DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) 969-1421 • FAX (808) 969-6996

December 21, 1995

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

FINAL ENVIRONMENTAL ASSESSMENT FOR KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION AND KEONEPOKO NUI BOOSTER PUMP ADDITION
TAX MAP KEY 3-1-5:08
PAHOA, HAWAII

The County of Hawaii Department of Water Supply reviewed and responded to comments related to the draft environmental assessment for the Keonepoko Iki Deep Well and Booster Pumping Station and for the Keonepoko Nui Booster Pump Addition. The Department of Water Supply determined that the implementation of this project will not have significant environmental effects. Therefore, the agency is issuing a negative declaration. Please publish this notice in the January 8, 1996 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final Environmental Assessment. Please contact Mr. Dennis Lee at (808) 961-9220 for more information.

Milton D. Pavao, P.E.
Manager

DL

Enc.

... Water brings progress...

1996-01-08-HI-FEA
Keonepoko Iki Deep Station &
well & Booster Pumping Sta Additi

FINAL
ENVIRONMENTAL ASSESSMENT

Keonepoko Iki Deep Well
and Booster Pumping Station
and
Keonepoko Nui Booster Pump Addition

FINAL
ENVIRONMENTAL ASSESSMENT

Keonepoko Iki Deep Well
and Booster Pumping Station
and
Keonepoko Nui Booster Pump Addition
TMK: 3-1-5-08

Prepared for

County of Hawaii
Department of Water Supply

December, 1995

Prepared by

M&E Pacific, Inc.
1001 Bishop Street,
500 Pauahi Tower
Honolulu, Hawaii

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
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APPENDIX: EA PUBLIC COMMENTS AND WRITTEN RESPONSES

1.0 APPLICANT

The applicant for the proposed Keonepoko Iki Deep Well and Booster Pumping Station and the Keonepoko Nui Booster Addition is the Department of Water Supply (DWS), County of Hawaii. The preparation of this Environmental Assessment (EA) is required due to the use of County and Federal funds.

2.0 APPROVING AGENCY

The approving agency for a determination of significance for this EA is the DWS, County of Hawaii.

3.0 AGENCIES CONSULTED

Early consultations with governmental agencies were undertaken to assure that all environmental concerns were addressed.

3.1 State of Hawaii

Department of Land and Natural Resources:	(Keonepoko Iki only)
Commission on Water Resources Management	
Historic Preservation Division	
Forestry and Wildlife Division	
Department of Health	(Keonepoko Nui only)
Office of Environmental Quality Control	(Keonepoko Iki only)

3.2 County of Hawaii

Department of Water Supply	(Keonepoko Iki and Nui)
Planning Department	(Keonepoko Iki and Nui)

4.0 PROJECT DESCRIPTION

4.1 Purpose and Need

The Pahoa Water System service area, located within the Puna water district, has experienced a recent population increase due to the relocation of many Puna residents who lost their home during the Kalapana lava flow. In addition, the Puna district has the fastest growing population on Hawaii Island, and much of the population growth is anticipated to occur within Pahoa. According to the Hawaii County Water Use and Development Plan of 1992, the population of the Puna District is projected to reach 39,865 residents by year 2010, an increase of 110% from 1987. More than half of these new residents are expected to take up residence within the Pahoa-Kapoho-Kalapana region. Water needs will increase, especially for the Pahoa Water System service area, since most of the future housing and other developments are expected to occur in and around Pahoa Village.

The proposed production well and booster pumping station at Keonepoko Iki will provide a new water source for the Pahoa Water System on Hawaii Island. The proposed action will increase water production capacity for existing and future needs, and also add to system flexibility and reliability.

Installation of an additional booster pump at the Keonepoko Nui well site will supply both the Kapoho and Pahoa water systems. The proposed addition of a Keonepoko Nui booster pump will ensure that adequate support services and facilities are provided to accommodate the water service zones now experiencing water problems.

4.2 Technical Description

Keonopoko Iki

Figures 1 and 2 (Regional Location and Tax Map Key) show the location of the site, identified as Tax Map Key (TMK) parcel 3-1-5-08: 06. The parcel is the site of an existing 0.3 million gallon (MG) water storage reservoir, referred to as the Pahoa Reservoir No. 2 (Figure 3 - Site Plan). The reservoir is the middle elevation reservoir of the three reservoirs of the Pahoa Water System shown in Figures 4 and 5 (Pahoa Water

System Layout and Schematic). The system also includes three water wells, although none directly connect to the Pahoa Reservoir No. 2.

The proposed action will provide a new water source at Pahoa Reservoir No. 2, expanding Pahoa's existing three-well system to a four-well system. The action also consists of construction of a booster pumping station to allow the reservoir and well to supply Pahoa Reservoir No. 1, the highest elevation reservoir within the Pahoa Water System (see Figure 5 - Pahoa Water System Schematic). Specifically, the proposed action consists of the following:

1. Construction and testing of an exploratory deep well to determine the suitability of the site for a permanent production well. This requires prior approval of a Well Drilling Permit from the State of Hawaii Department of Land and Natural Resources (DLNR) Water Resource Management Division. Results of sustainable yield pump tests and certified laboratory water quality analyses will be used to determine the suitability of the exploratory well site. If the well site is suitable, then a Source Engineering Report will be submitted to the State of Hawaii Department of Health and DLNR for approval, and a Pump Installation Permit application will be submitted to the DLNR for approval.

2. Conversion of the exploratory well into a permanent production well, including installation of a permanent 700 gallons per minute (gpm) submersible pump and a water chlorination system.

3. Installation of two booster pumps to pump water, as necessary, from Pahoa Reservoir No. 2 to Pahoa Reservoir No. 1.

4. Construction of a three room control building housing the pump motor controls and chlorine gas cylinders.

5. Installation of all necessary supporting items such as piping, electrical connections, concrete pad for booster pumps and paving for vehicular access.

The proposed well and booster pumps will be connected to a telemetering system that will allow for remote operation and alarm notification.

County funding for well development and installation of the booster pumps is estimated to be $1,200,000.

Keonepoko Nui

The project calls for the installation of a 400 gallon per minute (gpm) booster pump to be connected to an existing 350 gpm booster pump, including all necessary plumbing, electrical and structural items. The proposed project is located at the existing Keonepoko Nui well site which is about 1 1/2 miles from Pahoa Village along the Keaau-Pahoa highway (See Figure 1 - Regional Location Map).

The existing Keonepoko Nui well site has a well pump capable of pumping water to the existing concrete reservoir at a rate of 700 gpm. The installation of an additional booster pump will bring the booster pumping capacity to a level slightly greater than the well pumping capacity, utilizing the water resource to its maximum (See Figure 3A - Proposed Plan).

The construction cost is estimated at $300,000.

5.0 SUMMARY OF AFFECTED KEONEPOKO IKI ENVIRONMENT

5.1 Location and Access

The proposed project site is located southwest of the Keonepoko Homesteads area of Pahoa on Hawaii Island. Figure 1 and 2 show the location of the proposed well site. The site is identified as TMK parcel 3-1-5-08:6, and the owner is identified as the State of Hawaii. The parcel is 0.59 acres and contains a 0.3 MG water storage reservoir, as described in Section 4.2.

The project site is readily accessible. Access to the site is obtained directly from Pahoa By-Pass Road, a 24 foot wide two-way roadway with asphalt pavement. The site is located on Pahoa By-Pass Road, approximately 0.35 miles west of the intersection with Keaau Pahoa Road. The entryway into the site is asphalt-paved (see Figure 3 - Site Plan). Fencing encloses the perimeter of the site, and a locked gate limits access.

5.2 Climate

The Keonepoko Iki project site is located on the windward side of Hawaii Island, at an elevation of approximately 712 feet above mean sea level (MSL). The mean annual rainfall in the general region is 150 inches (See Figure 7 - Rainfall Map). Average ambient temperature in and around the subject area ranges from 69 degrees to 75 degrees Fahrenheit.

5.3 Topography and Drainage

In general, the topography of the site mimics the natural contours of the area. Site elevations range from 709 feet MSL to 715 MSL with a gentle grade sloping downgradient to the north, towards a drainage swale. The swale drains toward a drywell located at the northeast corner of the site.

Surface cover of the 0.59-acre parcel consists of the 63-foot diameter reservoir, a concrete pad for the inlet control piping, an asphalt driveway and manicured grass landscaping. Impervious surfaces cover approximately 40% of the site. The proposed project will increase the impervious surfaces by approximately 30%, including a concrete pad for the

deep well, a control building to house the motor controls, and additional paving to allow for vehicle access to the new facilities. The current natural grades and drainage patterns will not be significantly altered.

5.4 Infrastructure

Hawaiian Electric Light Company (HELCO) electrical distribution lines traverse along Pahoa By-Pass Road adjacent to the proposed site. The proposed project will access these lines for electrical power.

No telephone service is currently available at the project site. The nearest telephone connection is at the Keonepoko Homesteads residential area, approximately 0.35 miles east along Pahoa By-Pass Road. Telephone hook-up will be required for telemetering and remote operation of the well and booster pumping station.

No sewer or solid waste collection service will be required for this project. The new well and pump station will be controlled by automatic level sensor signals and remote operation.

The existing Pahoa Water System obtains source water from one deep well at Keonepoko Nui and two deep wells at the Pahoa deep well battery (shown on Figure 4 - Pahoa Water System Layout). The system provides water for commercial and domestic uses for customers in the Pahoa area and vicinity. It also provides water for the Pahoa Agricultural Park, several anthurium farms and other agricultural customers. As stated in Section 4.1, population increases are expected to significantly increase water demands in Pahoa. The proposed Keonepoko Iki well will increase water production capacity for existing and future needs, and the proposed booster pumping station will add to system flexibility and reliability.

5.5 Land Use Zoning

The project site is classified as agricultural & rural by the State Land Use Commission. It is a government exempt parcel owned by the State of Hawaii, allocated for County of Hawaii Civil Defense. Although the proposed project site currently belongs to the State of Hawaii, a process is underway to transfer title ownership to the County of Hawaii. The

proposed deep well will be located next to the existing Pahoa Reservoir No. 2. Therefore, no land use conflicts are anticipated.

The Pahoa By-Pass Road borders the project site to the southeast. The remainder of the property is surrounded by fallow agricultural land owned by the State of Hawaii and allocated for County of Hawaii Civil Defense. The nearest residential units are located at the Keonepoko Homesteads residential area, approximately 0.35 miles east along Pahoa By-Pass Road.

5.6 Geology and Soils

The island of Hawaii consists of five volcanic mountains: Hualalai, Kohala, Mauna Kea, Mauna Loa and Kilauea. The proposed project site is located on the remote eastern slope of the Kilauea volcanic mountain. Kilauea volcano is still active, and the recent Kalapana lava flow has resulted in the relocation of many residents into Pahoa.

The Soil Conservation Service classifies the soil at the project site as Pahoehoe Lava flows (rLW), derived from the Puna Volcanic Series. This soil type generally has minimal soil covering, if any, and vegetation is limited to mosses and lichens. In areas of high rainfall such as the Pahoa site, scattered ohia trees, ohelo berry and amauamau ferns can be found in the cracks and crevices (Sato *et al.*, 1973). Existing surface cover of the developed 0.59-acre parcel consists of the 63-foot diameter reservoir, a concrete pad, an asphalt driveway and manicured grass landscaping.

Three geologic boring logs performed at the project site described the subsurface lithology as massive, unweathered hard pahoehoe basalt in thin flows (State of Hawaii, 1990). The basalt was gray, moderately to highly vesicular with voids (lava tubes) up to six inches. The deepest log terminated at 20 feet below ground surface.

5.7 Hydrology

Groundwater is the only drinking water source for the district of Puna. There are no existing surface streams in and around the project area. The new Keonepoko Iki well will tap into a basal water source that is part of the Pahoa Aquifer No. 80801 (Figure 6 - Aquifer Sectors and Systems). The sustainable yield of the aquifer is estimated to be 435

mgd. The Pahoa Water System total system capacity will be 2.9 mgd, including the 700 gpm from the proposed deep well.

Certified laboratory water quality analyses will be used to determine the suitability of the well site for municipal production. The new well is expected to have good water quality, based on testing of existing wells near the project site. The new well will be located between the existing Keonepoko Nui and Pahoa Deep Wells. Both of these sources have good quality water, with chloride content ranging between 4 to 27 parts per million.

5.8 Archaeological and Historic Sites

The proposed well site is a developed parcel. No known archaeological or historic sites are located within the project boundaries. There is, however, a lava tube system containing significant historic sites immediately to the west of the proposed well site. As directed by the State of Hawaii Historic Preservation Division, the new well will be placed as far east in the reservoir site as possible to avoid accidental entry into the tube. All work will cease if a significant lava tube is encountered during construction, and the Historic Preservation Division office will be contacted immediately to allow for a field investigation.

5.9 Flora

Rare native plant species that may be found in the general area are 'Aku'aku (Cyanea platyphylla), Mohihi (Stenogyne scrophularioides) and Nanu (Gardenia remyl). However, the subject parcel is completely developed. The site is covered with introduced turf grass, palm trees (4-5 feet) and impervious concrete and asphalt pads. Thus, the project will present no significant impacts to these native species.

5.10 Fauna

The Pahoa area provides habitat for three endangered native bird species. The Hawaiian hawk (Buteo solitarius), Short-eared Hawaiian owl (Asio flammeus) and Hawaiian (hoary) bat (Lasiurus cinereus semotus) may be found within the region. The proposed project site is a developed parcel that has been landscaped. Sixteen small palm trees are planted sparsely throughout the southern portion of the site. The proposed action will

relocate approximately three of these trees to the northern portion of the site. The remainder of the site is covered with introduced turf grass and impervious concrete and asphalt pads. Therefore, the project will not have an adverse impact on any endangered bird species habitat.

6.0 SUMMARY OF AFFECTED KEONEPOKO NUI ENVIRONMENT

6.1 Location

The proposed booster addition is at the existing Keonepoko Nui well site, TMK 1-05-8: portion of parcel 1 (See Figure 2 - Tax Map Key Location). This site is about 1 1/2 miles from Pahoa Village along the Keaau-Pahoa Highway. The existing site is surrounded by scattered ohia trees, lichens, mosses and amauamau ferns.

6.2 Topography and Climate

The area is relatively flat in slope and is located at the 600 foot elevation (See Figure 1 - Regional Location Map). The annual rainfall is about 150 inches per year (See Figure 7 - Rainfall Map). The temperature varies from a low mean of 69 degrees to a high mean of 75 degrees Fahrenheit.

6.3 Soils

The USDA Natural Resources Conservation Service's Soil Survey of Island of Hawaii describes the soil at the project site as Pahoehoe Lava Flow. This lava has a billowy, glassy surface, that is relatively smooth. Pahoehoe lava has no soil covering and is typically bare of vegetation except for mosses and lichens. In areas of higher elevation and rainfall, scattered ohia trees, amauamau ferns, and aalii have gained a foothold in cracks and crevices (See Figure 8 - Soil Conservation Map).

The miscellaneous land type is at an elevation from sea level to 13,000 feet. The annual rainfall ranges from 10 inches to 250 inches per year. The lava flows are gently sloping to steep, excessively drained, and nearly barren.

6.4 Geology and Hydrology

The site is located on the remote slopes of Mauna Loa mountain and the soil type is Pahoehoe Lava Flow. This soil type makes up 50 per cent of the island area and most of it is saddled between Mauna Kea and Mauna Loa mountains.

The relatively young island of Hawaii has gentle slopes and little soil. The unweathered surface is highly permeable which allows most of the rainfall to percolate to the water table. Hence, there are few perennial streams on the island. Streams in the Puna area are intermittent or non-existent (See Figure 9 - Simplified Geological Map of Hawaii).

The subterranean basal water table provides the most dependable source of water as it is less affected by droughts and seasonal changes in the weather. Groundwater accounts for 100 per cent of the sources used in the Pahoa water system and all of the Puna district.

The Keonepoko Nui well, serviced by the new booster pump, is located in the Pahoa Aquifer, designated Number 80801. This aquifer has a capacity of 435 million gallons per day (See Figure 6 - Aquifers Sectors and Systems).

6.5 Land and Water Uses

The existing well site is compatible with existing land uses. The booster addition will not impact land use.

The existing water system uses a 350 gpm pumping system. The booster addition will provide an additional pumping capacity of 400 gpm, more than doubling the existing reservoir pumping capacity.

6.6 Archaeological and Historic Sites

It is unlikely that any kind of historical, cultural, architectural and/or archaeological resources will be found on this parcel of land.

6.7 Effect on Streamflow

No streams exist in the area and the existing well taps off basal water. Therefore, there is no effect on stream flow.

6.8 Assessment Process

Since the proposed action is to add on to an existing facility and this facility allows for the booster addition, no field trip was made for this assessment.

7.0 PROBABLE IMPACTS AND MITIGATION MEASURES

7.1 Short-term Construction Related Impacts

The proposed project for Keonepoko Iki involves the construction of a deep well, a booster pumping station and a control building. Minor increases in traffic, dust and noise are expected to be insignificant since the construction site is located far from residential areas or any other sensitive receptors.

A five-day sustained yield pump test will be conducted to determine the suitability of the ground water well for permanent production. The water generated during drilling and testing will be discharged outside the radius of influence of the well hole. Discharged water will flow into the adjacent uncultivated and uninhabited land (pahoehoe lava), where it will percolate into the ground. The water will not reach streams or the residential area 0.35 mile away. An NPDES permit is not required.

The booster addition at Keonepoko Nui involves installing a motor/pump unit that is almost identical to the existing booster pump. The existing booster pump concrete pad and associated plumbing/electrical systems were made to accommodate an additional booster pump. Very little construction related impacts are anticipated.

7.2 Aesthetics

No significant aesthetic impact is anticipated for the Keonepoko Iki project. Hawaii County design standards will be applied to the proposed deep well, booster pumping station and control building at Keonepoko Iki. The finished structures will be consistent with the existing reservoir at the site. Instead of removing existing palm from the site, the trees will be relocated to another area within the site.

The booster pump addition for Keonepoko Nui will look identical to the existing booster pump and aesthetic impact is not anticipated.

7.3 Water Resources

The proposed deep well will tap into the Pahoa Aquifer No. 80801, which has a substantial sustainable yield of 435 mgd. With the additional production rate of 700 gallon per minute (gpm) or 1.1 mgd, the Pahoa Water System total system capacity will be 2.9 mgd. Thus, the additional well will not significantly impact the sustainability of the water source.

The addition of a booster pump at Keonepoko Nui only increases delivery of water to the Pahoa System from storage reservoirs. The addition of the booster pump will not effect total groundwater withdrawal capacity at that site.

The proposed production well and supporting facilities at Keonepoko Iki and the booster pump addition at Keonepoko Nui will have a beneficial impact to Pahoa area residents. The proposed action will increase water production capacity for existing and future needs, and also add to system flexibility and reliability. The Pahoa Water System service area has experienced a recent population increase due to the relocation of many Puna residents who lost their home during the Kalapana lava flow. In addition, the Puna district has the fastest growing population on Hawaii Island, and much of the population growth is anticipated to occur within Pahoa.

8.0 ALTERNATIVES TO THE PROPOSED ACTION

8.1 No Action

The proposed production well and supporting facilities at Keonepoko Iki will have a beneficial impact to Pahoa area residents. The proposed action will increase water production capacity for existing and future needs, and also add to system flexibility and reliability. As population increases within the Pahoa service area, the no action alternative may result in water supply deficiencies.

In the case of Keonepoko Nui, the "no-action" alternative was considered but deemed to be unacceptable because the public health and welfare was at resk. The good this project brings far outweighs the possible impacts of this project.

8.2 Alternate Site

The proposed site at Keonepoko Iki was chosen by the Department of Water Supply, County of Hawaii. It is conveniently located at the existing Pahoa Reservoir No. 2 site. An alternate site may involve costly land purchases as well as difficulties with site access and pipeline right-of-ways. Also, system control may be inefficient from an engineering and operations standpoint.

No alternate site was considered for Keonepoko Nui because the facility already existed.

9.0 DETERMINATION

In accordance with Chapter 343, Hawaii Revised Statutes, this Environmental Assessment has characterized the technical and environmental issues of the Keonepoko Iki and Nui project, identified potential impacts and their significance. It is anticipated that the proposed project will not significantly impact the environment. Therefore, a Negative Declaration is appropriate, and an Environmental Impact Statement is not required for this project. This determination is based on the significance criteria listed in §11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed below:

1. The proposed project will not result in an adverse commitment, loss, or destruction of any natural or cultural resources. The proposed site has already been developed, and a water storage reservoir exists on-site.

2. The range of beneficial uses of the environment will not be curtailed.

3. The project will not conflict with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, HRS, and any revisions thereof and amendments thereto, court orders or executive orders. The project conforms with the 1992 Hawaii County Water Use and Development Plan.

4. The proposed project will not substantially adversely affect the economic or social welfare or the community or state. The project will improve the social welfare of the community by increasing the production capacity, flexibility and reliability of the Pahoa public drinking water system.

5. The project will not substantially adversely affect public health. The project will improve public health by increasing the production capacity, flexibility and reliability of the Pahoa public drinking water system.

6. The project will not involve substantial adverse secondary impacts, such as population changes or effects on public facilities. The proposed project responds to current population trends and Kalapana lava flow disaster relocation.

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

8. The project will not include cumulative considerable effect upon the environment nor involves a commitment for larger actions. The proposed actions are complete and will require no further action.

9. The project will not substantially affect a rare, threatened or endangered species, or its habitat.

10. The project will not detrimentally affect air or water quality or ambient noise levels. Short-term impacts will occur during the construction phase.

11. The project will not affect an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters.

12. The project does not affect identified scenic vistas or view planes.

13. The project does not require substantial energy consumption

10.0. REFERENCES

- Agencies and individuals consulted during preparation of this Environmental Assessment:

State of Hawaii:
Department of Land and Natural Resources:
Division of Forestry and Wildlife, Hawaii District Office, Howard Horiuchi
Commission on Water Resources Management, Charley Ice
Historic Preservation Division, Patrick McCoy
Office of Environmental Quality Control

County of Hawaii:
Department of Water Supply, Dennis Lee
Planning Department, Ed Cheplic

- Documents reviewed during preparation of this Environmental Assessment:

County of Hawaii, Department of Water Supply, *Water Master Plan*, 1980.

County of Hawaii, Department of Water Supply, *Keonepoko Nui Booster Addition Environmental Assessment*, February, 1995.

County of Hawaii, *Water Use and Development Plan*, Review Draft, February, 1992.

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Sato, H.H., Ikeda, W., Paeth, R., Smythe, R., and Takehiro, M., Jr., 1973, *Soil Survey of the island of Hawaii, State of Hawaii*: U.S. Dept. of Agriculture, Soil Conservation Service.

State of Hawaii Office of Environmental Quality Control, *A Guidebook for the Hawaii State Environmental Review Process*, includes HAR §11-200 and Chapter 343, HRS, August, 1992.

State of Hawaii Department of Taxation, Tax Map for Third Division, Zone 1, Section 5, Plat 8

State of Hawaii, Department of Education, Pahoa (New) Elementary School Water Supply System, D.A.G.S. Job No. 11-16-3794 prepared for the Department of Education, 1990.

MAPS AND FIGURES

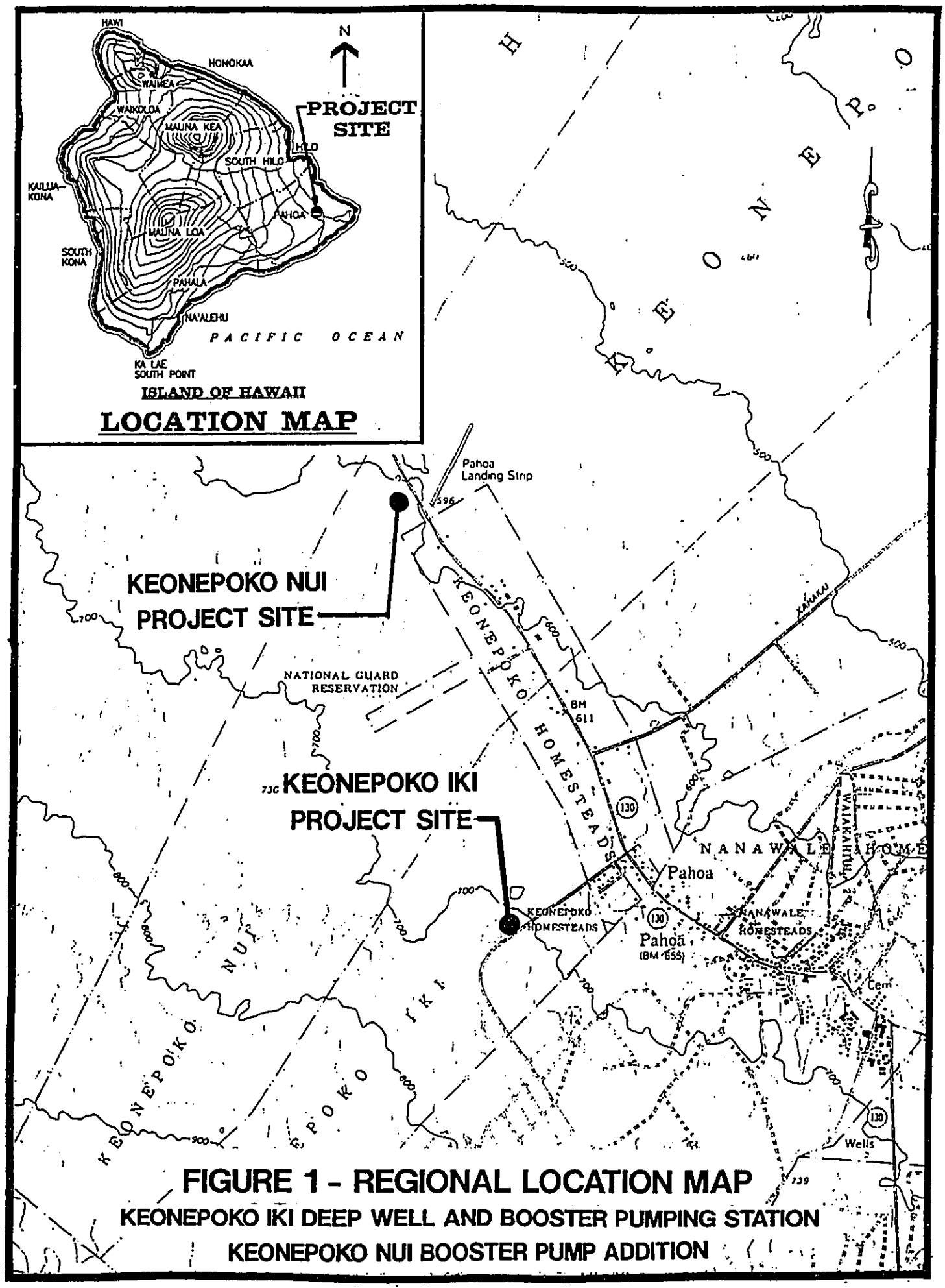


FIGURE 1 - REGIONAL LOCATION MAP

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION

KEONEPOKO NUI BOOSTER PUMP ADDITION

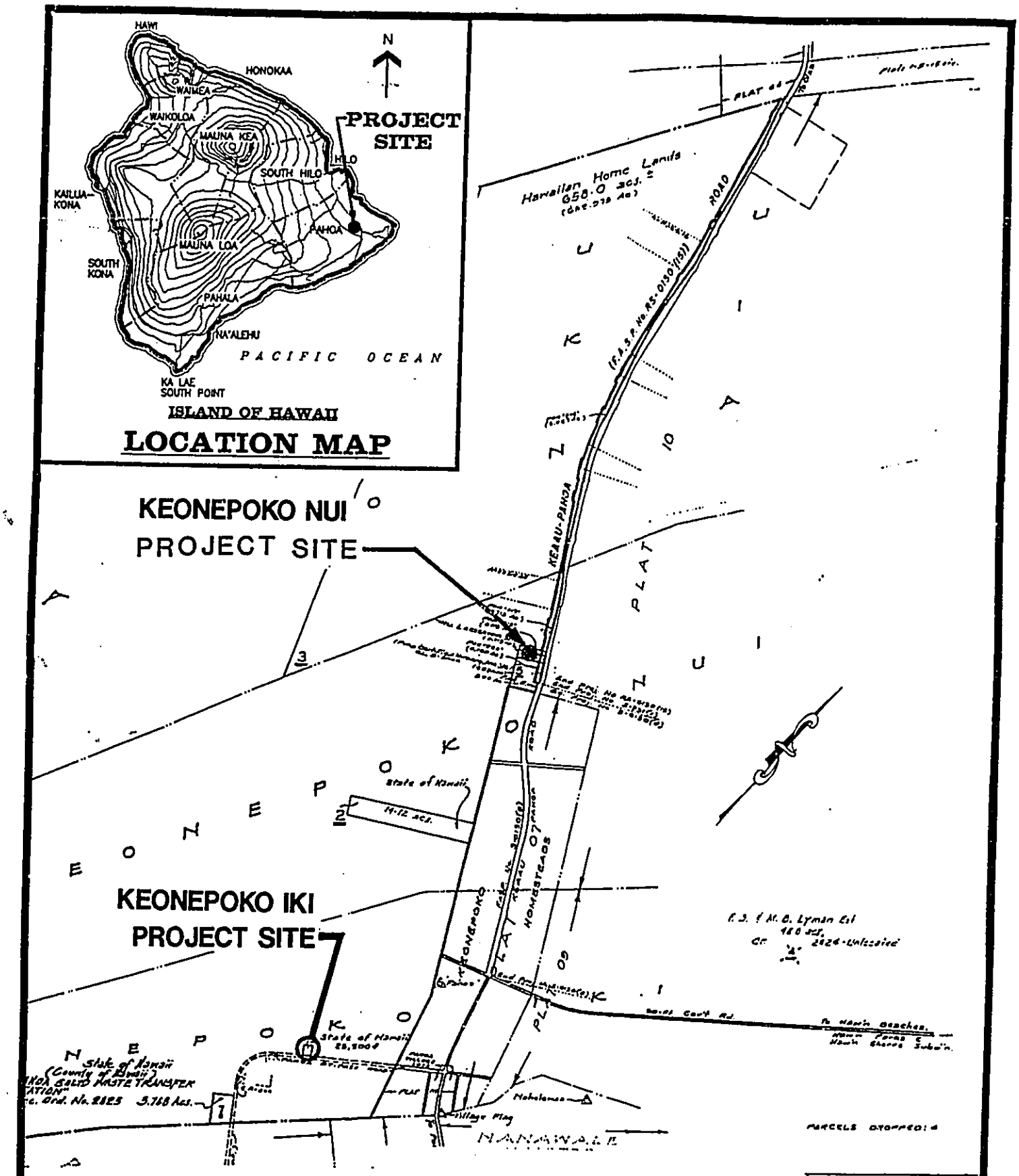


FIGURE 2 - TAX MAP KEY LOCATION MAP

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION

KEONEPOKO NUI BOOSTER PUMP ADDITION

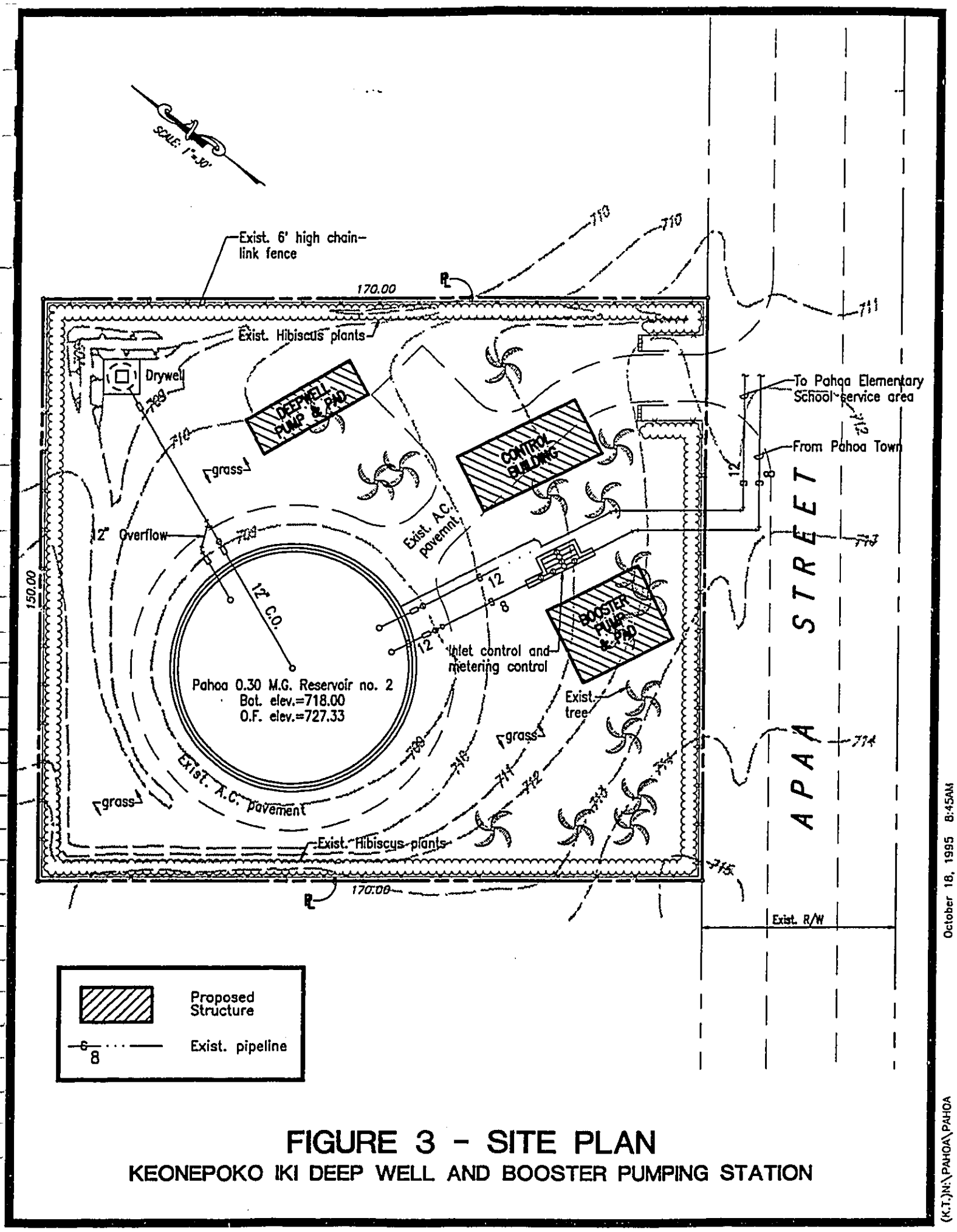


FIGURE 3 - SITE PLAN

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION

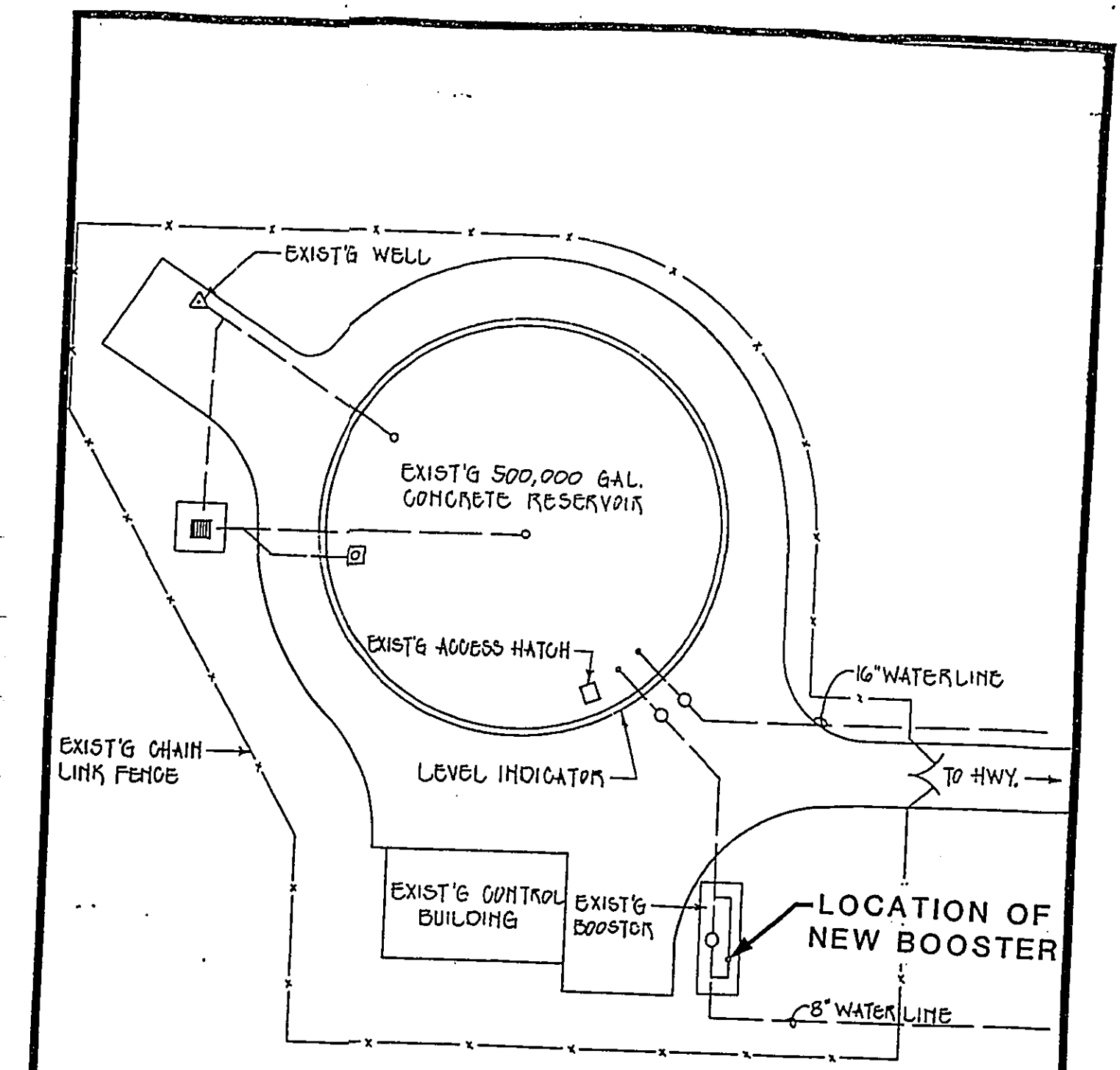


FIGURE 3A- PROPOSED PLAN
KEONEPOKO NUI BOOSTER PUMP ADDITION

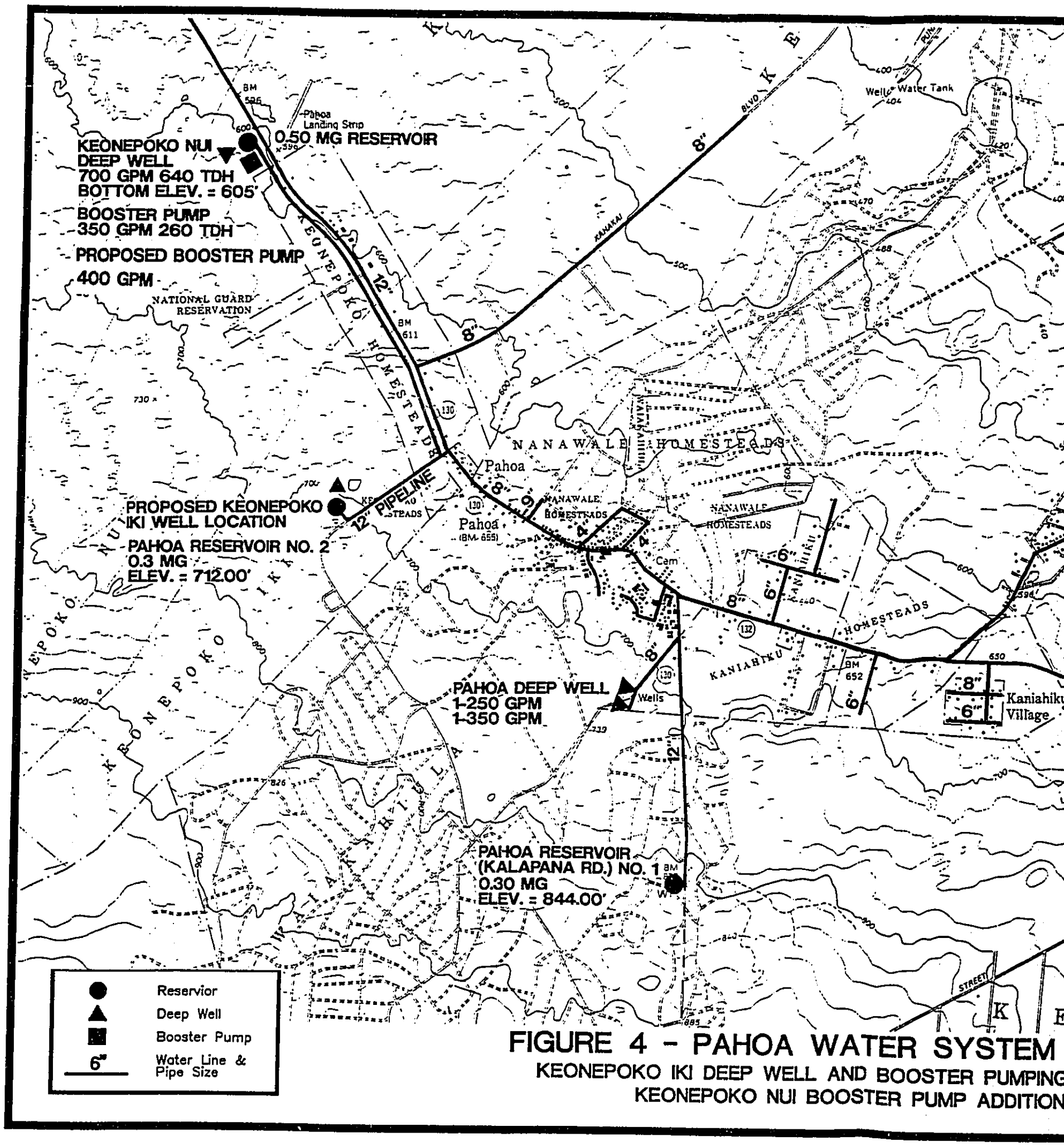
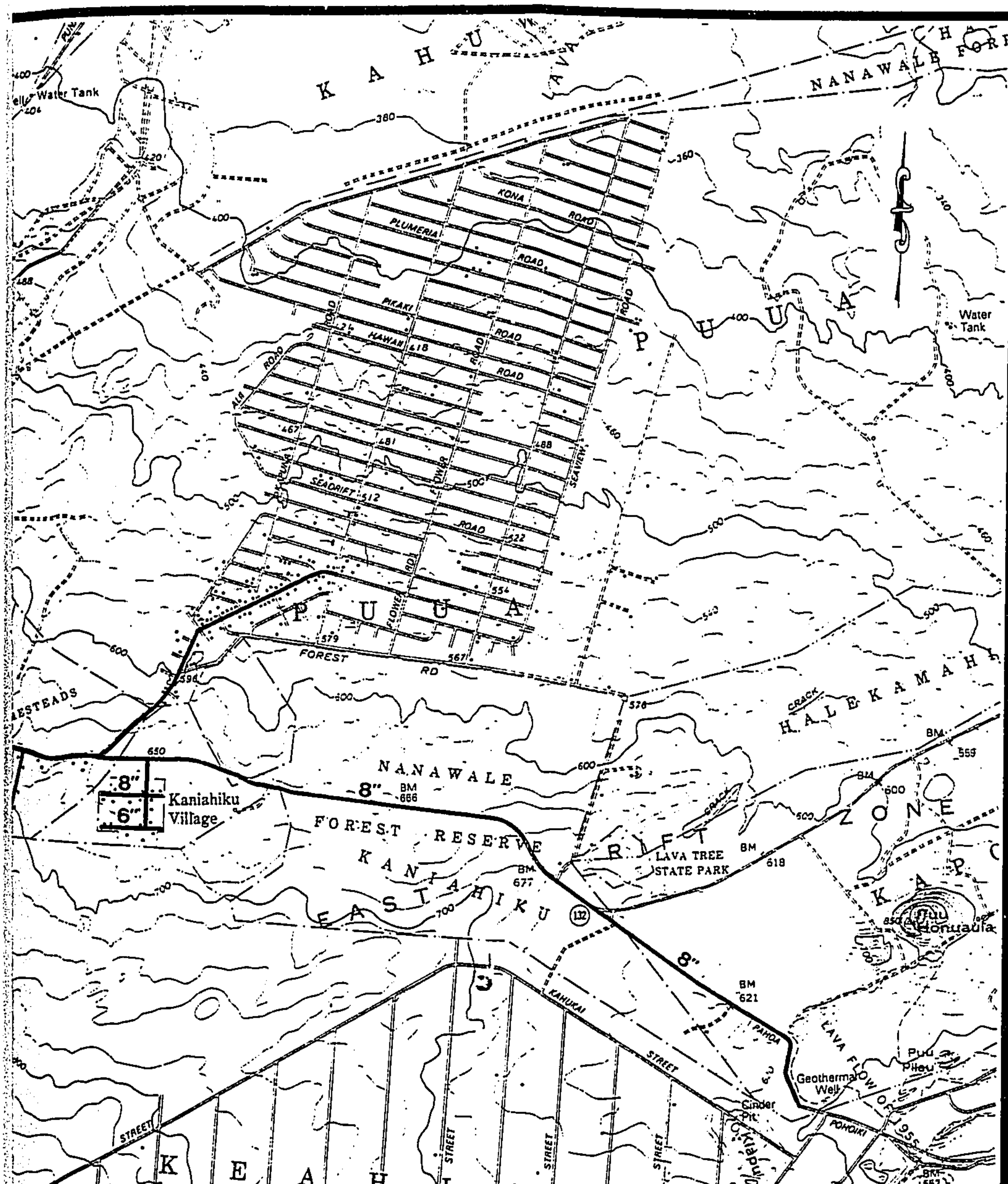


FIGURE 4 - PAHOA WATER SYSTEM

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING
KEONEPOKO NUI BOOSTER PUMP ADDITION



TER SYSTEM LAYOUT

) BOOSTER PUMPING STATION

STER PUMP ADDITION

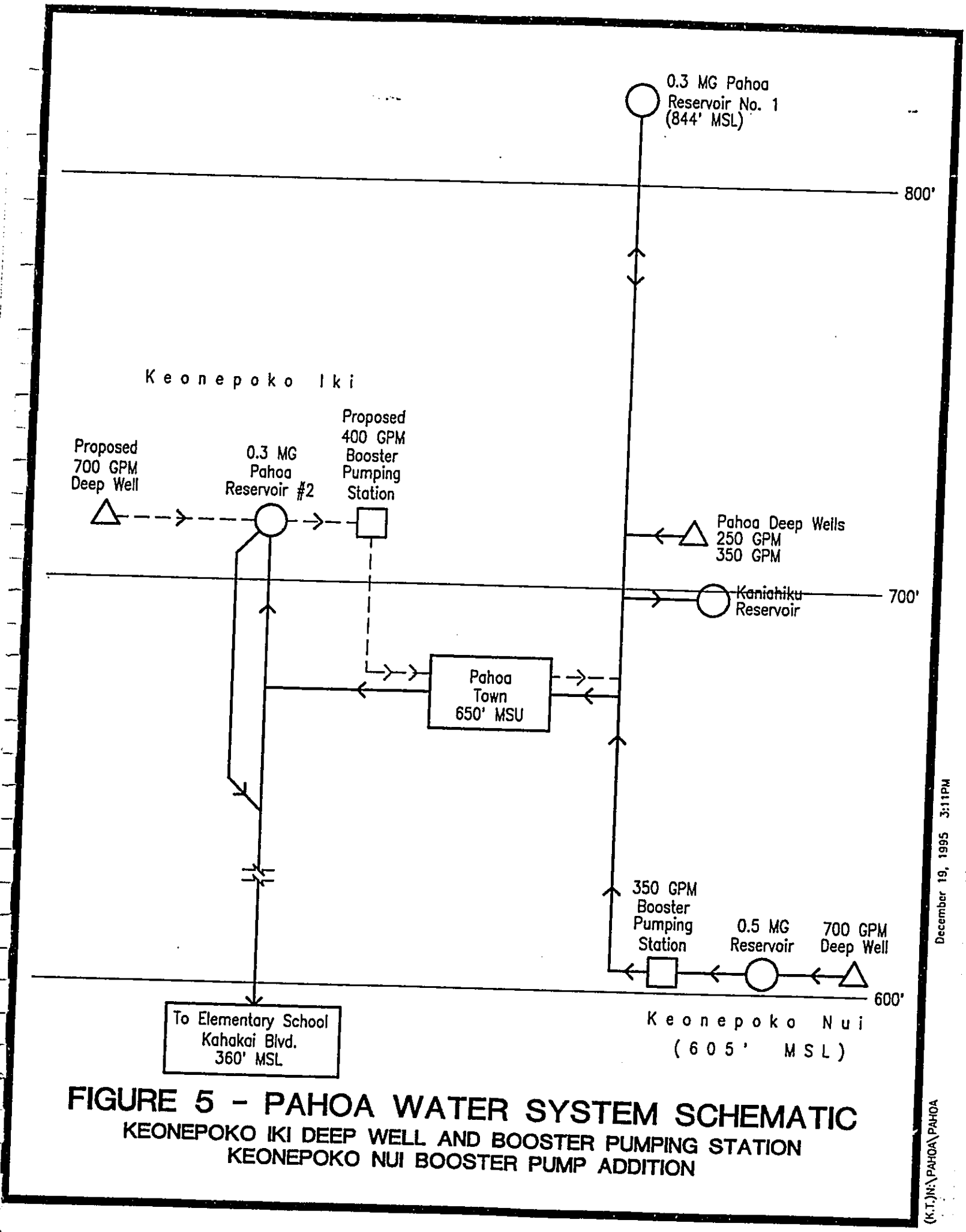


FIGURE 5 - PAHOA WATER SYSTEM SCHEMATIC

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION
KEONEPOKO NUI BOOSTER PUMP ADDITION

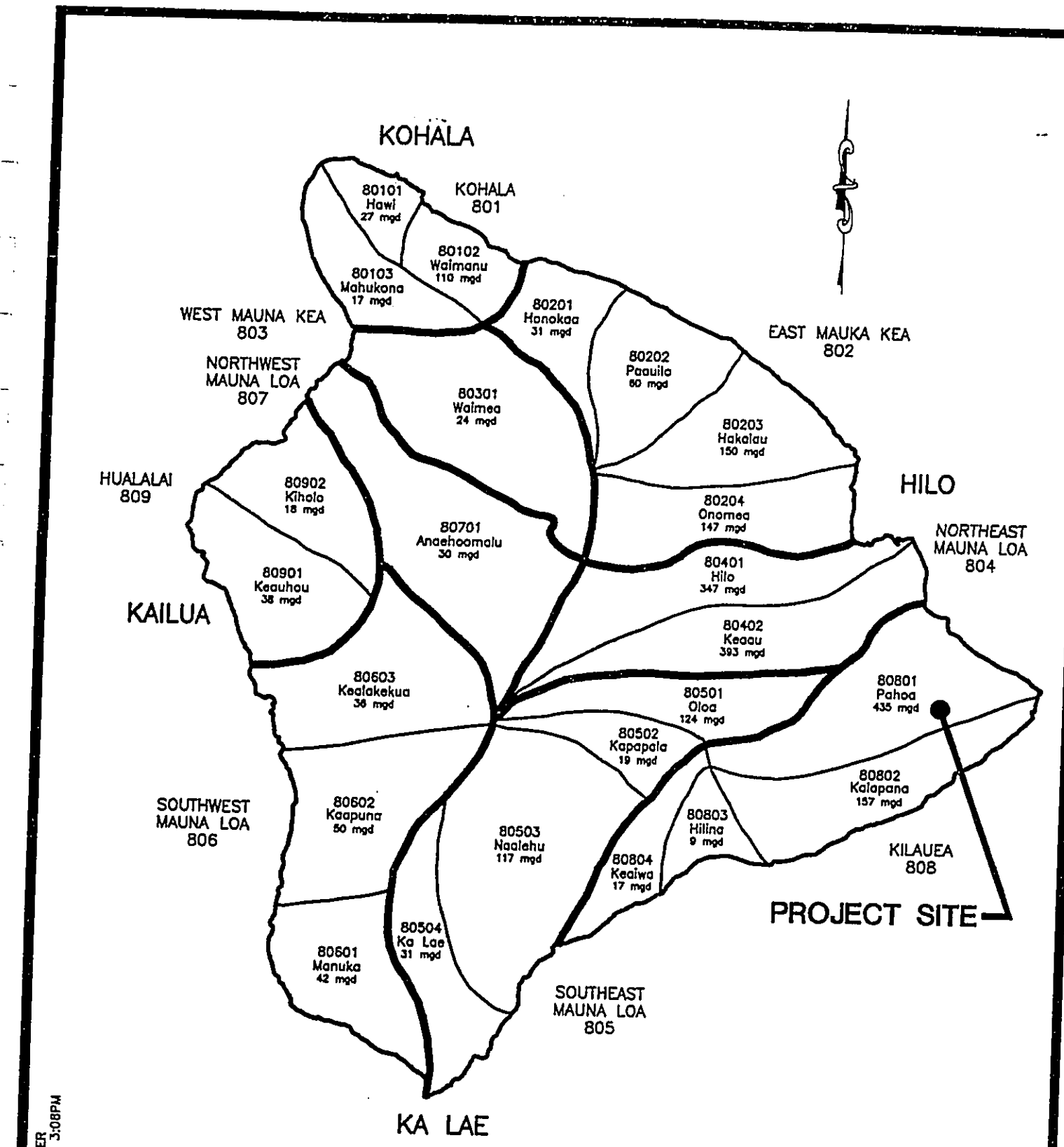
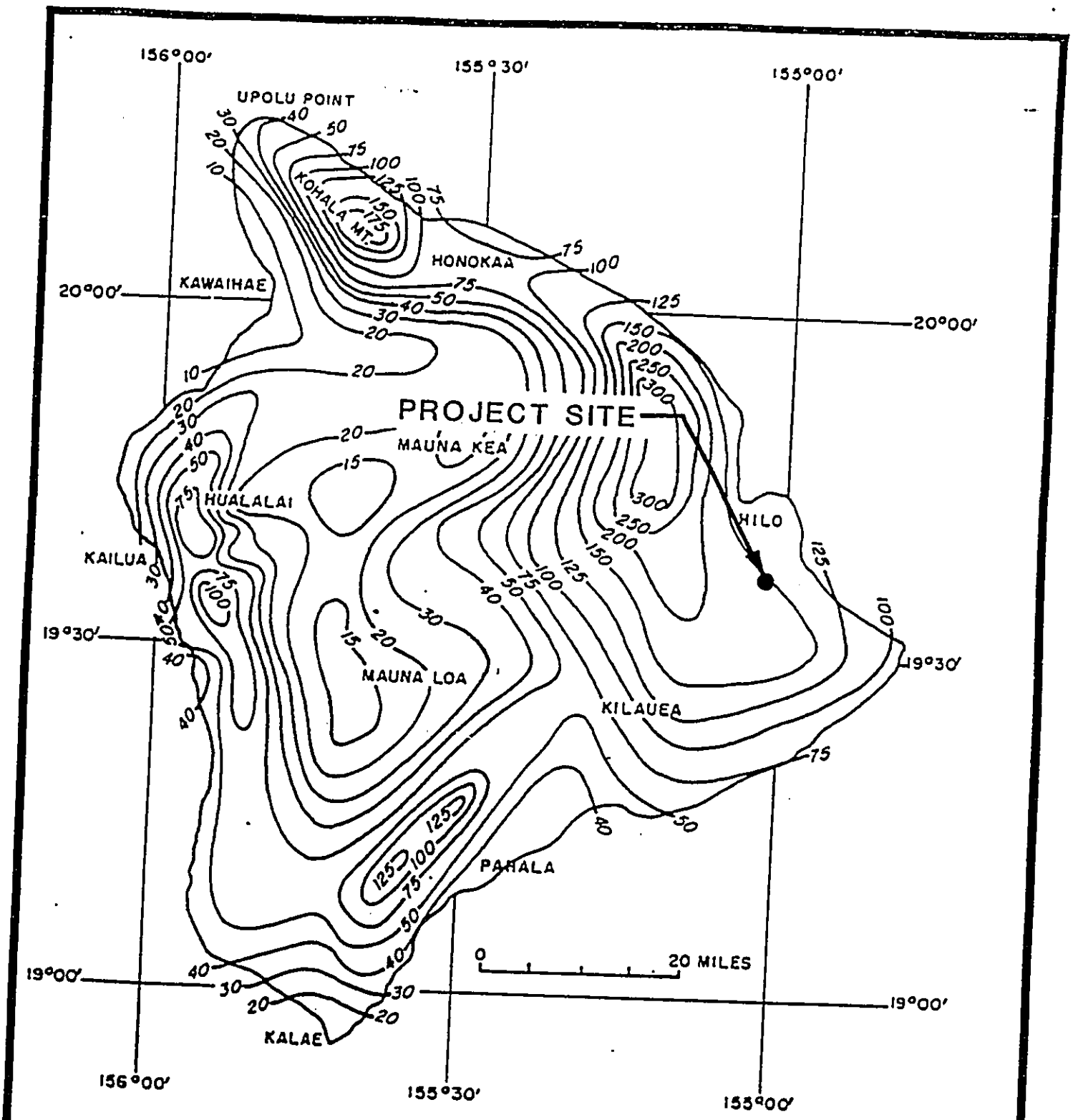


FIGURE 6 - AQUIFER SECTORS AND SYSTEMS

KEONEPOKO IKI DEEP WELL AND BOOSTER PUMPING STATION
KEONEPOKO NUI BOOSTER PUMP ADDITION



Mean Annual Rainfall In Inches

RAINFALL MAP

Source: USGS Report R47

FIGURE 7

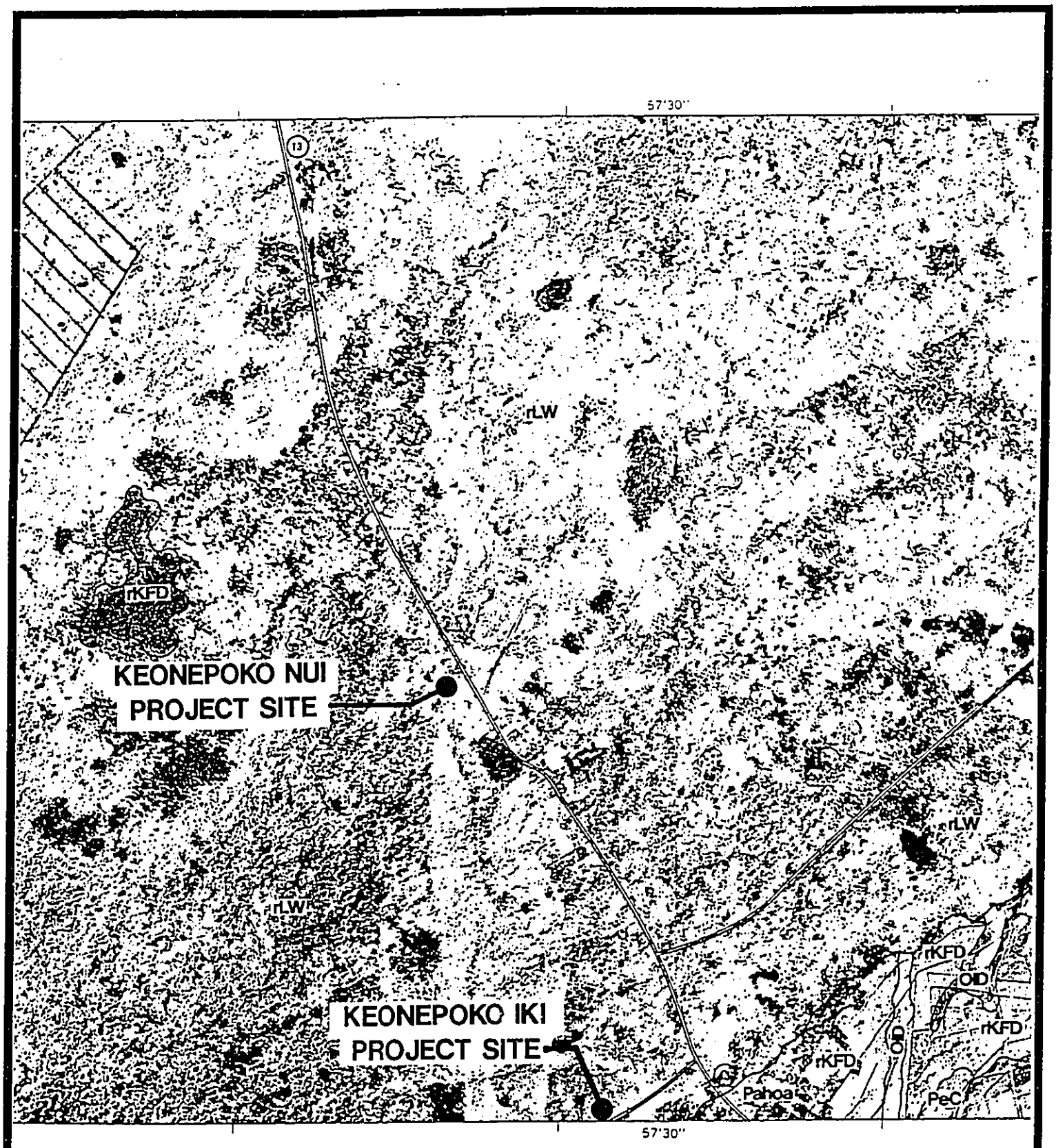
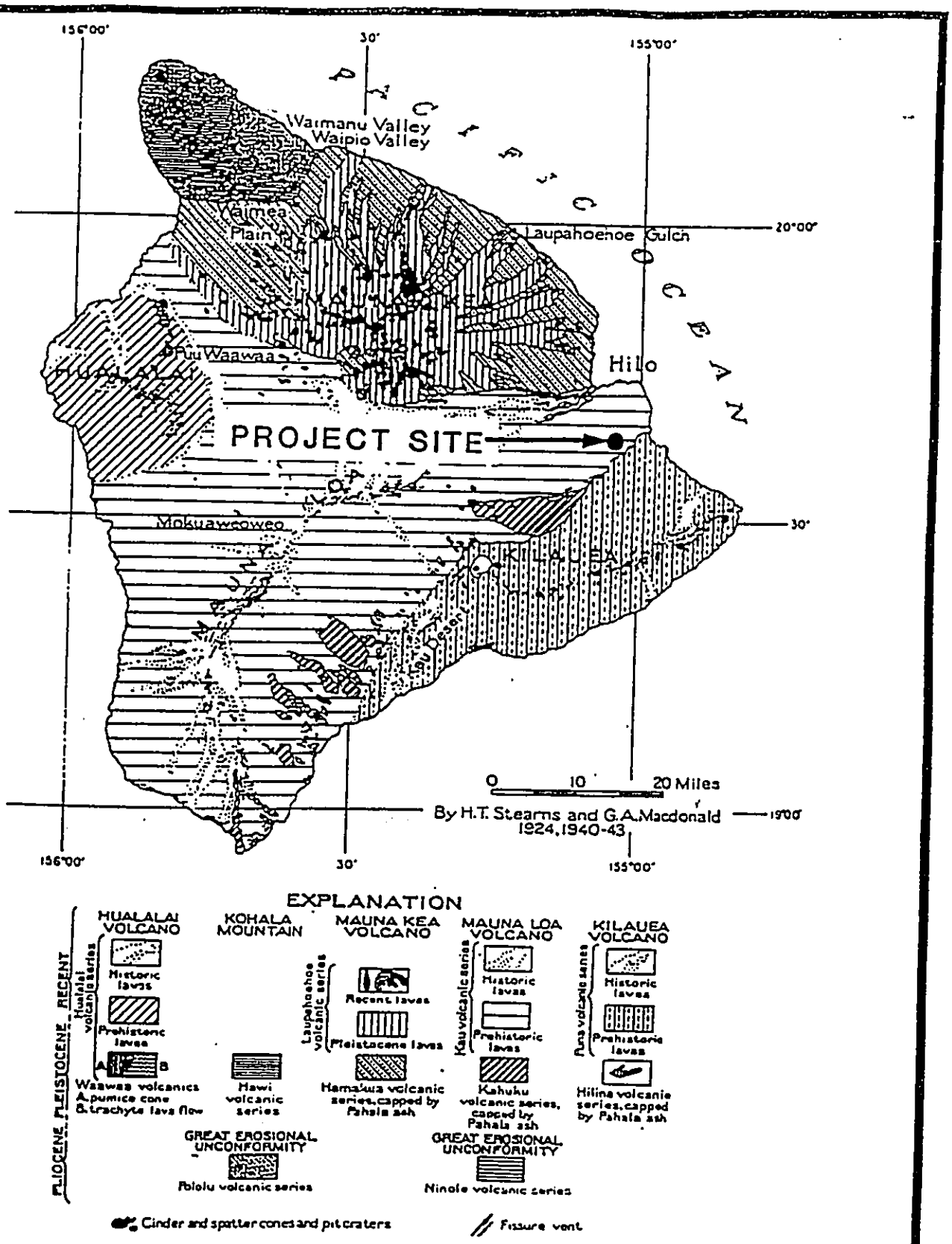


FIGURE 8 - SOIL CONSERVATION MAP



SIMPLIFIED GEOLOGICAL MAP OF HAWAII

Source: Geology and Ground Water Resources Island of Hawaii
Stearn & MacDonald

FIGURE 9

APPENDIX

EA PUBLIC COMMENTS AND RESPONSES

BENJAMIN J. CAYETANO
[redacted]
GOVERNOR

GARY GILL
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
220 SOUTH KING STREET
FOURTH FLOOR
HONOLULU, HAWAII 96813
TELEPHONE (808) [illegible]
FACSIMILE (808) [illegible]

November 7, 1995

Milton Pavao, Manager
Department of Water Supply
25 Aupuni Street
Hilo, HI 96720

Attn: Dennis Lee

Dear Mr. Pavao:

RE: Draft Environmental Assessments (EA) in Pahoa for:
(a) Keonepoko Nui Booster Addition (TMK 1-5-8:1); and
(b) Keonepoko Iki Deep Well and Booster Pumping Station (TMK 1-5-8:6)

In a telephone conversation on October 31st, Dennis Lee indicated that both of these draft EA's are for the same water system. Title 11-200-7 (Department of Health Environmental Impact Statement Rules) prohibits separate analyses of related actions, but instead requires related actions to be considered together in order to evaluate total cumulative impacts. A single final environmental assessment must be completed that discusses both projects and their cumulative impacts.

Keonepoko Nui Booster Addition:
We received the draft EA and published notice of it in our March 23rd, 1995 *OEQC Bulletin*. This draft EA is still pending. One comment letter was received in our office regarding this project. I am enclosing a copy since your office did not receive one. The letter needs to have a written response addressed to the commenter. Both the response and the letter must be reproduced in the final EA. Please keep in mind that HRS 343-5(b)(2) prohibits implementation of a project prior to the determination of a negative declaration by the accepting agency.

Keonepoko Iki Deep Well and Booster Pumping Station:
This draft EA was received on October 24th, 1995, and will be published in our November 8th, 1995 issue of *The Environmental Notice* (formerly the *OEQC Bulletin*). In the final EA please also indicate the amount of County funding.

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

Sincerely,

Gary Gill

GG:nh

c: ✓Bruce Wade, M&E Pacific, Inc.
Bonnie Goodell, Community Management Associates

M&E Pacific, Inc.
An Air & Water Technologies Company

December 20, 1995

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

Subject: Response to OEQC comments regarding Draft Environmental Assessments for Keonepoko Iki Deep Well and Booster Pumping Station and Keonepoko Nui Booster Pump Addition, TMK 3-1-5-08, Pahoa, Hawaii

Dear Mr. Gill:

As requested by your office, the above two referenced draft environmental assessments have been combined into a single final environmental assessment that discusses both projects and their cumulative impacts. Included in this final assessment are: (1) the County of Hawaii's response to Community Management Associate's concern regarding the proposed development and (2) details of County funding for this project totaling $1,500,000. Enclosed is a copy of the request from your office directing us to combine the two assessments into a single document.

We anticipate completing this final environmental assessment in time to be included in the January 8, 1996 edition of the *OEQC Bulletin*.

Sincerely,

Floyd K. Mitchell, P.E.
Vice President
M&E Pacific, Inc.

FKM:bw

cc: Mr. Milton D. Pavao, Manager, County of Hawaii Department of Water Supply
Mr. Dennis Lee, County of Hawaii Department of Water Supply

Suite 500 Pauahi Tower
1001 Bishop Street, Honolulu, HI 96813-3497
808-521-3051 FAX 808-524-0246

Community Management Associates
Box 6 • Volcano, Hawai'i 96785

Bonnie Goodell
(808) 967-7775
Ginny Aste
(808) 965-9869
Phone, Fax, Message:
(808) 967-8295

April 5, 1995

Mr. Gary Gill, Director
Office of Environmental Quality Control
220 South King St., Suite 400
Honolulu 96813

RE: Keonepoko Booster Addition, Negative Declaration

Dear Mr. Gill,

I am writing in regards to the Negative Declaration for Keonepoko Nui Booster Addition, Job Number 93-585, Pahoa, Puna, Hawaii, by the Department of Water Supply, County of Hawaii. I have reviewed the EA. Some of the statements are inaccurate, and some of the secondary effects of the project are not accounted for.

In Section III, the increase in demand is attributed to relocation of Kalapana disaster victims. That is unsubstantiated. I suggest the increase in need is due to in-migration and increased development in the area, especially because of the addition of the new water line—for which this booster will provide capacity—from Pahoa to Kapoho, bringing in good water to replace the substandard water from the Green Lake well, at the same time providing access to water for additional developments along that line.

Recently, the County approved upzoning and subdivision of parcels adjacent to Leilani Estates and Lanipuna Gardens, both either in LFHZ 1 or on the boundary, and both in the service area of the proposed water project. There are a number of additional parcels, some quite large, owned by Amfac, Bishop Estate and others, that, because of new access to water (served by this project) can now also be subdivided. Because they already have their zoning, Ag-1, the availability of water makes their subdivision merely an administrative procedure. These parcels are currently in productive agricultural use, so down-zoning would not be a taking. Instead water is being provided to make it possible for them to subdivide. This is in direct violation of The State of Hawaii Administrative Plan for Hazard Mitigation, Enclosure Six to Volume III, Appendix C, Lava Flow Mitigation Plan, p. 6-53, which states

> "Federal, State and County agencies and departments will not promote or encourage higher density development than presently exists in Lava flow hazard Zones 1 & 2 in the east rift of Kilauea and on the slopes of Mauna Loa, unless:
>
> a. The USGS can provide conclusive information which shows that the area in question is of lower risk to lava flow inundation.
>
> b. The parties desiring to develop such areas can unequivocally prove that development would be in the public interest.
>
> c. The Federal Emergency Management Agency and the USGS will ascertain if there is any Federal initiative or pending legislation which addresses the insurance needs of property owners and residents in prospective lava inundation areas."

(This plan was developed and approved to comply with the Stafford Act.)

The whole service area of the proposed booster is in Lava Flow Hazard Areas One and Two, and a major service area (Pohoiki) of this project—where potential subdivisions are located—is in an area projected by the U.S. Geological Survey to have a 65% chance of lava coverage. The Kapoho service area is in a particularly serious tsunami zone, because of the probability, documented by USGS of subsidence, earthquake and tsunami without any warning or escape time. The homes at Kapoho, and new developments being contemplated, because of this water supply, are at the same or greater risk of loss of life as Halape, where subsidence resulted in loss of life of campers in 1975. The risk is of instantaneous subsidence of ten or more feet, with virtually no warning, followed immediately by tsunami, in an area where many yards are already under water at high tide.

Because of this, many of the statements in Part A. Findings and Reasons Supporting Determination are unsupportable:

• The proposed project is *likely* to substantially effect the economic or social welfare of the community or the state, because there is a high risk of loss of life and property, including public infrastructure. This project promotes development in high hazard areas, thereby substantially increasing risk.

• The proposed project involves significant secondary effects such as population changes, by being part of a larger project which makes possible increased density in high hazard areas. To say that this project alone doesn't have that effect is the environmental impact equivalent of parceling to avoid regulation.

• The proposed project itself is located right on the boundary of Lava Flow Hazard Zones Two and Three. The whole service area, where development is being facilitated is in Lava Flow Hazard Zones 1 and 2. Part of the service area, Kapoho is a particularly dangerous tsunami zone. Kapoho is also a documented source of pollution for coastal and fresh water, caused by residential development.

I suggest that these issues need to be addressed to comply with environmental requirements. To fail to do so, especially in the face of explicit State policy regarding hazard zones, may substantially increase State and DWS liability when loss of property and life occur.

Sincerely,

Bonnie Goodell

Bonnie Goodell
President

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
25 AUPUNI STREET • HILO, HAWAII 96720
TELEPHONE (808) 969-1421 • FAX (808) 969-6998

November 30, 1995

Ms. Bonnie Goodell
Community Management Associates
P.O. Box 6
Volcano, HI 96785

COMMENTS ON KEONEPOKO BOOSTER ADDITION, NEGATIVE DECLARATION

The Department just received your comments dated April 5, 1995 on the above subject and thank you for your concerns on the proposed project.

The intent of the project is two-fold. The first and primary purpose of the booster addition is to provide continuous service to the Pahoa Water System. In the event that either of the booster pumps fail, the remaining booster pump can be activated to provide continuous service.

The second purpose of the booster addition is to provide added capacity to the system. The added capacity is 350 gallons per minute. The added capacity will provide water for Pahoa due to the relocation of Kalapana relocation victims.

The Department has concurrence with the Federal Emergency Management Agency (FEMA) as to project scope and location. Both the Department of Water Supply and FEMA do not agree that this project is in direct violation of any regulation. The Department maintains water commitment guidelines and is not in violation of any law.

The Lava Flow Hazard Zone (LFHZ) designations and locations were developed by the U.S. Geological Survey with no input by the County Planning Department and is mainly used by insurance companies. LFHZ is not recognized by the County of Hawaii, and the hazard zone boundaries are approximate and the degree of hazard from one zone to the next may vary over a distance of a mile or more. The LFHZ maps used from "Volcanic and Seismic Hazards on the Island of Hawaii," 1990, for the Puna area are too vague to pinpoint in detail a specific hazard zone for the proposed projects.

The best guess, based on the map presented in U.S.G.S. publication, is that the project lies in Zone 3 and the water services both Zone 2 and Zone 3. All of Hilo is designated Zone 3 according to the LFHZ maps.

The Department believes that these projects will not substantially affect the economic or social welfare of the community and will not increase population densities in the highest hazard areas.

The proposed projects are to service the Pahoa Water System. Kapoho has its own water system with Kapoho Crater Well as one of its sources. The Pahoa Water System can supplement the Kapoho Water System. The proposed projects will not compromise the health or welfare of the community.

Milton D. Pavao, P.E.
Manager

DL

copy - Mr. Gary Gill, Office of Environmental Quality Control
Mr. Bruce Wade, M & E Pacific, Inc.