



August 2, 1996

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII

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OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

Director
Office of Environmental Quality Control
220 South King Street, Suite 400
Honolulu, HI 96813

NEGATIVE DECLARATION FOR PAHALA DEEPWELL NO. 2
EXPLORATORY STAND-BY WELL DRILLING, PAHALA, HAWAII
TAX MAP KEY 3-9-6-05:16

The Department of Water Supply, County of Hawaii, has reviewed the comments received during the 30-day public comment period. The Department of Water Supply has determined that this project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the August 12, 1996 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final Environmental Assessment. Please contact Mr. Kenneth Ikemori, Chief of Operations, Department of Water Supply, at 961-3723, if you have any questions.

For your information, effective July 31, 1996, our new (main office) telephone number is 961-8660 and fax number is 961-8657.

Milton D. Pavao, P.E.
Manager

Encs.

... Water brings progress...

100

1998-08-23-HI-*FEA*-*Pahala Deep Well No 2*
Exploratory Stand-By Well

AUG 23 1996

FILE COPY

PAHALA DEEP WELL NO.2
EXPLORATORY STAND-BY WELL DRILLING
PAHALA, HAWAII

FINAL ENVIRONMENTAL ASSESSMENT

Proposing Agency:
Department of Water Supply
County of Hawaii

JULY 1996

By:
Waimea Water Services Inc.

and

Imata and Associates

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SECTION 1
INTRODUCTION AND SUMMARY

The Department of Water Supply (DWS), County of Hawaii proposes to drill an exploratory stand-by deep well in Pahala in the Kau District of the Big Island of Hawaii. If the exploratory well proves to be productive, it will be outfitted to a stand-by production well to provide backup to the existing Pahala Well (State Well #1229-01) northwest of the town of Pahala and to explore the high level groundwater.

The few negative impacts which have been identified in this Draft Environmental Assessment should be adequately minimized by the suggested mitigative measures. In accordance with Chapter 343, *Hawaii Revised Statutes*, it has been determined that an Environmental Impact Statement is not required for the proposed Pahala Exploratory Stand-by Well project. Therefore, this document constitutes a notice of anticipated Negative Declaration.

1.1 PROPOSING AGENCY

Department of Water Supply, County of Hawaii

1.2

AGENCIES CONSULTED IN MAKING THE ASSESSMENT

1. **Commission on Water Resources Management,
Department of Land and Natural Resources, State
of Hawaii**
2. **Hawaii State Land Use Commission**
3. **Hawaii State Office of Environmental Quality Control**
4. **Historic Sites Preservation Office, Department of Land and
Natural Resources, State of Hawaii**
5. **Safe Drinking Water Branch, Hawaii State
Department of Health**
6. **Department of Water Supply, County of Hawaii**
7. **Planning Department, County of Hawaii**

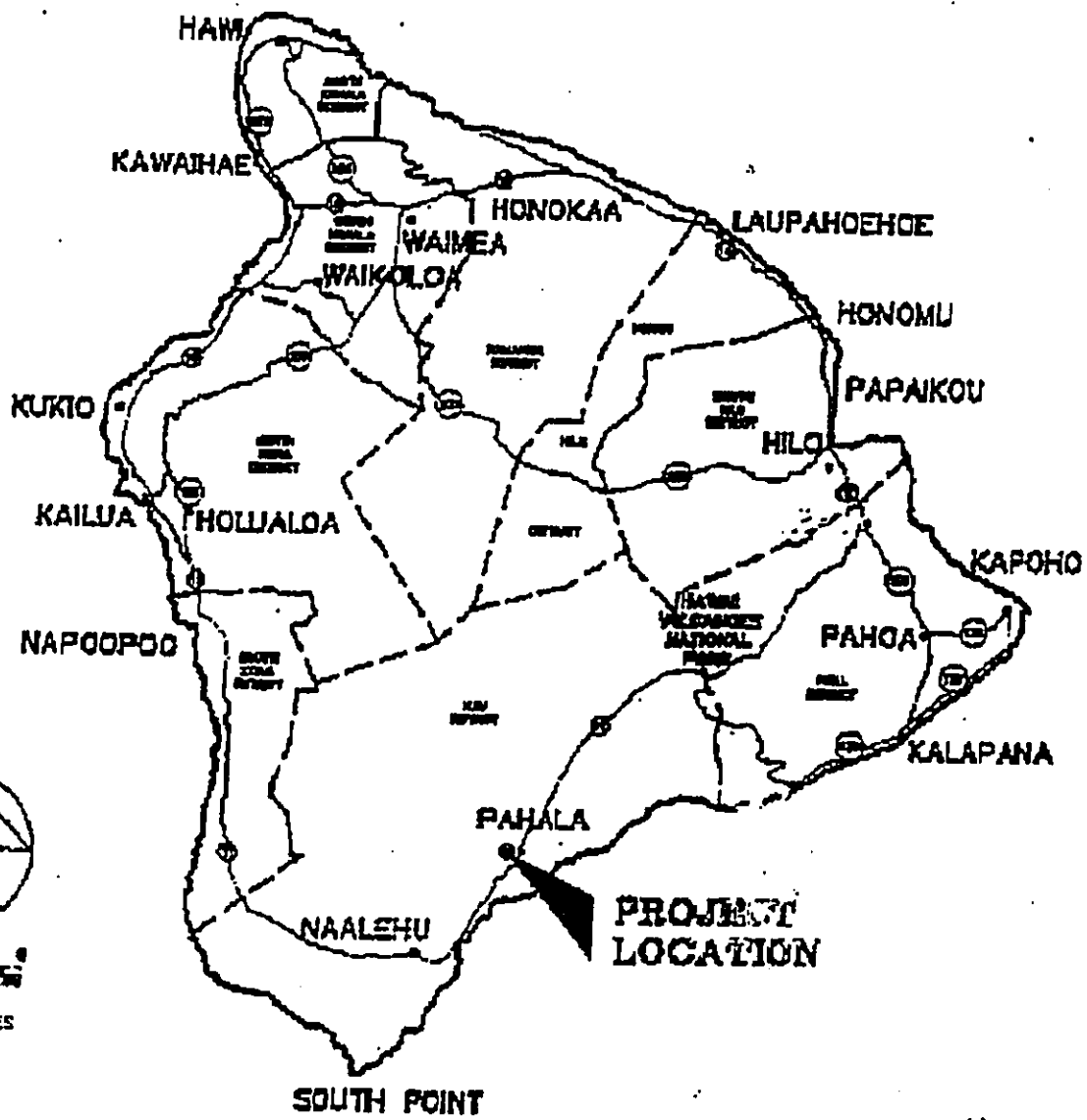
SECTION 2

PROJECT DESCRIPTION

The Department of Water Supply (DWS), County of Hawaii proposes to drill an exploratory stand-by deep well in Pahala in the Kau District of the Big Island of Hawaii. If the exploratory well proves to be productive, it will be outfitted into a stand-by production well to provide backup to the existing Pahala Well (State Well #1229-01) northwest of the town of Pahala and to explore the high level groundwater.

2.1 PROJECT SITE

The project site is located in the southeastern region of the Big Island of Hawaii, near the town of Pahala, as shown in Figure 2-1. The well site is situated on the southern slope of Mauna Loa Mountain, next to the existing DWS well and storage tank servicing the DWS Pahala Water System #109. The well is located next to a cane haul road and macadamia nut orchard at an elevation of 1112' feet above mean sea level (MSL), as shown in Figure 2-2. Access to the well site is via Highway 11 and Pikake Street, a two-lane rural street, which runs through Pahala Town and connects to a cane haul road running mauka to the site. The existing 500,000-gallon reservoir is situated next to the project site.

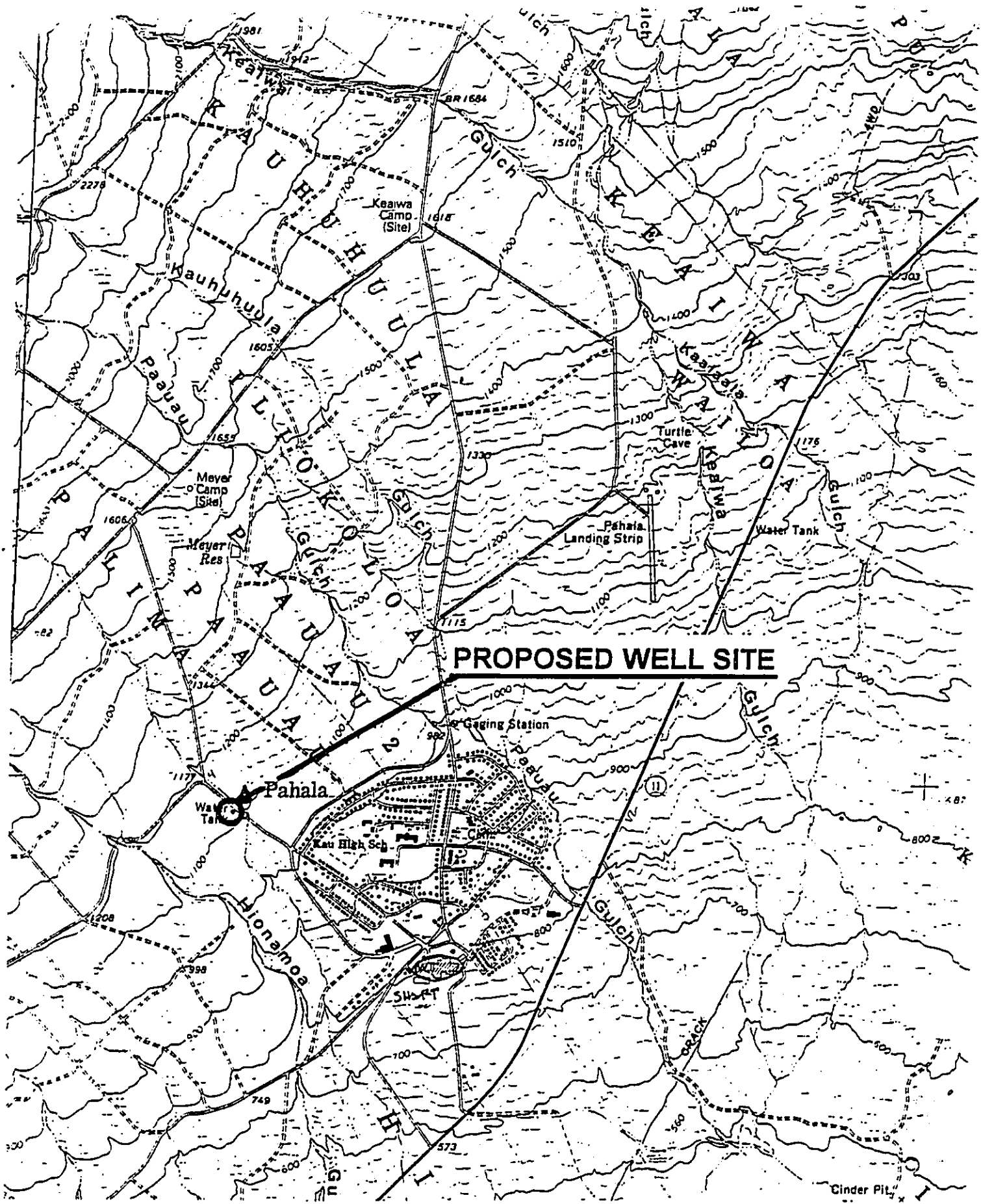


ISLAND OF HAWAII

Pahala Exploratory Stand-by Well
LOCATION MAP

Date: 11/14/95

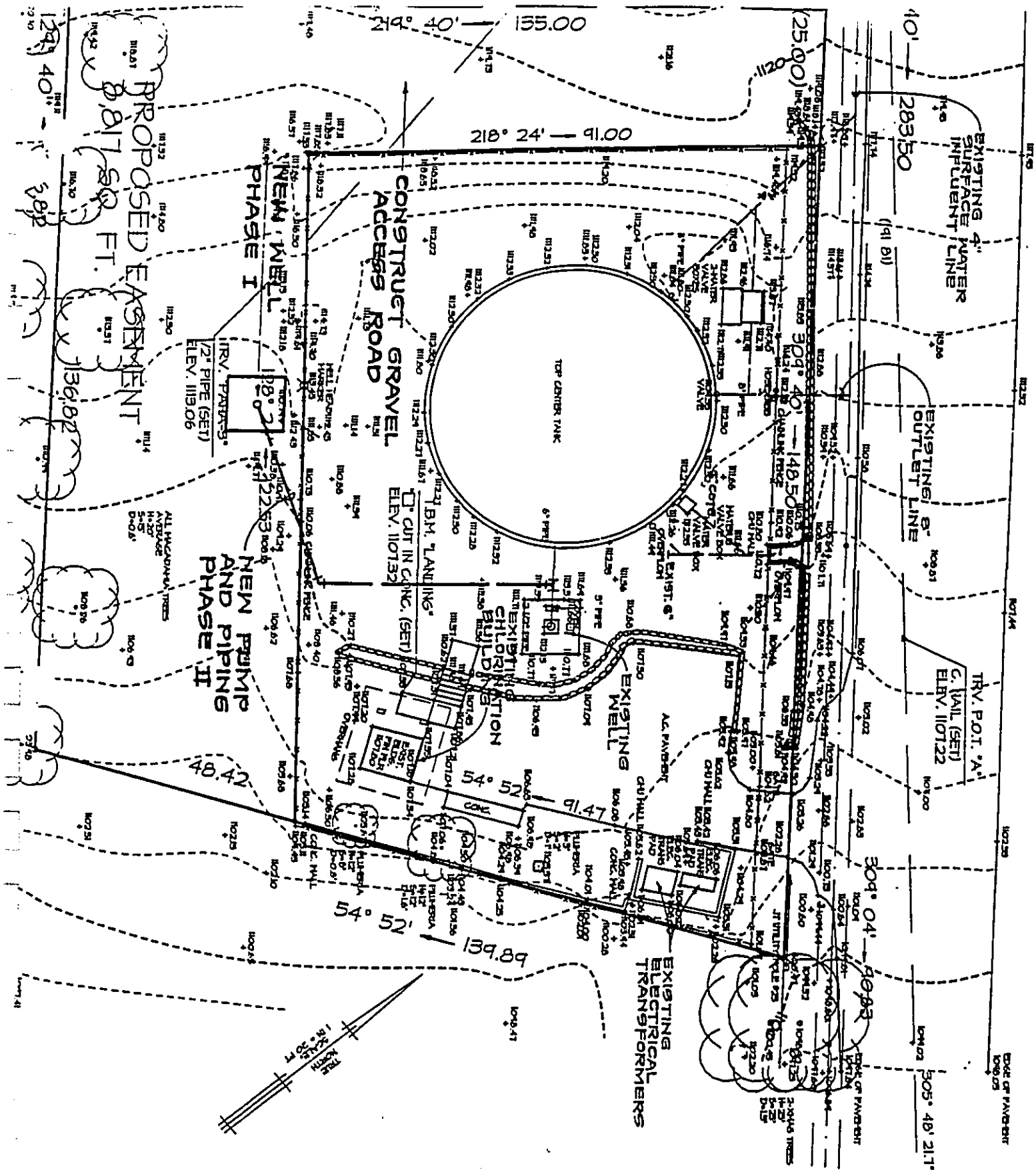
Waimea Water Services Inc.



Scale: 1:24000
 USGS 1982

Pahala Exploratory Stand-by Well
 TOPO MAP

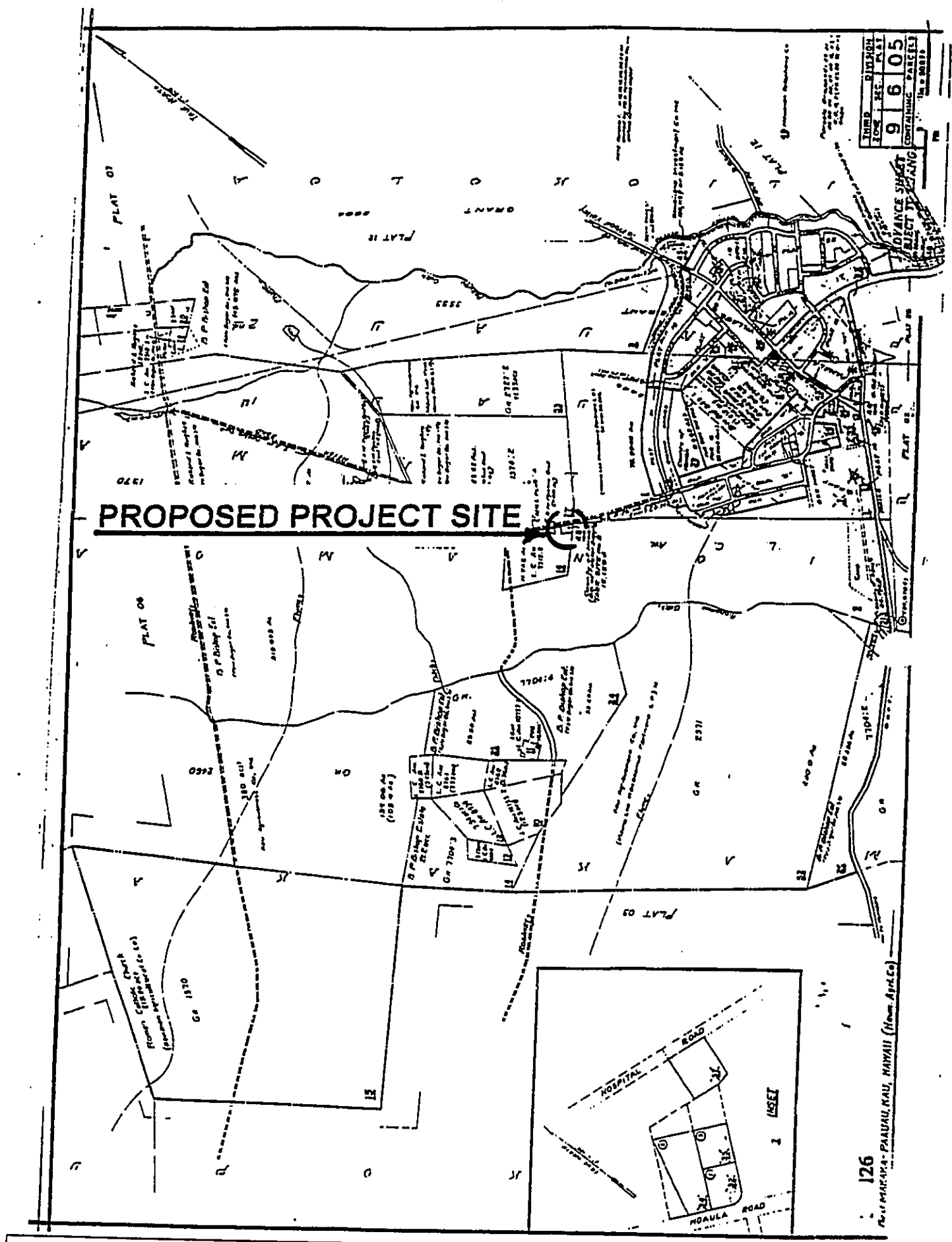
Date: 11/14/95
 Waimea Water Services Inc.



Imata and Associates, Inc.

Pahala Exploratory Stand-by Well
SITE PLAN

Date: 11/22/95
 Waimea Water Services Inc.



Pahala Exploratory Stand-by Well
TMK MAP

Date: 11/14/95
Waimea Water Services Inc.

The property, with TMK 3-9-6-05:16, is currently owned by the Board of Water Supply, County of Hawaii and referenced as Tank Site No. 5. The well site is next to the existing well and tank. The site lot size is 12,129 square feet, and is adjacent to land owned by Brewer Industries. Additional lands will need to be purchased to construct the well as shown in Figure 2-3.

2.2 PROPOSED FACILITIES

The proposed exploratory stand-by well project involves drilling, casing, and testing an exploratory well. The depth of the well is expected to be 975' (elev. 137'). If the yield and water quality are acceptable to the DWS, the well will be placed into production as a stand-by well to the existing well. The following improvements will need to be included for the operation of a new stand-by well: preparatory site work; fencing relocation; deep well pump installation, including piping and controls; site piping, including connections to the reservoir and deep well; electrical system, including electric power motor controls, lighting, and telemetering. Chlorination system and control building are already on site and will be utilized.

The Department of Water Supply plans to pump at a rate of 400 gallons per minute (gpm) and up to 500,000 gallons per day. However, the actual use of the stand-by well will be determined by the results of the exploratory well pump test. Current average consumption's are 280,000 gallons per day (GPD).

The footprints of the concrete pad for the production well and well head piping are approximately 200 square feet in area. Retaining walls may be constructed where needed mauka of the well. Figure 2-3 shows the location of the well in reference to its surroundings and land divisions.

2.3 DEVELOPMENT SCHEDULE AND COST

Construction is scheduled to begin in early 1996. The construction cost for this project is estimated at \$840,000.

2.4 PROJECT NEED

The current water demands in the Pahala area are met with treated tunnel water from the Alili Tunnel and the existing Pahala Well. The average flows of the tunnel ranges from 600,000 to 900,000 gallons per day (gpd), a portion of which is diverted for use in the Pahala Water System. The Pahala System serves the town of Pahala. This system's current capacity is 0.50 million gallons per day (mgd), however, the tunnel is not a reliable source during dry weather. The well provides needed additional water to the system. Although the current well has a pumping capacity of 0.5 mgd, failure of the well pump or motor during dry weather leaves the system with no back up. The average demand on the Pahala system is about 460 services with an average water sales of 304,000 gallons per day (gpd) in 1991 to 272,000 gpd in 1995. Thus, a stand-by sources of potable water must be developed.

Groundwater from the deep high level aquifer has been a viable source for the DWS as well as for the near by Kau Agriculture sugar plantation operations and other crop needs. The water quality of the aquifer is reliable and does not require any treatment except chlorination for the system needs as per DOH and DWS records. Drilling the deep well and pumping the water results in high capital and operation costs as compared to the tunnel source. However, the alternatives to a stand-by well are limited and are expected to be both more expensive and have greater environmental and treatment impacts. Section 5 discusses the alternatives to the development of the deep well.

SECTION 3

EXISTING CONDITIONS

This section describes the existing conditions of the project including the existing land use designation, surrounding land uses, climate, geology and topography, soils, hydrology, flood hazards, earthquake hazards, flora and fauna, and archaeological and historic sites.

3.1 EXISTING LAND USE DESIGNATIONS

The Pahala exploratory well drilling project boundaries fall within the State Agricultural Land Use District. Therefore, a Conservation District Use Permit is not required. The existing state land use designations are shown in Figure 3-1.

The County land use zoning designation is A-40a, which refers to agricultural lots greater than 40 acres.

3.2 SURROUNDING LAND USES

The surrounding lands have been extensively used for agriculture, both sugar and macadamia nut. A Conservation District/Forest Reserve is located 13,000 feet to the north and west of the project site. The town of Pahala is located about 1,200 feet to the southeast (makai) of the project. Pahala falls under both Urban State Land Use Designations.

3.3 CLIMATE

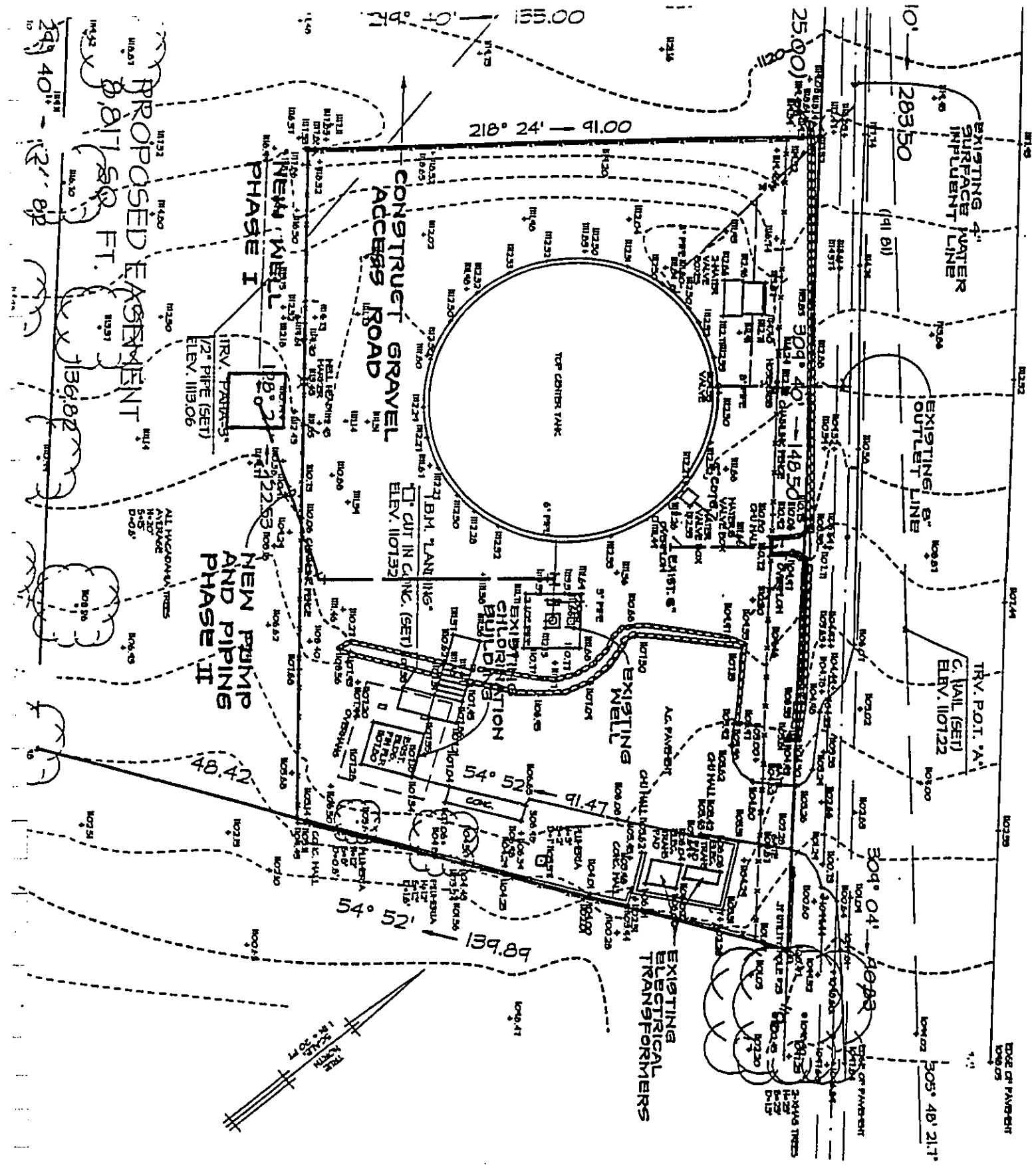
The project area receives an average of 50 inches of precipitation per year, most of which occurs during the winter months. Due to the elevation of the project site, the average annual temperature is 70 F to 72 F.

3.4 GEOLOGY AND TOPOGRAPHY

The project site sits upon a formation formed by the basalt flows from Mauna Loa and Kilauea laid down in prehistoric time, containing a few inter-stratified beds of volcanic ash.

The water level at the well site stands at about elevation 383' MSL and varies some 30', as indicated by records from Pahala Mill shaft (Kau Agriculture; 1995). This high level aquifer is most probably fault confined water.

The Pahala well site is located on the slopes of Mauna Loa. The well site is best characterized as gently sloping makai. A topographic map of the area is shown in Figure 3-2.



Imata and Associates, Inc.

Pahala Exploratory Stand-by Well
SITE PLAN

Date: 11/22/95

Waimea Water Services Inc.

3.5 SOILS

The soil at the project site is classified as Waiaha (WAC) Silt Loam with slopes of 0 to 10 percent. This soil overlays the bedrock to a depth of less than 1.5 feet and consists of shallow, well drained silt loam formed from volcanic ash. These soils are found on uplands at elevations ranging from near sea level to 1000 feet. Site inspections confirm very thin soil with exposed bedrock.

3.6 HYDROLOGY

The geology and known hydrology of the area confirms the presence of impounded high level aquifer within the basalt lavas of Mauna Loa, principally at the Kahuku Volcanic Series. The high level aquifer is most probably formed by enechelon faults systems. The water table stands at 383 feet above mean sea level.

The withdrawal of water is not expected to increase as the well is for stand-by use and will not be pumping unless the other well is not operating. This should not impact the aquifer any more than the existing pumping. The sustainable yield of the Naalehu aquifer system has been estimated at 117 mgd (CWRM, February 1992).

According to the State Department of Health, November 1993 map of the Island of Hawaii, Upper Aquifer Development Stage and Utility Status,

the existing well and proposed stand-by wells are above the UIC line and is in an area designated as "Potential Use".

The existing well did have a positive testing for Atrazine of less than 0.500 ppb (Dept. of Health, Oct. 1993, Groundwater Contamination on the Island of Hawaii). Atrazine's Maximum Contaminant Level (MCL) for drinking water standards is 3.0 ppb and is potentially from herbicides. The observed Atrazine in the existing well is well below the MCL and the well is still in service as a drinking water source. MCL means a maximum contaminant level of a contaminant in the water which is delivered to any user of a public water system. MCLs are the only federally enforceable drinking water standards.

Most probably, the use of Atrazine will cease following the cessation of sugar cane culture in April of 1996.

3.7 FLOOD HAZARDS

Flood Insurance Rate Maps (FIRM) were used to evaluate the potential flooding for the study area. Based on map number 155166 1725C dated September 16, 1988, the project site is designated as "other areas, Zone X - areas which are determined to be outside of the 500-year flood plain".

3.8 EARTHQUAKE HAZARDS

The island of Hawaii is classified as a Seismic Zone 3 area, as per the Uniform Building Code (1991). Given that the least active zone is Zone 0,

and the most active zone is Zone 4, the possibility of an earthquake occurring on the Island of Hawaii is fairly high. All new structures will be designed and constructed to resist stresses produced by lateral forces which apply to the Seismic Zone 3. There is no known damage to the existing well (constructed in 1974) which was subjected to the November 25, 1975 quake, which registered 7.2.

3.9 FLORA AND FAUNA

Most of the plant species in the area are introduced, and there are no rare or endangered flora species at the project site. The area around the site is cultivated and planted in macadamia nut groves.

No rare or endangered fauna species are known to live at the project site. Common species which could be found nearby include feral pigs, mynas, pheasant, quail, plovers, mongoose, and mice and other exotic species.

3.10 ARCHAEOLOGY AND HISTORIC SITES

According to the Department of Land and Natural Resources, State Historic Preservation Division (letter from Don Hibbard, dated November 22, 1995), the probability of finding any historic or archaeological site in the vicinity of the well site is unlikely. The site has been severely altered and used as a well and tank site while the surrounding areas are in production as macadamia nut groves. However, should burials be found during construction, work must stop and the State Historic Preservation office must be contacted immediately.

SECTION 4

PROJECT IMPACTS AND MITIGATIVE MEASURES

The project impacts and their mitigative measures are discussed in the following sections. Some of the impacts discussed are construction noise, air quality, flora and fauna, surface water and groundwater quality, archaeological and historic, traffic, public health and safety, and socioeconomic.

4.1 SHORT-TERM IMPACTS AND MITIGATIVE MEASURES

Short-term impacts will result from site clearing, grubbing and grading, well drilling and installation, pumping station, building construction, and landscaping. These activities will be limited to the project site during the well construction period of approximately five to six months. The following sections discuss the short-term impacts and their mitigative measures.

4.1.1 Construction Noise

Noise generated from the mobilization of equipment along the access road, and the drilling of the exploratory well will be the primary impact during construction at the Pahala stand-by well site. Mobilization of equipment, as well as the well drilling, should be done only during daylight hours. Nearby residences may be as close as 1,100 feet to the well site, and the noise impact on the nearby residential areas should not be significant.

In order to mitigate any noise impacts, the use of muffled construction equipment is recommended. Construction equipment is also expected to be properly maintained. Heavy vehicles must be in compliance with Title III Administrative Rules, Department of Health (DOH), Chapter 42, Vehicular Noise Control for Hawaii. Construction work will most likely not be done during the weekends and holidays.

4.1.2 Air Quality

Short-term air pollution from dust/dirt due to clearing, grubbing and grading, along with vehicular emissions from construction equipment, is expected to be insignificant. All operations will be conducted in conformance with the State Department of Health regulations regarding vehicular emissions.

Water trucks will be used to minimize the levels of dust in the air. Areas which have been graded should be grassed as soon as possible to prevent dust from becoming a nuisance. All construction equipment shall be equipped with adequate emission control. All open-bed trucks shall be covered when transporting materials, which have the potential to become airborne. overall, the project is not expected to have significant impacts on air quality.

4.1.3 Flora and Fauna

No known rare or endangered species of flora and fauna are found at the site. Surveys of adjacent areas have also reported no known rare or endangered species. Therefore, no short-term impacts are expected.

4.1.4 Surface Water and Groundwater Quality

Impacts on surface water and groundwater are expected to be insignificant. The nearest surface water feature is an intermittent and normally dry stream to the southwest of the well site. The Hianamoa Gulch collects storm water runoff mauka of Pahala and is approximately 1,300 feet from the well site.

Any storm runoff from the site will be mitigated by erosion control measures including building berms around the project site to contain storm water runoff, installing silt fences as needed, immediately landscaping areas which have been graded, and grading during dry weather. Dewatering is not necessary for this project. Drilling fluid and discharge from pump testing will be disposed of by the drilling contractor in accordance with the requirements of the Department of Health, Clean Water Branch. An NPDES permit is not required for this type of discharge. The water from the well site drains into an existing drainage ditch, which may be used by the contractor. No flooding is expected to be caused by the contractor or run off water due to the capacity of the stream.

If the well testing is successful, the next phase is to outfit the well into a production source. For this next phase, the design will specify for the installation of a shallow drainage well to take the initial surge water from the well.

Impacts on the groundwater are considered insignificant as this is a stand-by well and will not be pump at the same time as the existing well. The well annulus will be grouted to below water level to reduce surface contamination.

4.1.5 Archaeological and Historical

No archaeological or historic sites are known to exist at the well site, and no short-term impacts due to construction are expected.

4.1.6 Traffic

The two-lane highway that passes east of the town of Pahala. Traffic along Mamalahoa Highway may backup slightly during transport of the drilling equipment and construction materials, but the increase should not greatly affect the surrounding residents. Mobilization will be done during low traffic flow hours.

4.1.7 Public Health and Safety

The construction contractor shall be responsible for implementing appropriate measures to ensure public health and safety during the construction period. Construction areas will be delineated with no-trespassing and safety signs.

4.1.8 Socioeconomic

Construction of the production well and related improvements will provide several related jobs for the local workers. The purchase of materials from local suppliers will help the local building economy.

4.2 LONG-TERM IMPACTS AND MITIGATIVE MEASURES

No long-term impacts are expected for the exploratory well. If the results of the pump test and water quality analysis are favorable as this is a stand-by well to the existing well.

The following sections describe the production well's long-term impacts on noise, flora and fauna, drainage, stream flow, infrastructure, socioeconomic, land use and planned development.

4.2.1 Noise

Very little noise at the well site will be generated from the pumping of the production well as the pumping equipment will be a submersible pump and motor in the well.

4.2.2 Flora and Fauna

Since there are no rare or endangered plant or animal species at the project site, no significant long-term impacts are expected.

4.2.3 Drainage

The minimal amount of additional runoff generated from the project improvements will be allowed to sheet flow into existing natural drainage ways. No significant impacts on drainage are expected.

4.2.4 Stream Flow

The withdrawal of up 400 gallons per minute or 0.5 mgd of groundwater by the existing well has demonstrated no impact on any stream

flows. This stand-by well will not increase any impact. Thus the development of the proposed stand-by deep well should not have a significant effect on stream flow.

4.2.5 Infrastructure

Power will be required to operate the pump motor and control center. Because this is a stand-by well, no additional power consumption is expected and there will be no increase on HELCO's existing power grid.

4.2.6 Socioeconomic

The Department of Water Supply (DWS), County of Hawaii is responsible for providing safe drinking water in a reliable manner to the people of the island of Hawaii. To increase the reliability of water delivery in dry weather, or when the well is being used, a stand-by well will assure the ability for DWS to provide support for the residential, commercial and agricultural water users of the Pahala water system service area.

4.2.7 Land Use and Planned Development

The proposed well facility is expected to remain consistent with the land use designation of the area. Both the County and State designations fall under agriculture.

SECTION 5
ALTERNATIVES TO THE PROPOSED ACTION

Four alternatives were considered for this project:

- 1) no action,
- 2) delayed action,
- 3) alternate sites, and
- 4) alternate sources.

These alternatives are discussed below.

5.1 NO ACTION

A no-action alternative is not practical, because the Department of Water Supply may not be able to meet the demands of the existing system during dry weather or pump failure of the existing well, possibly resulting in water shortages. The benefits of providing the public with redundancy to the existing system is vital to the mission of the DWS.

5.2 DELAYED ACTION

Delayed action is also not a practical alternative. It would create additional strain on the local water system infrastructure until the stand-by well is developed.

5.3 ALTERNATE SITES

The well site was selected by the Department of Water Supply based on its proximity to the existing well and reservoir, and the ease of site development.

5.4 ALTERNATE SOURCES

The expanded development of tunnels or surface water sources would be unreliable and prone to drought conditions. The purpose of the Stand-by well is to provide a reliable back up to the existing well and provide redundancy. Any other alternative would result in the need for a large additional reservoir storage capacity exceeding 5 million gallons of covered storage. The use of surface water and additional tunnel supplies might also require treatment under the Surface Water Rules of the Safe Drinking Water Act and its amendments. Such alternatives would cost as much as \$3 to 5 million to place in service and include significant maintenance, regardless of the actual use.

The Department of Water Supply emphasizes the development of available and reliable high level groundwater as one of its primary sources of potable water.

SECTION 6

NEGATIVE DECLARATION DETERMINATION

The few negative impacts which have been identified in this Final Environmental Assessment for Pahala Deep Well No. 2 Exploratory Stand-by Well Drilling should be adequately minimized by the suggested mitigative measures. In accordance with Chapter 343, *Hawaii Revised Statutes*, it has been determined that this project will not have significant environmental effect and an Environmental Impact Statement is not required. This constitutes a negative declaration.

Description of the Proposed Action

The Department of Water Supply (DWS), County of Hawaii proposes to design and construct a exploratory stand-by deep well in Pahala in the Kau District of the Big Island of Hawaii. If the exploratory well proves to be productive, it will be out-fitted to a stand-by production well to provide backup to the existing Pahala Well (State Well #1229-01) northwest of the town of Pahala and to explore the high level groundwater. Other alternatives have been explored but do not provide the redundancy required to insure a safe and sufficient water supply.

The few negative impacts which have been identified in this Final Environmental Assessment for Pahala Deep Well No. 2 Exploratory Stand-by Well Drilling should be adequately minimized by the suggested mitigative measures. In accordance with Chapter 343, *Hawaii Revised Statutes*, it has been determined that this project will not have significant environmental effect and an Environmental Impact Statement is not required. This constitutes a negative declaration.

D. Determination and Reasons Supporting the Determination

The proposed project would not have a significant effect on the environment and therefore preparation of an environmental impact statement is not required. The "Significance Criteria," Section 12 of Hawaii Administrative Rules Title 11, Chapter 200, "Environmental Impact Statement Rules," were reviewed and analyzed. Based on the analysis, the following were concluded:

1. *No irrevocable commitment to loss or destruction of any natural or cultural resource would result.* The lands for construction and access right-of-way is in former macadamia nut agriculture lands. No significant natural resources are present. No known cultural

1. ***No irrevocable commitment to loss or destruction of any natural or cultural resource would result.*** The lands for construction and access right-of-way is in former macadamia nut agriculture lands. No significant natural resources are present. No known cultural resources would be impacted. The State Division of Historic Preservation was contacted.
2. ***The action would not curtail the range of beneficial uses of the environment.*** The project, while certainly making use of groundwater resources, would increase the reliability of the supply of water to the Pahala water system and extract no more water than is presently extracted using the capacity of the existing well.
3. ***The proposed action does not conflict with the State's long-term environmental policies or goals and guidelines.*** The State's environmental policies and guidelines are set forth in Chapter 344, Hawaii Revised Statutes, "State Environmental Policy." Two broad policies are espoused: conservation of natural resources, and enhancement of the quality of life. The proposed project does not consume significant natural resources in land or groundwater as this is a stand-by well to provide back-up to the existing well. It would include mitigative measures to minimize various categories of pollution, while promoting general welfare and improving the reliability of providing quality water to the Pahala water system; allowing fulfillment of the social, economic and other requirements of residents in Pahala.
4. ***The economic or social welfare of the community or state would not be substantially affected.*** Construction of the well would result in temporary economic benefits to the well drilling construction industry and indirectly to other economic sectors as well. The redundancy of the water source would allow the population a degree of reliability in its water supply, and possibly increase the potential for economic investments in the area.
5. ***The proposed action does not substantially affect public health.*** The project would increase the reliability of a safe and sufficient water source to Pahala. It will facilitate provisions for emergency water supply backup for the DWS and other public services.

6. ***No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.*** The stand-by well project arises from the need established to provide a reliable water source to the population. The total capacity of the source is not increased, limiting the population expected to be serviced.
7. ***No substantial degradation of environmental quality is anticipated.*** The project area is unremarkable in terms of environmental resources, and standard mitigation measures would suffice to protect ambient environmental quality. Proper mitigation of construction noise and drilling water discharge would take place. The project is not expected to result in concentrations of air pollutants exceeding State or federal standards for ambient air quality as standard utility electric power will power the stand-by pump.
8. ***The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effects on the environment.*** The proposed project is self-contained and independent of other water systems. The project solves a redundancy need for the existing water source and is not intended to provide more service capacity.
9. ***No rare, threatened or endangered species or their habitats would be affected.*** No endangered, threatened or candidate floral species would be affected by the project.
10. ***Air quality, water quality or ambient noise levels would not be detrimentally affected.*** There is no impact on air quality. No significant water quality impacts are anticipated either during construction or operation of the of the stand-by well. Proper well construction methods and materials are expected to be specified and used.
11. ***The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, fresh waters or coastal waters.*** No environmentally sensitive areas would be affected. The project site is on slightly sloped land well inland of the coast. Tsunami inundation is very unlikely. Seismic risks are not expected if proper construction is used. The existing facilities have not experienced any damage. The volcanic hazards are comparable to those in Hilo.

SECTION 7

LIST OF NECESSARY PERMITS AND APPROVALS

The following permits and approvals are anticipated for the development of the proposed Pahala Exploratory Stand-by Well project:

1. Plan Approval - Department of Water Supply, County of Hawaii.
2. Well Construction Permit - Commission of Water Resource Management, State DLNR.
3. Pump Installation Permit - Commission of Water Resource Management.
4. Department of Land and Natural Resources, State of Hawaii.
5. State Historic Preservation Office Review Department of Land and Natural.
6. Utility Company Approvals - HELCO, Hawaiian Telephone.

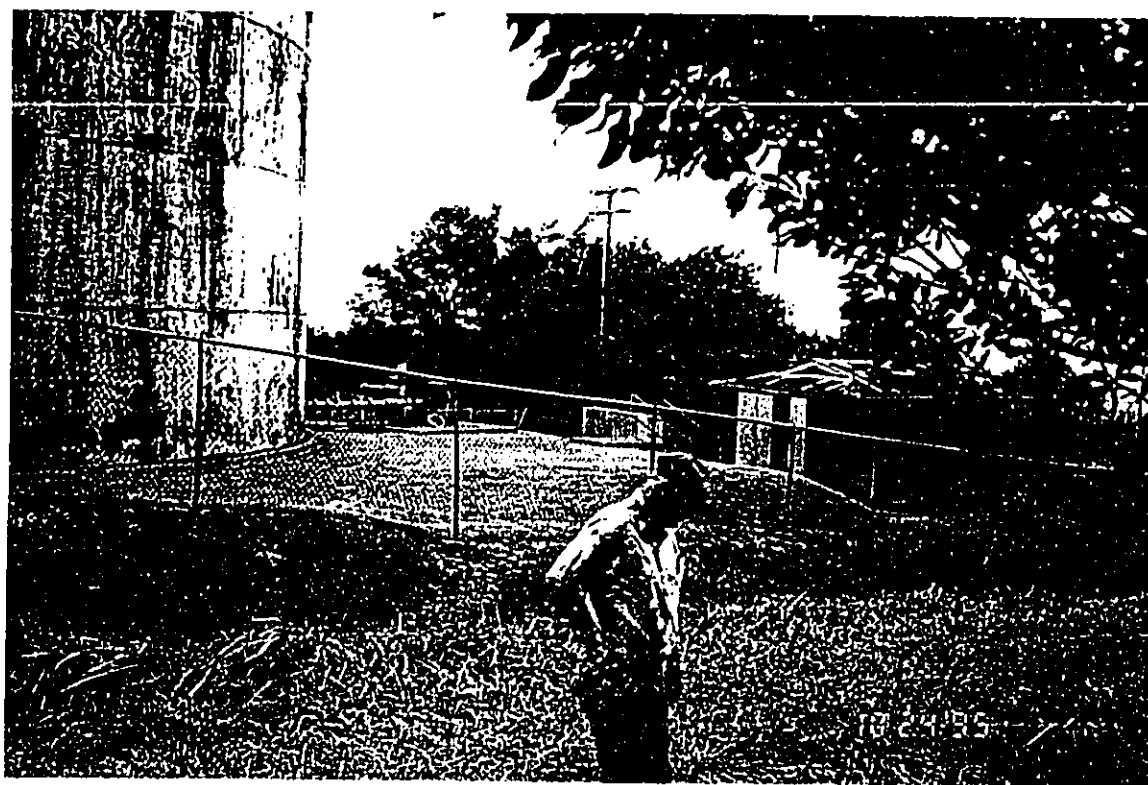
REFERENCES

1. Island of Hawaii, Water Systems, Dept. of Water Supply, County of Hawaii.
2. Letter from Don Hibbard, Department of Land and Natural Resources, State Historic Preservation Division. July 27, 1994.
3. Megumi Kon, Inc. State of Hawaii, Commission of Water Resource Management, Department of Land and Natural Resources. *Hawaii County Water Use and Development Plan*. Review Draft, February 1992.
4. H.T. Stearns and G.A. MacDonald, *Geology and Ground-Water Resources of the Island of Hawaii*, Bulletin 9, Hawaii Division of Hydrography, 1946.
5. State of Hawaii, *Environmental Assessment Booklet*
6. State of Hawaii, Department of Land and Natural Resources, Division of Water and Land Development. *Rainfall Atlas of Hawaii*. R76. June 1986.
7. U.S. Department of Agriculture, Soil Conservation service. *Soil Survey of Island of Hawaii, State of Hawaii*. August 1972.
8. *Land Use District Boundaries, District Map H-50*, State of Hawaii, Land Use Commission, Dec. 20, 1974.

APPENDIX A

PHOTOS OF WELL SITE

DOCUMENT CAPTURED AS RECEIVED

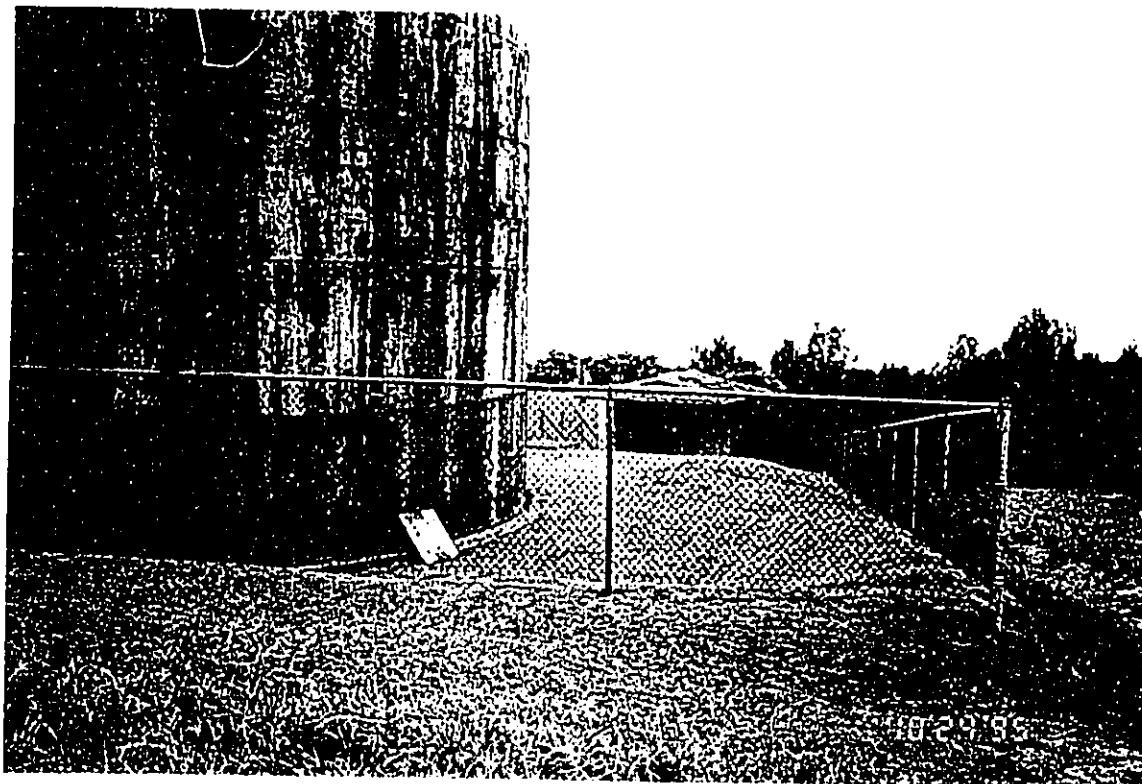


Mr. Bowles standing at proposed well site.

DOCUMENT CAPTURED AS RECEIVED

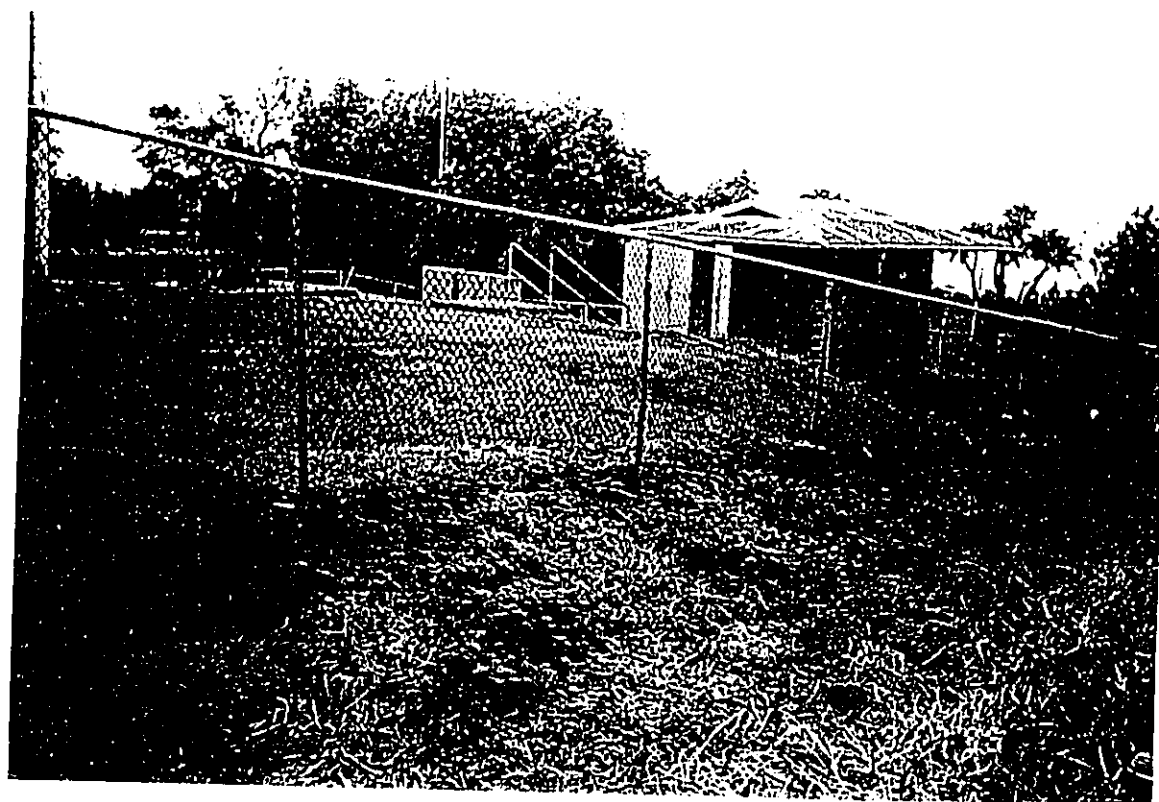


View makai towards existing reservoir.

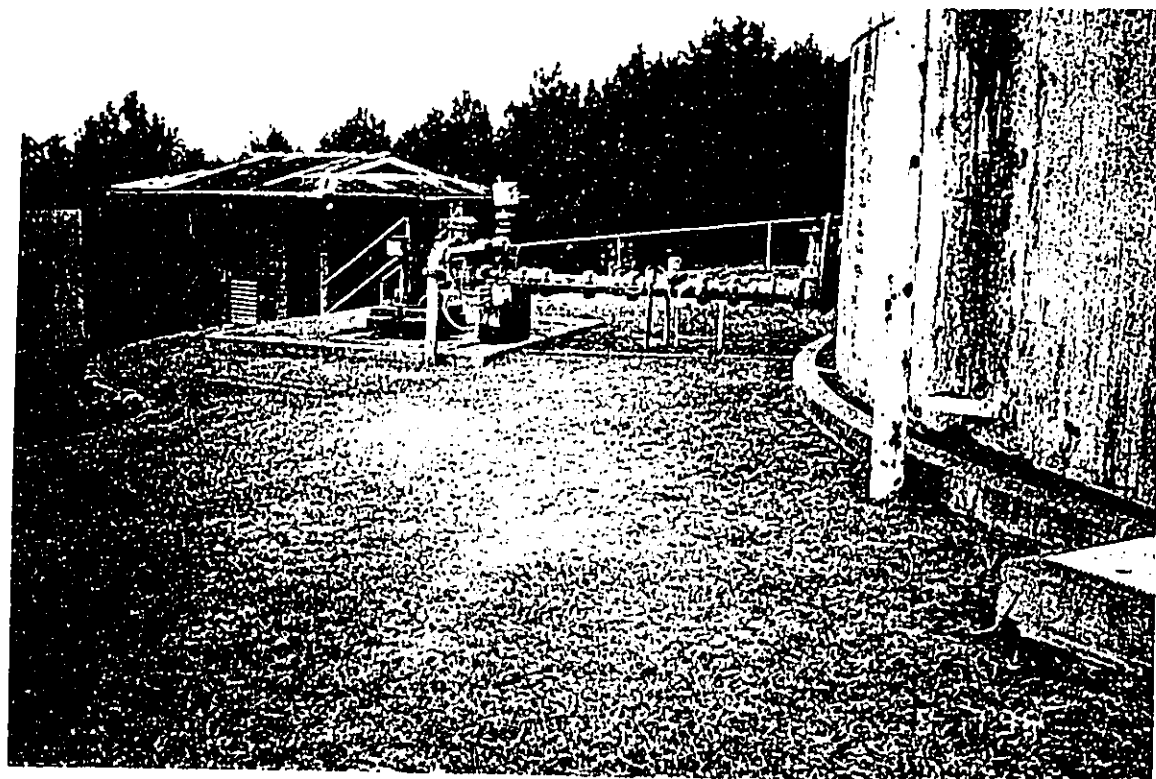


View of area from existing reservoir to future well site.

DOCUMENT CAPTURED AS RECEIVED



View from future well site of existing well and control building.



View from road of existing well and control building.

LETTERS OF CORRESPONDENCE

**DLNR, State Historic Preservation Division, Office of Environmental Quality Control
Waimea Water Services, Inc.**

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



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

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

DEPUTY
GILBERT COLOMA-AGARAN

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

LOG NO: 15955
DOC NO: 9511PM27

November 22, 1995

Mr. John Stubbart
Waimea Water Services, Inc.
P.O. Box 326
Kamuela, Hawaii 96743

Dear Mr. Stubbart:

SUBJECT: Request for Information Regarding Historic Sites in the
Area of the Proposed Pahala Stand-by Well
Hionamoa, Ka'u, Hawaii Island
TMK: 9-6-05:16

This is in response to your letter of November 7, 1995 with a request for information concerning the possible existence of historic sites in the vicinity of the proposed well.

We have no record of historic sites on this parcel. It is unlikely that any exist since the area is now an orchard and was probably in sugarcane before that. The possibility of historic sites cannot be completely eliminated, however, since the tax map indicates that this parcel was an LCA, which means that there may be unmarked graves.

We believe that the proposed well will probably have "no effect" on significant historic sites, but in the event that human remains or other indications of human activity older than 50 years are found all work should stop immediately and Marc Smith of our Hilo office notified (933 4346).

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

Aloha,

A handwritten signature in black ink, appearing to read "Don Hibbard".

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

BENJAMIN J. CAYETANO
GOVERNOR



GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4188

July 5, 1996

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

Dear Mr. Pavao:

Subject: Draft Environmental Assessment for the Pahala Deep Well
No. 2 - Stand-by Well

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please disclose in the environmental assessment the diameter of the proposed well casing.
2. According to the draft environmental assessment, the island of Hawaii is classified as Seismic Zone 3 based on the 1991 Uniform Building Code. Has there been any change to the seismic zone that would affect the Building Code?
3. Please provide reasons for supporting the determination based on an analysis of the significance criteria in section 11-200-12 of the Hawaii Environmental Impact Statement Rules. Refer to section D of the enclosed sample as a guideline.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185. Mahalo.

Sincerely,

A handwritten signature in cursive script that reads "Gary Gill".

Gary Gill
Director

c: Waimea Water Services, Inc.



July 10, 1996

Mr. Gary Gill
Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

SUBJ: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
PAHALA DEEP WELL #2 STAND BY WELL

Dear Mr. Gill,

We are responding to your letter dated July 5, 1996 on behalf of the Hawaii County Department of Water Supply:


Item 1 requests for the diameter of the proposed well casing. Enclosed is the cross-section of the proposed deepwell #2 to be included in the environmental assessment as a supplement document.

Item 2, questioned the Seismic Zone 3 as per the 1991 Uniform Building Code. We contacted Kai ho Chang, Engineer of the Building Department, who verified that there was no change to the seismic zone that would affect the building code.

Item 3, this item will be addressed on a separate cover. The Office of the Environmental Quality Control sent us an example of an E.A for a well, and we followed that sample. Is this a new format just for the declaration at the end of the E.A. report?

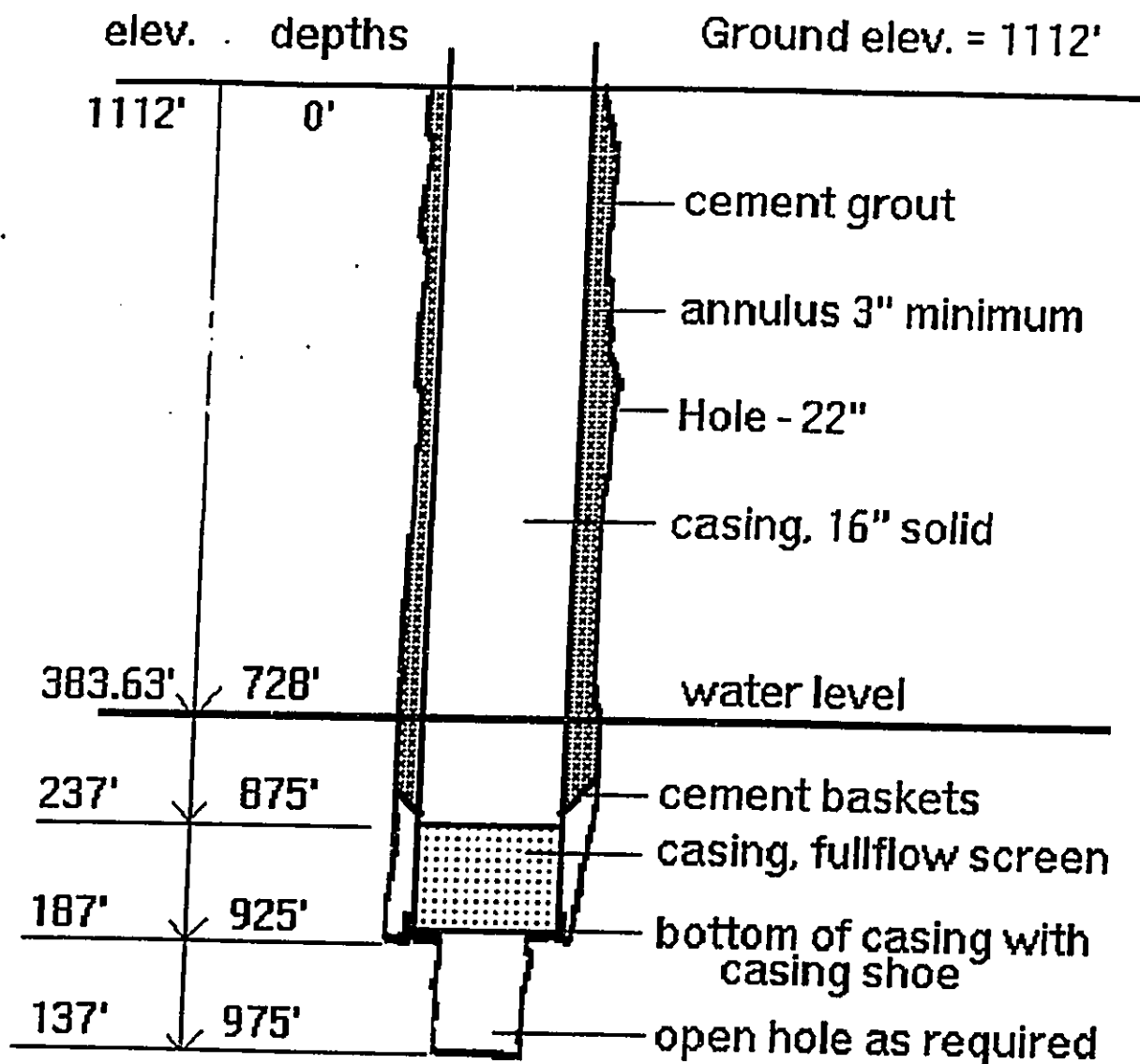
Should you have any questions, please feel free to call me. Thank you.

Sincerely,


John M. Stubbart

cc: Milton Pavao, Manager, Hawaii County department of Water Supply

Proposed Pahala Deepwell No. 2



Waimea Water Services Inc.
Pahala Deepwell No. 2
Section of Proposed Well
 not to scale 5 Dec 95

FIGURE 2-6



July 23, 1996

Mr. Gary Gill
Director
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

ATTENTION: Jeyan Thirugnanam

SUBJ: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
PAHALA DEEP WELL #2 STAND BY WELL
MORE INFORMATION REQUESTED

Dear Mr. Gill,

We are responded to your letter dated July 5, 1996 on behalf of the Hawaii County Department of Water Supply (copy attached). We are awaiting more information on item #3 to insure we do not spend unnecessary time reformatting the report if the report contains the information noted.

We appreciate your support. Should you have any questions, please feel free to call me.
Thank you.

Sincerely,


John M. Stubbart

cc: Milton Pavao, Manager, Hawaii County department of Water Supply
Ken Ikemori, Chief of Operations



July 24, 1996

Mr. Jeyan Thirugnanam
Office of Environmental Quality Control
220 South King Street, 4th Floor
Honolulu, HI 96813

**SUBJ: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE
PAHALA DEEP WELL #2 STAND BY WELL
ADDITION OF ITEMS TO DECLARATION SECTION**

Dear Jeyan,

Mahalo for your help. I have added the list of items to the ending section and declaration as a summary of what is in the report. Please review this and let me know if this is what we need to send you.

If this is the format and information needed, we will make new pages for inclusion into the reports. Let us know what to do, send the 4 EA's back to us for insertion of pages, or you will insert the new pages.

We appreciate your support. Should you have any questions, please feel free to call me. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "John M. Stubbart".

John M. Stubbart

JMS:skim

cc: Milton Pavao, Manager, Hawaii County Department of Water Supply
Ken Ikemori, Chief of Operations