the wall. Subsequent, probably 1900s use of the site is suggested by the presence of a rubber fragment and a modern radiocarbon result.

The recovered portable remains and stratigraphy indicate that the surface of the outcrop was used for habitation-related activity prior to the construction of the wall. This activity included the consumption of sea urchins and at least five species of marine mollusks that are readily obtainable along the coast. Bird and fish bone represent additional food sources. Fire for cooking and/or providing heat and light is indicated by the presence of charcoal. *Kukui* nut shells also may indicate the use of fire for illumination. The limited quantities of portable remains indicate that the associated activities were of short duration, probably hours to days as opposed to weeks or months.

The artifact assemblage is limited to lithic materials, basalt and volcanic glass. The presence of a core and two flakes of basalt suggest that limited stone tool manufacturing was conducted at the site. The presence of volcanic glass flakes indicates that these expedient tools were probably manufactured and used for cutting or scraping plant or animal resources at the site. The limited types and quantity of artifacts also indicate that the associated activities were limited and of short duration.

The absence of architecture associated with the initial occupation of the site and the limited range of types and quantity of portable remains support a temporary habitation use for the site. This use was probably incidental to some other activity such as tending nearby gardens or transit through the area between the coast and interior uplands. Scattered temporary habitations are typical in this portion of the *kula* zone of the Kona Field System.

The data recovery work adequately documents the site and addresses the research questions posed in the Data Recovery Plan. No further data recovery or preservation is recommended.

CONTENTS

INTRODUCTION

Background

This report presents the results of archaeological data recovery conducted at Site 14130 located within the Land of Puapua'a 2nd, North Kona District, Island of Hawaii (TMK: 3-7-5-17:Por. 1; *Figure 1)*. The data recovery program was conducted at the request of Inaba Engineering, Inc. The objective of the program was to mitigate impacts to State Inventory of Historic Places (SIHP) Site 14130 in accordance with the data recovery requirements of the Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD), as contained within Hawaii Administrative Rules, Title 13, DLNR, Subtitle 13, SHPD Rules, Chapter 278 (DLNR 1998).

The site was identified during inventory surveys by Carlson and Rosendahl (1990) and Head and Rosendahl (1996). The site was interpreted by Head and Rosendahl to be a C-shaped terrace that functioned as a temporary habitation (1996:17). The site was assessed as significant under evaluation Criterion "d" because it had the potential to yield information important for understanding prehistoric habitation in the area. Head and Rosendahl recommended further data collection at the site (1996:26).

DLNR-SHPD concurred with the recommended data recovery of the site in a letter from Don Hibbard to Milton Pavao dated September 1, 2000 (Log. No. 26108; Doc. No. 0008PM29). The letter also required data recovery of Site 19387, an agricultural complex that extended into the larger parcel surveyed by Carlson and Rosendahl (1900). Consultation with Dr. Ross Cordy, Archaeology Branch Chief of DLNR-SHPD on September 19, 2000, led to Dr. Cordy's concurrence that data recovery for the portion of the agricultural complex, Site 19837, within the proposed tank site was unnecessary.

A Data Recovery Plan was prepared for Site 14130 (Haun 2001). The plan was reviewed and approved by DLNR-SHPD (Letter from Don Hibbard to Alan Haun dated February 12, 2001 [Log. No. 26954; Doc. No. 0102PM02]). Fieldwork was conducted on March 3, 2001. The report includes a description of the project area, the data recovery plan, project findings, and addresses the research questions posed in the data recovery plan.

Project Area Description

The project area surveyed by Carlson and Rosendahl (1990) consisted of a c. 65-acre parcel situated within the Lands of Puapua'a 1st and 2nd, and Holualoa 1st. The Head and Rosendahl (1996) project area was a 1.36-acre portion of the Carlson and Rosendahl survey area situated within the Land of Puapua'a 2nd. The area is situated on the southwestern slope of Hualalai Volcano. The surface mantle in this area is comprised of Pleistocene to recent Hualalai series lava flows. These flows include both pahoehoe and a'a, consisting predominately of olivine basalt (MacDonald, Abbott and Peterson 1983:364) greater than 10,000 years old (Wolfe and Morris 1996).

The parcel surveyed by Head and Rosendahl (1996) ranges in elevation from c. 290 to 350 feet elevation (89-107 m). Rainfall in this area averages 30 to 40 inches (76 to 102 cm) per year. The mean annual temperature is approximately 75 degrees F (23 degrees C; Armstrong 1983). The terrain in this area slopes moderately to the ocean, with undulating slopes and ridges. The soil consists of poorly drained, extremely rocky peat located over bedrock, and is classified as part of the Punaluu Series (Sato et al. 1973). Vegetation within the area consists of *kiawe* (*Prosopis pallida* [Humb. And Bonpl. Ex Willd.] HBK), *opiuma* (*Pithecellobium dulce* [Roxb.] Benth.), Monkey pod (*Samanea saman* [Jacq.] Merr.), *kukui* (*Aleurites moluccana* [L.] Willd.), and *koa haole* (*Leucaena leucocephala* [Lam.] de Wit) with an understory comprised of lantana (*Lantana camara* L.), bitter yam (*Dioscorea bulbifera* L.), *laua'e* (*Microsorium*

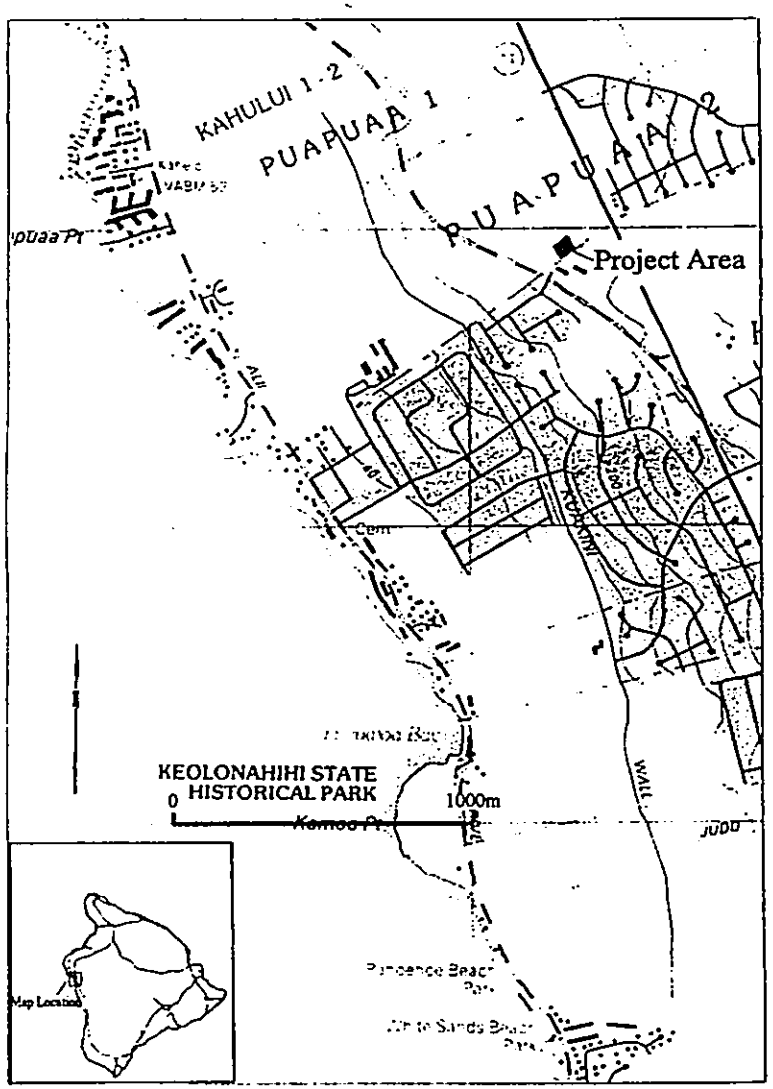


Figure 1. Portion of USGS Kealakekua Quadrangle Showing Project Area

scolopendria [Burm.] Copel,), air plant (*Bryophyllum pinnatum* [Lam.] Kurz.), *panini* (*Opuntia* sp.), and grasses.

Head and Rosendahl indicate that the project area had been impacted by modern disturbance (1996:4). The old Kailua-Keauhou Road extends parallel to the western project area boundary. Several barbed wire fences bisect the parcel and cattle were grazing in the area during Head and Rosendahl' s survey.

DATA RECOVERY PLAN

The Head and Rosendahl (1996) archaeological survey resulted in the identification or relocation of six sites with 48 component features. The sites consist of an alignment/trail (Site 5143), a stone wall (5144), a possible burial platform (14129), a C-shape (14130), a habitation platform (19836), and 43 agricultural features interpreted as elements of the Kona Field System (19837). The location of the sites are illustrated in *Figure 2.*

The survey report (Head and Rosendahl 1996) assessed four sites as significant under Criterion "d", and two were assigned a "No Longer Significant" designation. All six of these sites have yielded information important for understanding prehistoric and historic land use in the project area. The data collected from four sites adequately documents them and no further work or preservation was recommended. The burial platform was recommended for preservation "as-is". The remaining site (Site 14130) has the potential to yield additional information. Further data collection was recommended for Site 14130 by Head and Rosendahl (1996:26).

Site 14130 was interpreted by Head and Rosendahl (1996) as a C-shaped terrace built on a bedrock outcrop. Limited descriptive information concerning this site is presented in Head and Rosendahl. According to Head and Rosendahl, the structure is open at the southern end. The feature has overall dimensions of 8.0 m long, 6.5 m wide, and approximately 0.7 m in height (1996:17). The map in the report indicates that the walls of the C-shape vary in width from 1.7 to 5.05 m with the interior of the enclosed area measuring c. 3.15 m long by 2.15 m wide (1996:15). The site abuts a pahoehoe outcrop on the southeastern side. Fragments of cowrie shell were observed within the C-shape. No subsurface testing was undertaken at Site 14130 by Head and Rosendahl (1996).

The research objectives for data recovery at Site 14130 were:

1. To establish the age of the enclosure; and

2. To determine the type and variety of activities conducted at the structure.

A detailed plan map of Site 14130 was prepared prior to the subsurface examination. The data recovery plan (Haun 2001) specified the excavation of three to four square meters of Site 14130; however, it was determined in the field that to properly test the structure more extensive excavation was required. A 2.0 by 2.0 m block excavation (EUs 1-4) was excavated within the interior of the structure. An additional 1.0 by 3.0 m excavation (EUs 5-7) was dug on the north side of the 2.0 by 2.0 m block to determine the stratigraphic relationship between the interior deposit and the C-shaped wall. This unit extended from the level interior surface of the structure through the northern wall.

The excavation units (EUs) were dug in arbitrary levels within stratigraphic layers. A datum measuring 0.22 m above ground surface was established in the southeastern corner of the enclosure. All vertical measurements were taken in reference to this datum. The soil removed during the excavation was passed through ¼ inch mesh screen. A tally of the number of buckets from each layer was maintained to aid in determining the volume of excavated soil. Each bucket held 11 quarts, or 0.121 cubic meters. Portable remains collected were placed in paper bags labeled with the appropriate provenience information. Recovered charcoal samples were carefully removed from either *in situ* locations or collected during the screening process. These samples were deposited in aluminum foil pouches and placed in properly labeled paper

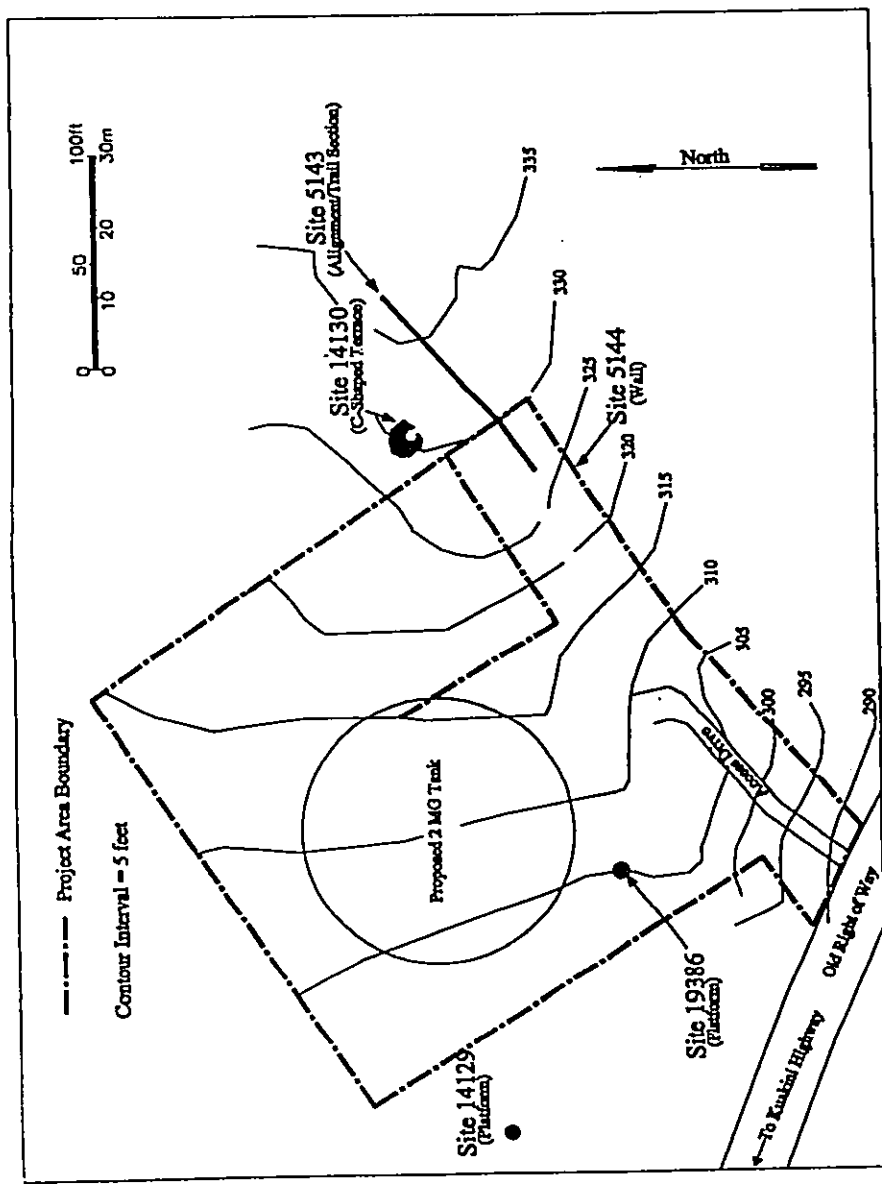


Figure 2. Site Location Map (Modified from Head and Rosendahl 1996:2)

begs. Following the excavation, a section drawing depicting the stratigraphy was prepared and post-excavation photographs were taken. Recovered cultural remains were transported to Haun & Associates office for analysis.

Laboratory analysis consisted of qualitative and quantitative analysis of the recovered remains and preparation of charcoal samples for dating. All recovered artifacts and food remains were analyzed. Two charcoal samples were submitted to Beta Analytic, Inc. for radiocarbon dating. All recovered materials are temporarily curated at the Haun & Associates office. Following completion and acceptance of this data recovery report, the materials will be submitted to DLNR-SHPD for permanent curation.

FINDINGS

Site 14130 is situated on a bedrock outcrop at c. 330 ft elevation. The site is comprised of a roughly C-shaped enclosure that is open at the south-southeastern end (*Figures 3* and *4)*. The structure has overall dimensions of 7.1 m long (northwest to southeast) and ranges from 5.15 m to 6.05 m wide. The interior of the enclosure is roughly oval in shape and is 3.51 m long (north-northeast to south-southwest) and 2.42 m wide (*Figure 5*). The walls of the enclosure are built of stacked and piled subangular basalt cobbles and small boulders. The walls range in width from 0.91 to 2.72 m. The walls at the southern end of the structure are built on top of the outcrop, and vary in height from 0.25 to 0.75 m. The northern end of the enclosure is constructed against the north side of the outcrop, and the walls in this area slope to the north and northwest, ranging in height from 0.42 to 1.0 m above the surrounding ground surface. A *mauka-makai* kerbstone trail (Site 5143) is located 7.75 m south of the enclosure.

A very dark grayish brown (10YR 3/2) deposit is present on the surface in the interior. Several sun-bleached *Cypraea* shells were noted on the surface. A large *kiawe* tree is growing out of the outcrop at the southeastern end of the enclosure. A thick surface root extends across the floor of the enclosure from the *kiawe* tree to the west. Surface bedrock is present on the south-southeastern side of the structure, and inside the structure at the northeastern corner.

The data recovery effort at Site 14130 consisted of the excavation of a 2.0 by 2.0 m block located within the soil area inside the enclosure (EUs 1-4), and a 3.0 by 1.0 m block that extended from the interior of the structure, through the northern wall (EUs 5-7). The location of the excavation units is depicted in *Figure 6. Figure 7* is a profile drawing depicting the western face of both the EU 1-4 block and EU 5-7 block.

The excavation of EUs 1-4 revealed a layer of very dark grayish brown (10YR 3/2) fine silt loam (Layer I) overlying either bedrock, or thin pockets of a dark grayish brown (10YR 4/2) fine silt (Layer II). Cultural remains recovered from the block excavation are listed in *Table 1*. The Layer I deposit in this location varied in depth below datum from 0.22 to 0.5 m and varied in thickness from 0.1 to 0.18 m (averaging 0.12 m). Layer II was present in isolated pockets beneath Layer I in EUs 2, 3, and 4. No cultural remains were present in the Layer II deposit.

Cultural remains were recovered from Layer I in each unit within this block. Marine shell was only recovered from EU-1. A total of 121 marine shells and shell fragments were collected. Taxa consisted of *Nerita, Isognomon, Cypraea,* and *Turbo* with 14 unidentified shell fragments. EU-1 also produced 29 fragments of *Echinoidea.*

Charcoal was collected from Layer I in each of the four units. A sample of charcoal recovered from EU-2 was submitted for radiometric age determination and produced a modern result (Beta 154539, Appendix A). *Kukui* nut shell was present in three of the excavation units (EUs 1, 3 and 4), and waterworn coral was collected from three units (EUs 1, 2 and 4). A total of 28 volcanic glass flakes were recovered from this block excavation with from six to eight flakes present in each unit. The only historic artifact from this area consisted of a piece of black, hard rubber collected from EU-4.

Table 1 also lists density values for artifacts and food remains per cubic meter. These values were calculated by dividing the number and weight of artifacts and food shell remains recovered by the volume of fill excavated from each layer within each unit. As indicated in this table, only EU-1 yielded food remains with a density value of 1016.45 gm per cubic meter. The number of artifacts per cubic meter in this area was much more consistent from unit to unit. These values ranged from 70.75 artifacts per cubic meter in EU-1 to 110.06 artifacts per cubic meter in EU-4.

The excavation of the EU 5-7 block revealed a rock layer above a deposit comprised of the same Layer I and II deposits noted in the EU 1-4 block. The rock layer was comprised of loosely packed subangular basalt cobbles and small boulders. It varied in depth below datum from 0.09 to 1.21 m and in thick-

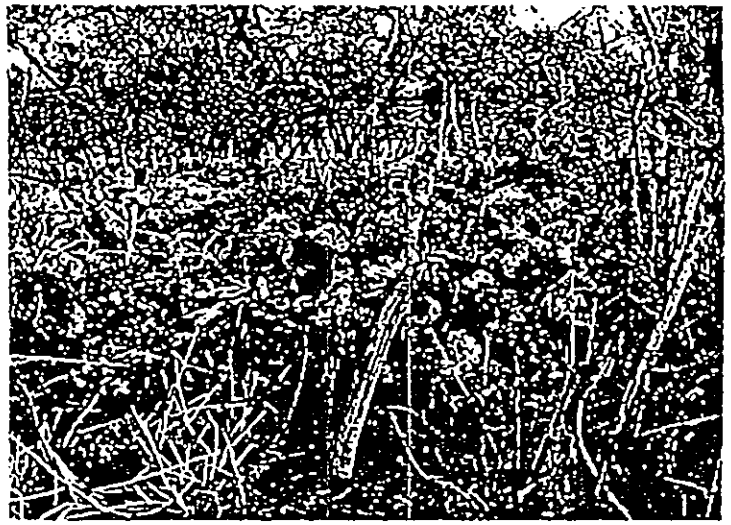


Figure 3. Site 14130, view to northeast

Figure 4. Site 14130, view to north

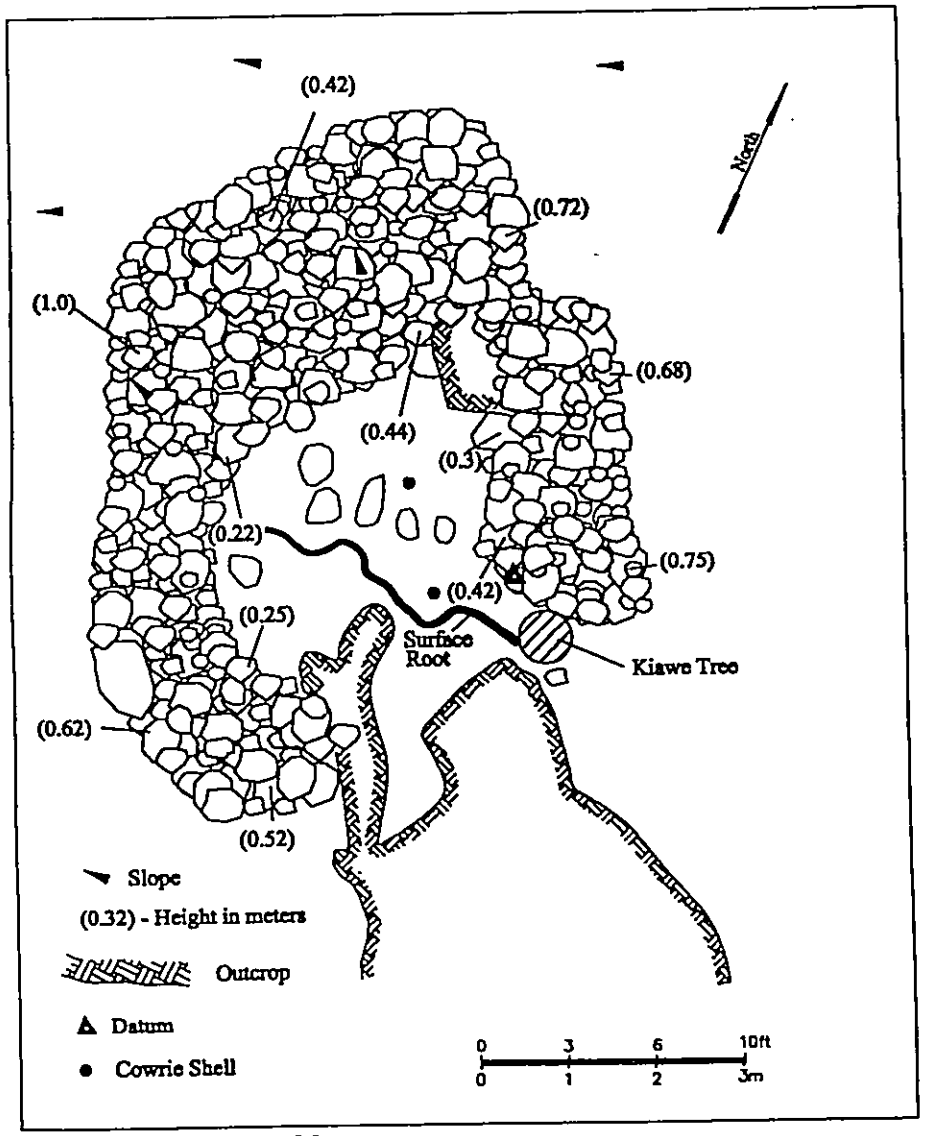


Figure 5. Site 14130 Plan Map

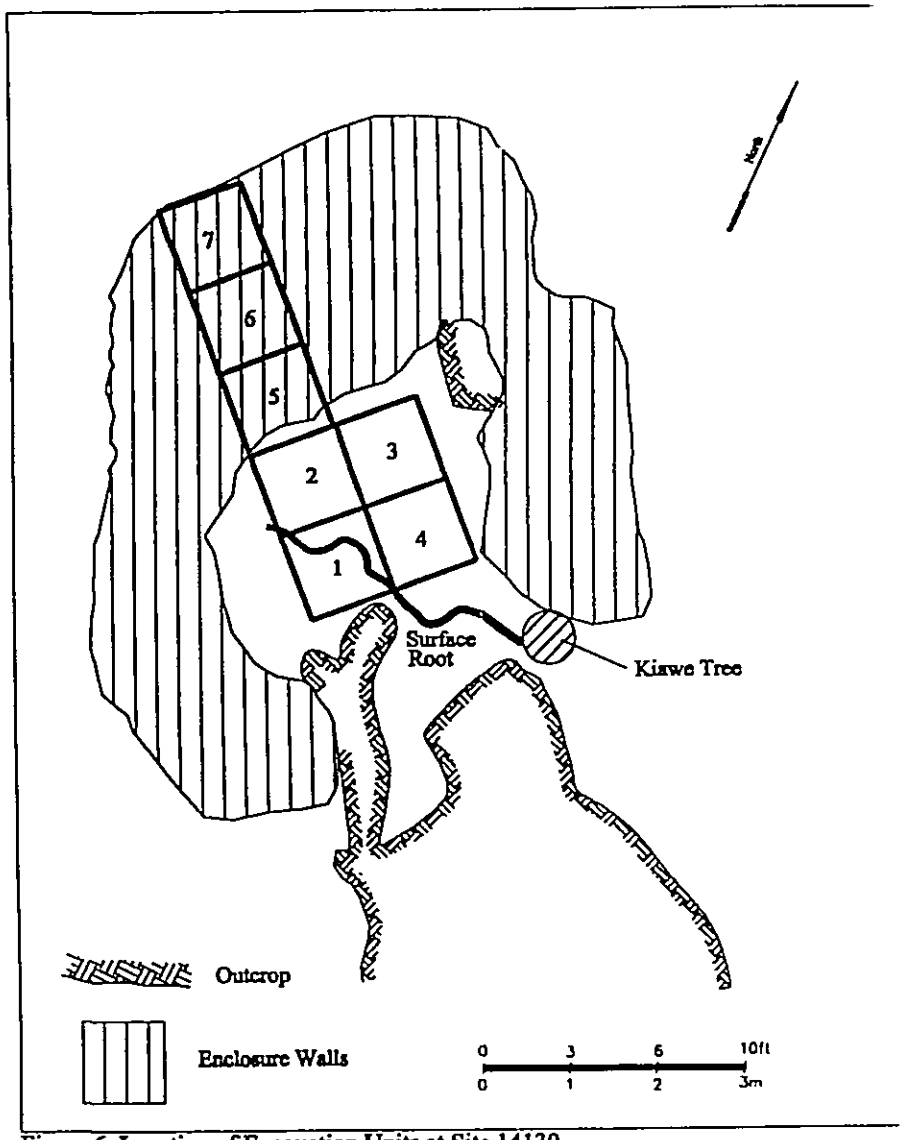


Figure 6. Location of Excavation Units at Site 14130

Table 1. Summary of Cultural Remains from Site 14130

Unit	Layer	Depth (meters below datum)	Maximum Thickness (meters)	No. of buckets	Volume (cubic meters)
1	I	0.27-0.36	0.100	7.00	0.086
2	I	0.26-0.8	0.160	6.50	0.079
	II	0.30-0.41	0.030	0.50	0.008
3	I	0.26-0.36	0.100	6.00	0.073
	II	0.29-0.43	0.070	0.50	0.004
4	I	0.22-0.36	0.012	6.25	0.076
	II	0.34-0.4	0.030	0.25	0.003
5	Rock	0.09-0.83	0.830	-	N/A
5	I	0.34-0.97	0.270	4.50	0.095
	II	0.46-0.91	0.070	1.00	0.012
6	Rock	0.13-1.01	0.880	-	N/A
6	I	0.83-1.14	0.180	2.00	0.034
7	Rock	0.83-1.21	0.440	-	N/A
7	I	1.03-1.39	0.110	1.50	0.016
			Total	36.50	0.43

Unit	Layer	Food Remains: Nerita Count	Nerita Weight	Isognomon Count	Isognomon Weight	Cypraea Count	Cypraea Weight	Turbo Count	Turbo Weight	Conidae Count	Conidae Weight	Unid. Shell Count	Unid. Shell Weight	Echinoidea Count	Echinoidea Weight	Bone Count	Bone Weight	Food Remains density per cu m Count	Food Remains density per cu m Weight
1	I	11	3.80	17	2.30	76	71.2	3	1.40			14	3.56	29	3.90			1788.76	1016.40
2	I																		
	II																		
3	I																		
	II																		
4	I																		
	II																		
5	Rock																		
5	I	23	6.9	32	7.50	107	149.9	4	6.70	1	7.3	39	13.4	76	14.3	2	0.4	4887.31	3046.43
	II																		
6	Rock																		
6	I																		
7	Rock																		
7	I																		
	Total	34	10.8	49	9.8	183	221.1	7	8.1	1	7.5	39	17	105	18.2	2	0.4	881.40	608.87

Unit	Layer	Artifacts: Basalt Flake/Core Count	Basalt Flake/Core Weight	Volcanic Glass Count	Volcanic Glass Weight	Artifact density per cu m Count	Artifact density per cu m Weight	Other: Kukui Nut Count	Kukui Nut Weight	Charcoal Count	Charcoal Weight	Waterworn Coral Count	Waterworn Coral Weight	Historic Count	Historic Weight
1	I			8	3.10	70.75	43.99	1	0.1	4	0.15	4	1.10		
2	I			7	5.50	88.60	69.64			15	2.15	3	0.8		
	II														
3	I			6	6.60	110.06	132.07	1	0.4	23	2.4				
	II														
4	I			7	4.30	92.45	96.79	2	2.5	3	0.8	1	3.7	1	0.7
	II														
5	Rock									2	2.1				
5	I	3	28.4	4	1.30	136.40	644.76	1	0.1	7	3.8	5	4.7		
	II														
6	Rock													11	370.8
6	I			2	1.20	82.84	48.83			18	2.3	2	0.8		
7	Rock														
7	I			1	1.40	83.03	77.04			30	2.8	3	10.1		
	Total	3	28.4	36	27.2	67.81	128.19	6	3.1	98	15.9	17	21.2	12	371.5

*Weight in grams

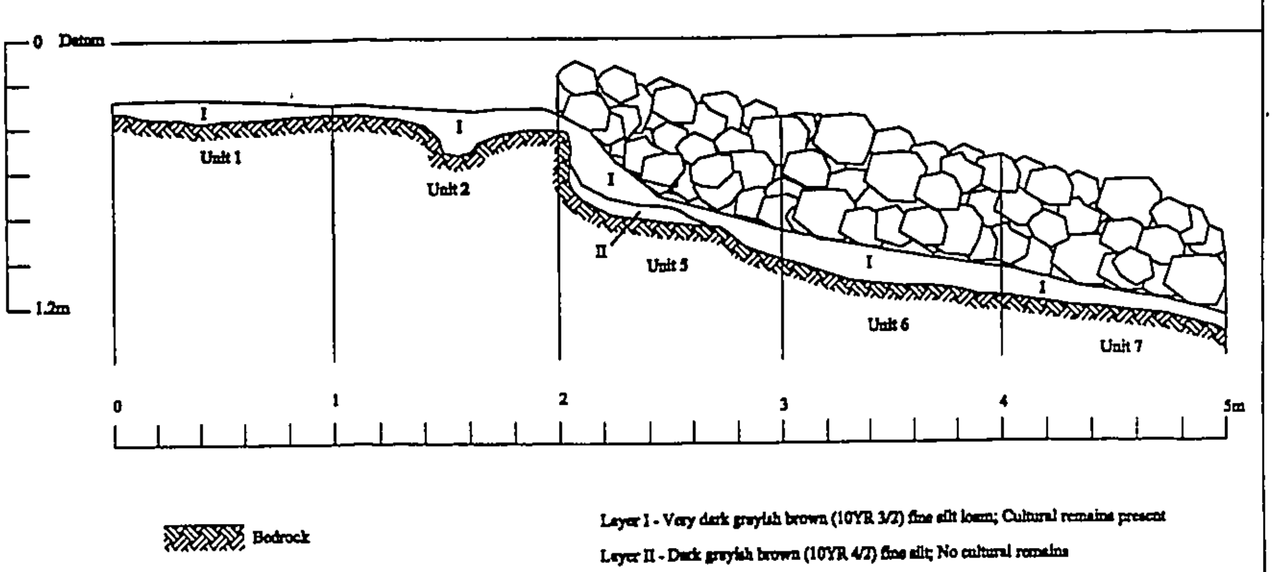


Figure 7. West Face Profile, Units 1, 2, 5, 6, and 7

ness from 0.44 to 0.55 (averaging 0.51 m). The base of the rock layer rested on the surface of the Layer I deposit. No evidence was found to indicate that the structure had been built during more than a single construction episode.

Cultural remains were recovered from the rock layer. Several pieces of charcoal were collected from EU-5 at the interface between the rock layer and Layer I. Eleven dark green glass bottle glass fragments were collected from the rock layer in EU-6. The fragments appear to be from a single bottle. The fragments are varied in thickness with the thicker fragments coming from the bottle base and lower body. The bottle has a square base with a rounded shoulder (*Figure 8*). It resembles a bitters bottle. The lip is a crudely applied taper typical of bottles manufactured between 1840 and 1870 (Beck 1973). The base of the bottle lacks a pontil indicating that it was probably blown in a mould. No mould seam is evident, but the exterior of the base and body fragments have a coarse fabric texture. This texture is not present on the interior or exterior above the shoulder probably indicating that the mould was used only for the base and vertical sides of the vessel. Such a mould was known as a dip mould and was commonly used in the United States during the 1800s. The combined manufacturing attributes suggest date of manufacture in the mid-1800s.

The Layer I deposit in this portion of the site consisted of the same very dark grayish brown (10YR 3/2) fine silt loam. Bedrock was encountered below Layer I in EUs 6 and 7 with a thin (0.07 m) deposit of the dark grayish brown (10YR 4/2) fine silt (Layer II) located below Layer I in EU-5. No cultural remains were recovered from the Layer II deposit.

Layer I in this area ranged in depth below datum from 0.34-1.29 m, following the slope of the outcrop as it angles to the north (see *Figure 7*). This deposit varied in thickness from 0.11 to 0.27 m, averaging 0.18 m thick. As with the EU 1-4 block, the majority of the cultural remains were recovered from one location. Layer I in EU-5 evidenced 192 marine shell fragments, with species consisting of *Nerita*, *Isognomon*, *Cypraea*, *Turbo*, *Cellana*, and unidentified shells. Seventy-six fragments of *Echinoidea* were also recovered. A basalt core measuring 3.9 cm long, 2.8 cm wide and 1.7 cm in thickness was present within this deposit, along with two basalt flakes (*Figure 9*). Layer I in EU-5 also contained a bird fragment, a fish bone, and one piece of *kukui* nut shell.

Volcanic glass flakes were present in this block. Four flakes were recovered from EU-5, two from EU-6, and one from EU-7. Waterworn coral was collected from each of these units, as was charcoal. A sample of the charcoal from Layer I in EU-5 was submitted for radiometric age determination (Beta 154538, Appendix A). The sample produced two sigma calibrated age ranges of 1490-1675, 1765-1800, and 1940-1945. The one standard deviation age ranges are 1525-1560, and 1630-1660.

Food remains were recovered from only EU-5 in this block with a density of 3645.43 gm per cubic meter. Artifacts were present in each of the three units with density values that vary from 55.03 artifacts per cubic meter in EU-7 to 128.4 artifacts per cubic meter in EU-5.

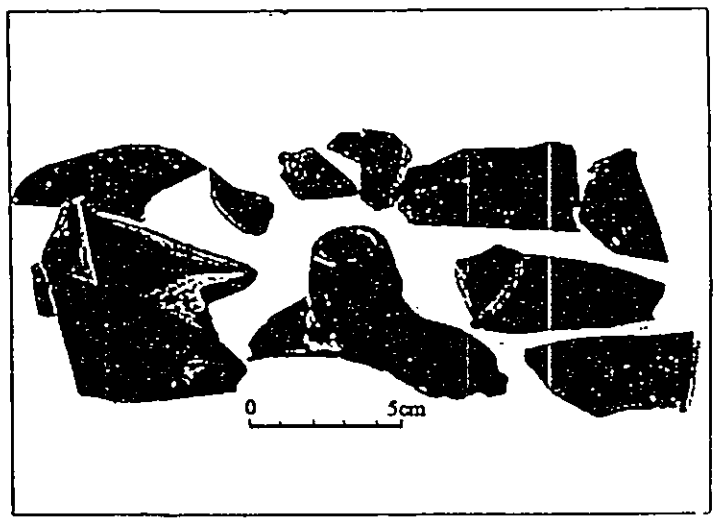


Figure 8. Bottle Fragments from Rock Layer in EU-6

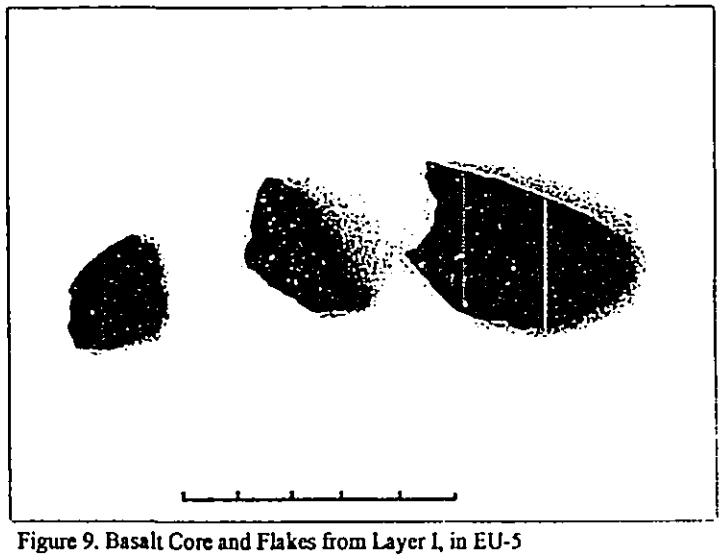


Figure 9. Basalt Core and Flakes from Layer I, in EU-5

APPENDIX A – RADIOCARBON CALIBRATION

BETA
DR. M.A. TAMERS and MR. D.G. HOOD
4985 S.W. 74 COURT
MIAMI, FLORIDA, USA 33155
PH: 305/667-5167 FAX: 305/663-0964
E-MAIL: beta@radiocarbon.com

REPORT OF RADIOCARBON DATING ANALYSES

Dr. Alan E. Haun

Report Date: 5/16/01

Haun and Associates

Material Received: 4/6/01

Sample Data	Measured Radiocarbon Age	13C/12C Ratio	Conventional Radiocarbon Age(*)
Beta - 154538 SAMPLE: H&A-RC0037 ANALYSIS: Radiometric-Standard delivery MATERIAL/PRETREATMENT: (charred material): acid/alkali/acid 2 SIGMA CALIBRATION: Cal AD 1490 to 1675 (Cal BP 460 to 275) AND Cal AD 1765 to 1800 (Cal BP 185 to 150) Cal AD 1940 to 1945 (Cal BP 10 to 5)	250 +/- 50 BP	-24.0 o/oo	270 +/- 50 BP
Beta - 154539 SAMPLE: H&A-RC0038 ANALYSIS: Radiometric-Standard delivery MATERIAL/PRETREATMENT: (charred material): acid/alkali/acid 2 SIGMA CALIBRATION: (result is outside of the calibration range)	100.6 +/- 0.6 pMC	-24.4 o/oo	100.5 +/- 0.6 pMC

Dates are reported as RCYBP (radiocarbon years before present, "present" = 1950A.D.). By International convention, the modern reference standard was 95% of the C14 content of the National Bureau of Standards' Oxalic Acid & calculated using the Libby C14 half life (5568 years). Quoted errors represent 1 standard deviation statistics (68% probability) & are based on combined measurements of the sample, background, and modern reference standards.

Measured C13/C12 ratios were calculated relative to the PDB-1 international standard and the RCYBP ages were normalized to -25 per mil. If the ratio and age are accompanied by an (*), then the C13/C12 value was estimated, based on values typical of the material type. The quoted results are NOT calibrated to calendar years. Calibration to calendar years should be calculated using the Conventional C14 age.

CALIBRATION OF RADIOCARBON AGE TO CALENDAR YEARS

(Variables: C13/C12=-24:lab. mult=1)

Laboratory number: 154538

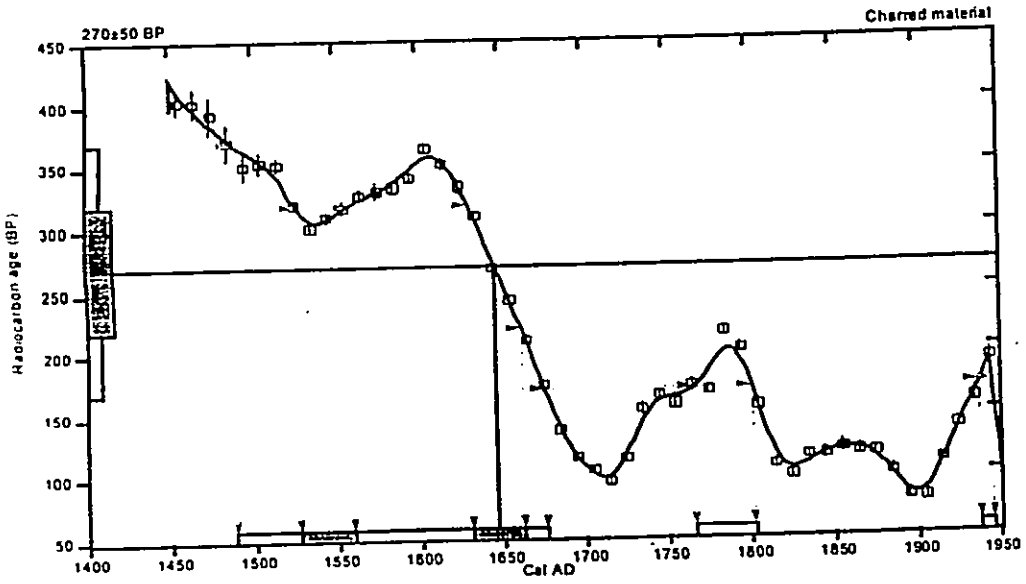
Conventional radiocarbon age: 270±50 BP

2 Sigma calibrated results: (95% probability)
Cal AD 1490 to 1675 (Cal BP 460 to 275) and
Cal AD 1765 to 1800 (Cal BP 185 to 150) and
Cal AD 1940 to 1945 (Cal BP 10 to 5)

Intercept data

Intercept of radiocarbon age with calibration curve: Cal AD 1645 (Cal BP 305)

1 Sigma calibrated results: (68% probability)
Cal AD 1525 to 1560 (Cal BP 425 to 390) and
Cal AD 1630 to 1660 (Cal BP 320 to 290)



References:

Database used
INTCAL98
Calibration Database
Editorial Comment
Stuiver, M., van der Plicht, H., 1998, Radiocarbon 40(3), pxii-xiii
INTCAL98 Radiocarbon Age Calibration
Stuiver, M., et. al., 1998, Radiocarbon 40(3), p1041-1083
Mathematics
A Simplified Approach to Calibrating C14 Dates
Talma, A. S., Vogel, J. C., 1993, Radiocarbon 35(2), p317-322

Beta Analytic Radiocarbon Dating Laboratory
4985 S.W. 74th Court, Miami, Florida 33155 • Tel: (305)667-5167 • Fax: (305)663-0964 • E-Mail: beta@radiocarbon.com

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
GILBERT E. COLOMBO

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

RECEIVED
00 SEP -7 P12:05
DEPT OF WATER SUPPLY
COUNTY OF HAWAII

GB

September 1, 2000

Mr. Milton Pavao, Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

LOG NO: 26108
DOC NO: 0008PM29

Dear Ms. Goldstein:

SUBJECT: Archaeological Site Mitigation for Proposed Puupuaa Tank Site
Pu'upua'a, North Kona, Hawaii Island
TMK: 7-5-017: Por. 2

This is in response to your letter of July 31, 2000 to Marc Smith regarding State site numbers and mitigation treatments for archaeological sites located on the subject parcel [according to our records this is parcel 1]. We apologize for the late response.

The PHRI report on the archaeological inventory survey of TMK 7-5-017: Por. 1 indicates that the sites on the map you sent us correspond to the following State site numbers:

Site No.	Function
1=14129	possible burial
2=19387	agricultural complex
3=19386	temporary habitation
4=14130	temporary habitation

Our letter of March 27, 1996 to Dr. Rosendahl, which you attached, indicates the following agreed to mitigation treatments:

Site No.	Mitigation Treatment
Site 14129	preservation
Site 19387	data recovery
Site 19386	no further work
Site 14130	data recovery

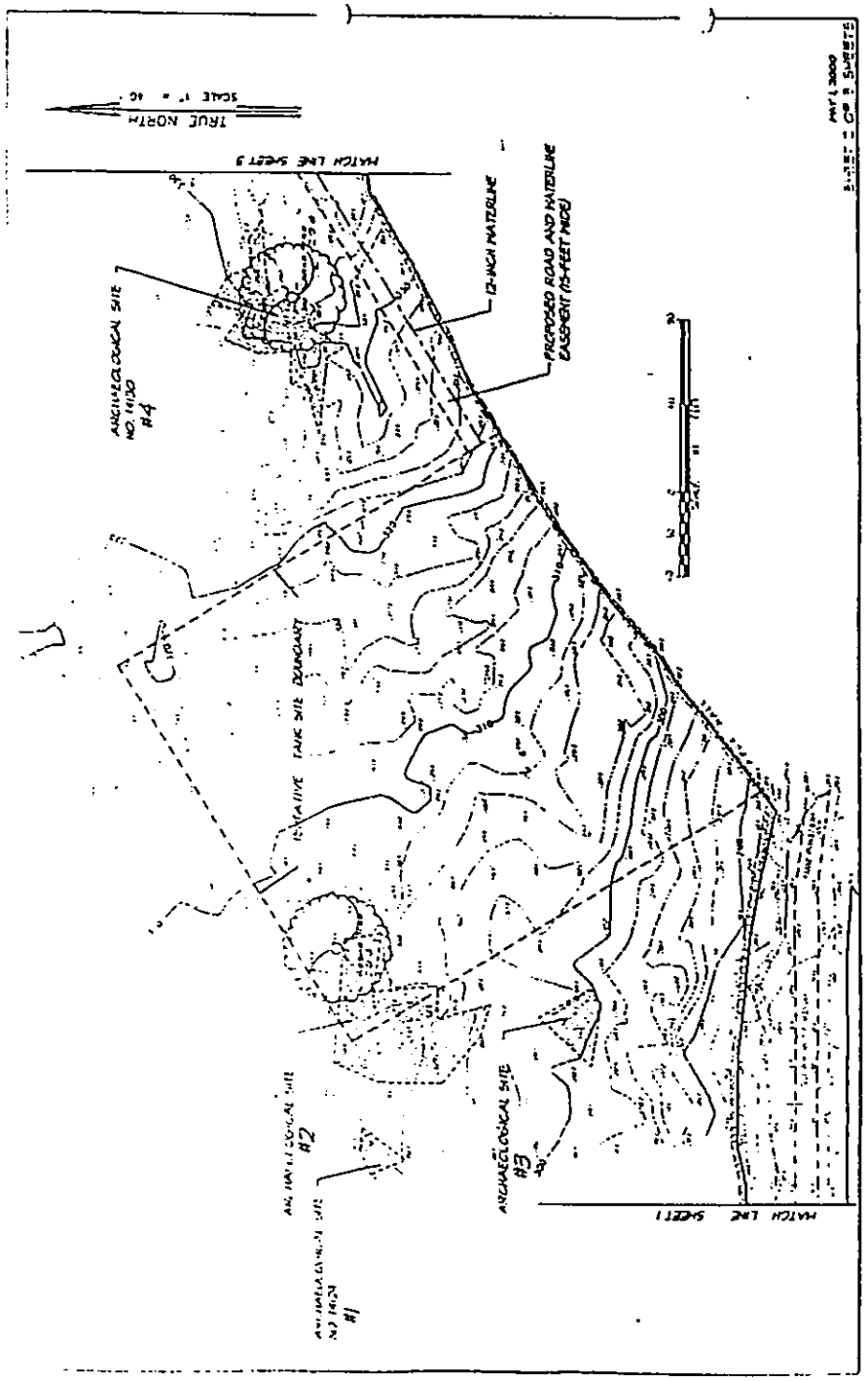
More specific comments were made concerning the possible burial (Site 14129) in our letter of May 1, 1996 to Dr. Rosendahl indicated, which again was kindly attached. We have nothing new to add to those comments.

If you or your staff should have any questions please contact our Hawaii Island archaeologist, Patrick McCoy (692-8029).

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk



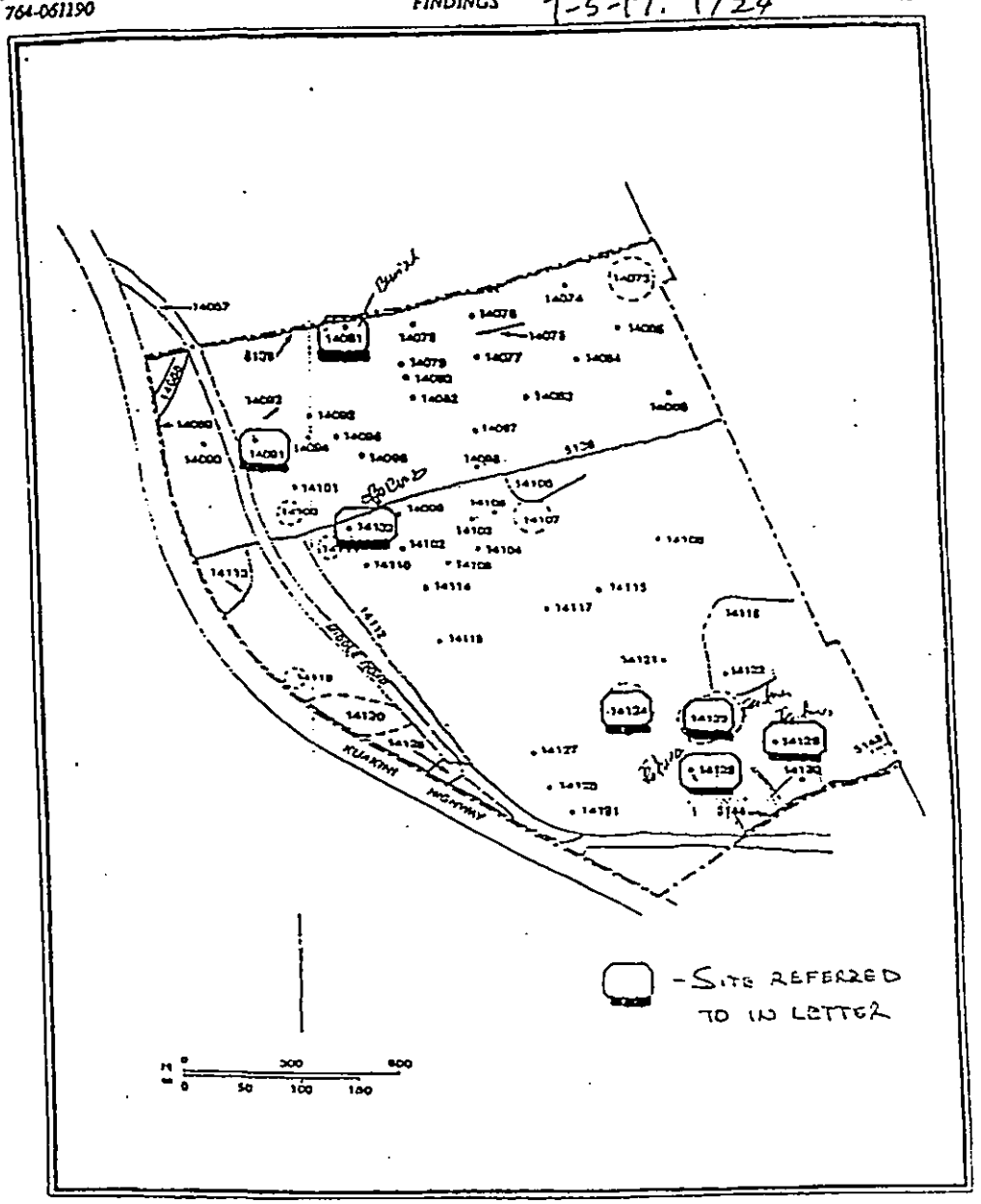


Figure 2. SITE LOCATION MAP

DEPT WATER SUPPLY H/O JUL 11 '00 15:57 No.003 P.01 001

Post-it® Fax Note 7671	Date 7/11/2A	# of pages ▶ 4
To Don Inaba	From Glenn Ahuna	
Co./Dept.	Co.	
Phone # 961-3727	Phone # 961-8657	
Fax # 935-8033	Fax #	

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

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

May 1, 1996

LOG NO: 17054
DOC NO: 9604PM19

Dr. Paul Rosendahl
PHRI
204 Waianuenue Avenue
Hilo, Hawaii 96720

Dear Dr. Rosendahl:

SUBJECT: Site 14129, Pualani Estates Subdivision Water Transmission System Project
Puapua'a 2, North Kona, Hawaii Island
TMK: 7-5-17: 1

This letter is a follow-up to your phone conversation with Hawaii Island archaeologist Patrick McCoy on April 23, 1996 regarding the protection of Site 14129, which has been interpreted as a possible grave containing human remains.

In our letter of March 27, 1996 we noted that your client would need to go the Hawaii Island Burial Council for approval of the plan to preserve in place the possible burial at Site 14129. This is unnecessary since the site is located outside of the project area.

It is our understanding that your client has agreed to fence off Site 14129 during construction of the water tanks even though the site is outside of the area of effect. If for some reason additional land is needed that would encroach on Site 14129 then further work, consisting of testing to determine the presence/absence of human burials, would be necessary.

If you have any questions please contact Patrick McCoy (587-0006).

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

March 27, 1996

LOG NO: 16567
DOC NO: 9603PM15

Dr. Paul Rosendahl
PHRI
204 Waianuenue Avenue
Hilo, Hawaii 96720

Dear Dr. Rosendahl:

SUBJECT: PHRI Report 1590-013096: "Archaeological Inventory Survey
Pualani Estates Subdivision Water Transmission System"
(Head and Rosendahl 1996)
Puapua'a 2, North Kona, Hawaii Island
TMK: 7-5-17: Por. 1

Thank you for your letter of February 16, 1996 with one copy of the revised report for our continued review and comment.

The revised report has clarified the number of sites that were identified in the survey and satisfactorily addressed all of the other questions in our first review letter of January 2, 1996. The report is now accepted.

As indicated in our earlier review, we believe that the survey of the project area was adequate. The survey identified 2 new sites and 4 previously recorded sites, of which 1 (Site 14129) is located just outside of the project within the potential construction zone.

We agree with your significance evaluations. Sites 5143, 5144, and 19836 have been adequately documented and are now evaluated as "no longer significant." Three sites are significant -- site 14129 (under Criterion D for its information content and possibly E, if it is a burial) and sites 14130 and 19837 for their information content.

We also agree with your mitigation recommendations -- preservation as-is for site 14129 and archaeological data recovery for sites 14130 and 19837. We believe that with these

commitments, any development in the project area will have "no adverse effect" on significant historic sites. Since 14129 is considered a possible burial at this time, application to the Hawaii Island Burial Council will be needed to propose the treatment (preservation) for their vote.

Once the burial treatment issue is resolved, then the next step in the historic preservation review process would be the submittal of the scopes of work for preservation of 14129 and for the data recovery (a data recovery plan).

If you have any questions please contact Patrick McCoy (587-0006).

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

APPENDIX C

Comment Letters
Response Letters

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT
25 Aupuni Street, Room 109 • Hilo, Hawaii 96720-4252
(808) 961-8288 • Fax (808) 961-8742

RECEIVED
MAR 29 2001
INABA ENGINEERING, INC.

March 23, 2001

Mr. Jason K. Inaba
Inaba Engineering, Inc.
273 Waianuenue Avenue
Hilo, HI 96720

Dear Mr. Inaba:

Pre-Consultation regarding preparation of an Environmental Assessment
Construction of a 2.0 MG Concrete Reservoir and Supporting Facilities
Department of Water Supply Job No. 99-754
TMK: 7-5-17: Por. 1 and 25

This is to acknowledge receipt of your letter dated March 12, 2001 requesting preliminary comments regarding the preparation of an environmental assessment for the construction of a 2.0 million gallon concrete reservoir and supporting facilities. We have the following comments to offer.

- The properties are situated within an area designated Agricultural by the State Land Use Commission and zoned Agricultural 5-acres (A-5a) by the County.

- The property is not situated within the County's Special Management Area (SMA).

Thank you for the opportunity to provide comments. If you have any questions, please call Phyllis Fujimoto of our office at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

PF pak
p \wpwin60\Ch343\2001\PEA01-03 doc

cc: Long Range Planning
West Hawaii Office

Harry Kim
Mayor

County of Hawaii
DEPARTMENT OF PUBLIC WORKS
25 Aupuni Street, Room 202 · Hilo, Hawaii 96720-4252
(808) 961-8321 · Fax (808) 961-8630

Dennis K. W. Lee
Director

RECEIVED
OCT 2 2001
INABA ENGINEERING, INC.

October 1, 2001

Mr. Jason K. Inaba, P.E.
Inaba Engineering, Inc.
273 Waianuenue Avenue
Hilo, Hawaii 96720

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
Puapuaa 2.0 MG Concrete Reservoir & Supporting Facilities
DWS Job. No. 99-754
TMK: 7-5-17: Portion of 001

We have reviewed the subject DEA forwarded by your letter dated August 23, 2001 and have the following comments.

1. Any building construction shall conform to all requirements of code and statutes of the County of Hawaii.
2. All development generated runoff shall be disposed on site and shall not be directed toward any adjacent properties.
3. Any earthwork and grading shall conform with Chapter 10 - Erosion and Sedimentation Control, of the Hawaii County Code.
4. Kailua-Keauhou Middle Road fronting the subject parcel is a government road, but is not included in this department's road inventory list for road maintenance and ownership of the road is uncertain.

Questions may be referred to Mr. Kelly Gomes of our Engineering Division at 961-8327.

for BEN ISHII, Acting Division Chief
Engineering Division

KG

TELEPHONE: 808.961.3727

INABA ENGINEERING, INC.
CIVIL ENGINEERING • STRUCTURAL ENGINEERING • LAND SURVEYING
273 WAIANUENUE AVENUE
HILO, HAWAII 96720

FACSIMILE: 808.935.8033

October 3, 2001

Mr. Ben Ishii, P.E., Acting Division Chief
Engineering Division
Department of Public Works
County Of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Subject: DRAFT ENVIRONMENTAL ASSESSMENT
Puapuaa 2.0-MG Concrete Reservoir & Supporting Facilities
Department of Water Supply Job No. 99-754
Puapuaanui, North Kona, Hawaii
TMK: 3rd Div. 7-5-17: 1 (Portion)

Dear Mr. Ishii,

Thank you for your letter dated October 1, 2001 regarding the draft EA for the subject project. We offer the following responses to your department comments.

1. Building construction will conform to necessary code requirements and statutes of the County of Hawaii.
2. Development generated runoff will be disposed of on-site and will not be directed toward adjacent properties. Design of drainage improvements will be submitted to the Department of Public Works for review and comment as part of the design approval process.
3. During the construction phase, the contractor will be required to conform with Chapter 10 - Erosion and Sedimentation Control, of the Hawaii County Code, for all grading and earthwork activities.
4. The Department of Water Supply has indicated that the portion of Kailua-Keauhou Middle Road to be used for access to the project site is owned by the State of Hawaii, and that adjacent land owner Pualani Estates, Inc. is in negotiations to purchase the road remnant. The DWS will obtain access rights from the appropriate owner as necessary.

Should you have any questions or require additional information, please feel free to call this office at 961-3727.

Very truly yours,

INABA ENGINEERING, INC.

Jason K. Inaba, P.E.

c: Glenn Ahuna, DWS

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

RECEIVED
OCT 6 2001
INABA ENGINEERING, INC.

October 5, 2001

Mr. Milton Pavao, Manager
Mr. Glenn Ahuna
Department of Water Supply, County of Hawai'i
345 Kekuanao'a Street, Suite 20
Hilo, Hawai'i 96720

Mr. Jason Inaba
Inaba Engineering, Inc.
273 Waianuenue Avenue
Hilo, Hawai'i 96720

Dear Messrs. Pavao, Ahuna and Inaba:

We have reviewed your draft environmental assessment (DEA) to construct a 2.0 million gallon concrete reservoir and supporting facilities at Puapua'anui, Tax Map Key 3rd 7-5-17, portion 1 in the district of north Kona on the island of Hawai'i. We offer the following comments for your consideration and response.

(1) **VISUAL CONSIDERATIONS**: The DEA needs to discuss visual impacts and mitigative measures. Please provide photographs of the site as well as visual impact analyses which include overlays of what the site would look like from Kuakini Highway, the Hawai'i Belt Road, and points seaward looking mauka.

(2) **CULTURAL IMPACTS**. Although the document discusses historic and archaeological considerations, an assessment of impacts to cultural resources and cultural practices needs to be completed. What impacts (if any) will the proposed action have on cultural practices and resources in the area? Do people gather near the area or are there areas nearby use for contemporary cultural and religious practices. Chapter 343, Hawai'i Revised Statutes now requires that cultural impacts be assessed (see enclosed copy of Act 50, SLH 2000). A copy of the Environmental Council's guidelines for assessing cultural impacts is enclosed for your use.

(3) **USE OF RECYCLED GLASS**: To promote the use of recycled materials in-state as found in section 103D-407, Hawai'i Revised Statutes, we ask that you consider using materials with minimum recycled glass content in the design.

(4) **INDIGENOUS AND POLYNESIAN INTRODUCED PLANTS FOR USE IN PUBLIC LANDSCAPING**: We ask that you consider the use of native, indigenous and polynesian introduced plants in your landscaping.

If there are any questions, please call Leslie Segundo of my staff at (808) 586-4185. Thank you for the opportunity to comment.

Sincerely,

for GENEVIEVE SALMONSON
Director

Enclosures

10/5/01

TELEPHONE:
808.961.3727

FACSIMILE
808 935.6033

INABA ENGINEERING, INC.
CIVIL ENGINEERING • STRUCTURAL ENGINEERING • LAND SURVEYING
273 WAIANUENUE AVENUE
HILO, HAWAII 96720

October 31, 2001

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

Subject: OEQC Letter Dated Oct 5, 2001
Draft Environmental Assessment (EA)
PUAPUAA 2.0-MG CONCRETE RESERVOIR
AND SUPPORTING FACILITIES
Puapuaanui, North Kona District, Island of Hawaii

Dear Ms. Salmonson;

Thank you for providing comments to the Draft Environmental Assessment for the subject project. On behalf of the Department of Water Supply we have reviewed your comments and provide the followings responses.

(1) Visual Considerations. A discussion on the visual impacts due to this project will be included in the FEA. Photos of the site will also be included in the FEA.
(2) Cultural Impacts. A discussion on possible cultural impacts will be provided in the FEA.
(3) The Department of Water Supply will consider the use of materials with minimum recycled glass content in the project design.
(4) The Department of Water Supply will consider using indigenous and/or polynesian plants in the landscaping of the project site.

A copy of your letter and our response, including supporting information such as photos will be included in the final EA.

If there are any questions, please call me at 808.961.3727.

Sincerely,

INABA ENGINEERING, INC.

Jason K Inaba, P.E.

Copy: Mr. Glenn Ahuna, DWS

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

RECEIVED
DIVISION OF
LAND MANAGEMENT
JUL 25 1 57 PM '83

July 21, 1983

McCARTHY, CHARLES C.

Lease application

Area: Por. Kailua-Keauhou Middle Road, Kalaoa 3 & 4

TMK: 7-5-17:1, 19 & 23

See Kuakini Highway Realign. Folder 9/24/02

Mr. Charles C. McCarthy
Martin & McCarthy
Attorneys at Law
Provident Federal Building
10920 Wilshire Boulevard
Los Angeles, CA 90024

Dear Mr. McCarthy:

This refers to your longstanding request for a quitclaim of the State of Hawaii's interest in a portion of the Old Kailua-Keauhou Middle Road situated at Puapuaaiki 1st and Paupuaanui 1st, North Kona, Hawaii. Shown on Tax Map Plat 7-5-17 (copy enclosed), the road segment in question has been abandoned by the Council of the County of Hawaii under Resolution No. 282 on January 13, 1971.

Please be advised that we have since ascertained the validity of the State of Hawaii's ownership of the Kailua-Keauhou Middle Road. Accordingly, if you are yet interested in acquiring the roadway in question, kindly inform us accordingly so we can expedite appropriate disposition of same.

Thank you for your cooperation. If there are any questions, please write to us or call Len Bautista of our Land Management Division in Honolulu at (808) 548-6460.

Very truly yours,

JAMES J. DETOR
Land Management Administrator

cc: Hawaii Board Member
Hawaii District Land Office
Department of Transportation
Highways Division
County of Hawaii
Planning Department

10/4/01
According to DLNR (HHLO) there is nothing since this 1983 letter.
Ron Nakamura
DPW Engineering Div.
County of Hawaii

Post-it™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Ms. IWASA	From RON M
Co. IWASA ENG.	Co. DPW / ENG
Dept.	Phone #
Fax # 935-8033	Fax # CAN NOTE

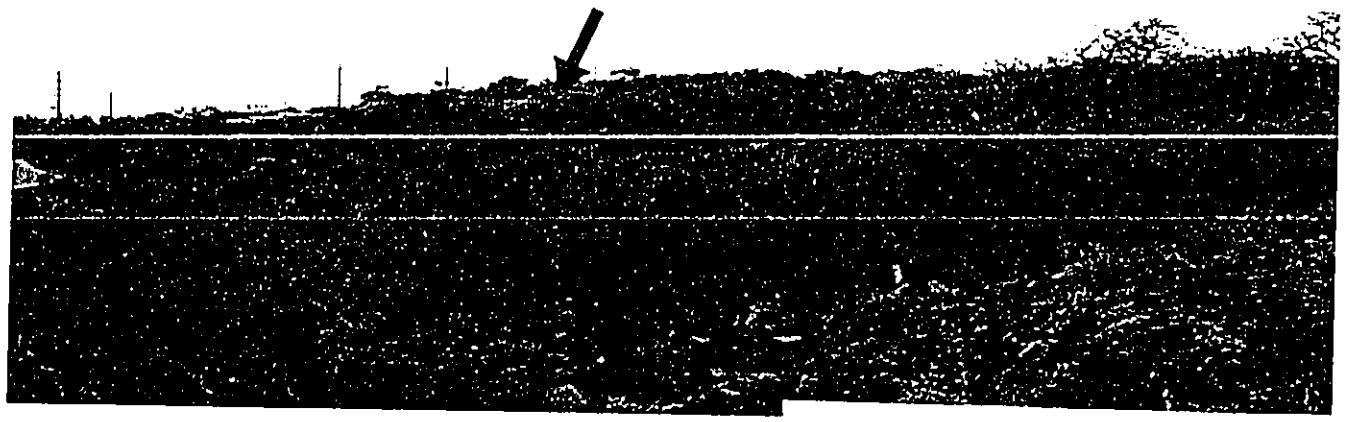
APPENDIX D

Photographs

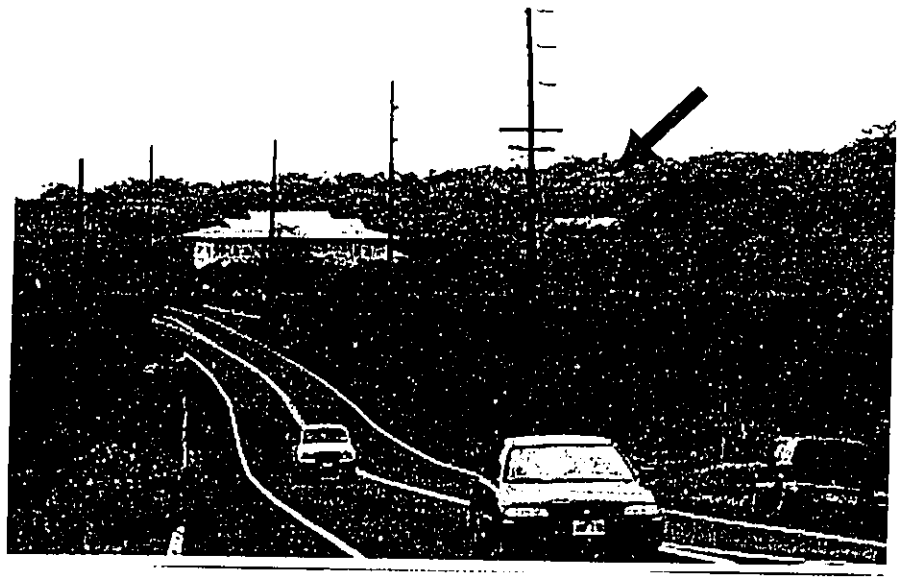
Tank Site
Makai / West View

Tank Site
Mauka / East View

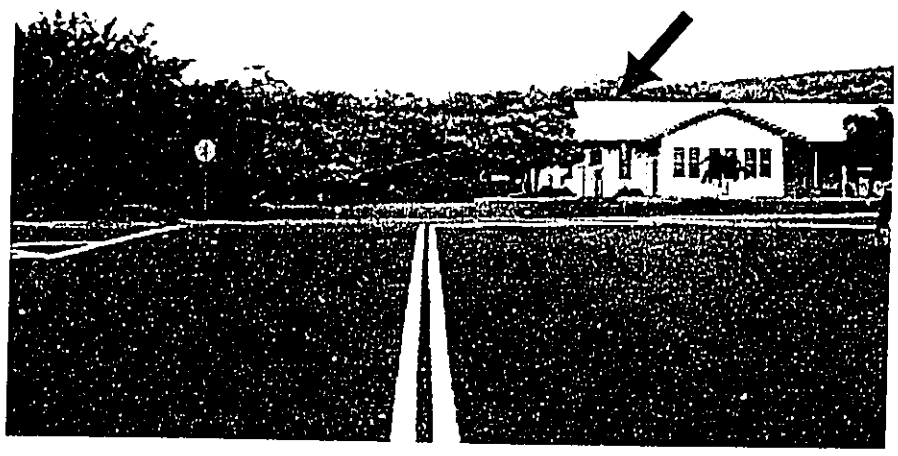
Tank Site
South / Keauhou View
Kuakini Hwy Below Bldgs.



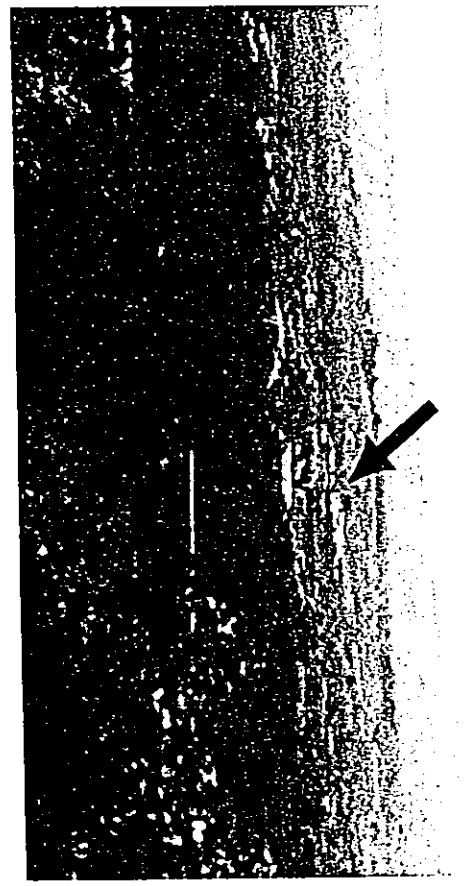
View of Tank Site From Adjacent South Lot
Looking Northwest Toward Kailua Village



Kuakini Hwy
View North to Tank Site



Entering Kuakini Hwy.
View Mauka / East to Tank Site



View North to Tank Site
From Keauhou

View North to Tank Site
From Keauhou