BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

March 18, 1982

TO : HONORABLE EILEEN R. ANDERSON, MAYOR

VIA : ANDREW I. T. CHANG, MANAGING DIRECTOR

FROM : KAZU HAYASHIDA, BOARD OF WATER SUPPLY

SUBJECT: FINAL ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR HAIKU WELL

We recommend your acceptance of the EIS for our proposed water development project. The EIS complies with all the requirements of Chapter 343, Hawaii Revised Statutes.

According to Chapter 343, your acceptance is a formal determination that the EIS adequately describes identifiable environmental impacts and satisfactorily responds to comments received during the review of the statement.

The Haiku Well project would add 1.0 million gallons of water to the Windward Water District. This source is necessary to meet projected demands due to population growth.

We have enclosed a copy of the environmental document for your information.

If you have any questions, please contact me at 548-6180.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

Enc.

CONCUR:

Andrew I. T. Chang
Managing Director

ACCEPTED:

Eileen R. Anderson, Mayor
City and County of Honolulu

Pure Water...man's greatest need – use it wisely

HAIKU WELL

BOARD OF WATER SUPPLY / CITY AND COUNTY OF HONOLULU

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

REVISED
ENVIRONMENTAL IMPACT STATEMENT

FOR THE

INSTALLATION OF A DEEP WELL PUMP

AND

CONSTRUCTION OF CONTROL BUILDING

FOR

HAIKU WELL

AT

HAIKU VALLEY, KOOLAUPOKO, OAHU

TAX MAP KEY: 4 - 06 - 15 - 01

This Environmental Document is Submitted
Pursuant to Chapter 343, HRS

Accepting Authority:
Mayor, City and County of Honolulu

RESPONSIBLE OFFICIAL Kazu Hayashida DATE 2/17/82

Kazu Hayashida
Manager and Chief Engineer

Prepared By
PAUL T. TANIGUCHI, LTD.

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SUMMARY

The proposed project will be located in Haiku Valley in the Koolaupoko District, on Oahu. The project involves installing a deep well pumping unit in an existing well, construction of a control building with measuring and recording equipment and connecting the pump discharge line to an existing 16-inch transmission pipeline.

The objective of the proposed project is to provide approximately 1.0 mgd of additional water for the Windward Water District. This additional source is necessary to meet demand requirements due to population growth and the redistribution of population in the District. Scheduled construction year is 1982.

There are no known archaeological or historical sites in the project area. The project is also not anticipated to have any adverse impacts to endangered plants or animals.

Topography of the project site varies from flat to about 50% slopes. Surface soils are classified as Lolekaa silty clay. The land on which the project is located was formed by lava flows of the Koolau Volcano.

Rainfall varies from 75 to 100 inches per year. The project is not situated in any known flood hazard area.

Projected population for the Windward area for the year 2000 is 131,670 with a water demand of 22.4 mgd. The 1980 population was estimated to be 117,320 and had an average demand of 18.7 mgd.

Potable water will not be required for this project.

Electrical and telephone service will be provided for the control building.

The project is in conformance with land use plans, controls and policies for the area.

The major long term environmental impacts include land transformation and pump and compressor noises at the project site. The major short term impact will be inconvenience caused by dust, noise and additional traffic during the construction period. Mitigative measures will be used to minimize or eliminate adverse consequences of this project. The benefits of this project to the community outweighs impacts to the environment which cannot be avoided.

Alternatives considered include no action, relocation of the project site and the development of water sources other than subsurface. The project is necessary and consistent with the State policy on population growth. The development of alternate water sources will become more and more viable in the future as a supplement and not necessarily as an alternative to the development of subsurface water sources.

A Conservation District Use Permit will be required from the Department of Land and Natural Resources, State of Hawaii.

I. PROPOSING AGENCY

Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii

II. ACCEPTING AUTHORITY

Mayor, City and County of Honolulu

III. ORGANIZATIONS CONSULTED

A. City and County of Honolulu

1. Department of General Planning
2. Department of Land Utilization
3. Department of Transportation Services
4. Department of Public Works
5. Department of Parks and Recreation
6. Department of Housing and Community Development

B. State of Hawaii

1. Department of Transportation
2. Board of Land and Natural Resources
3. Department of Health
4. Department of Planning and Economic Development
5. Department of Accounting and General Services
6. Department of Defense

C. U. S. Government

1. U. S. Coast Guard Omega Station-Haiku
2. U. S. Corps of Engineers
3. U. S. Air Force
4. U. S. Department of Agriculture
5. U. S. Navy
6. U. S. Army

IV. DESCRIPTION OF PROPOSED ACTION

A. Location

The proposed project will be located in Haiku Valley in the Windward Water District of Oahu, approximately 1.5 miles west (mauka) of Kahekili Highway. See Figures 1, 2 and 3. The site will be near the existing Haiku Water Tunnel Portal. The only vehicular access to the site is through the secured U. S. Coast Guard property which contains the Omega Station.

B. Technical Characteristics

The project includes installing a deep well pumping unit in an existing well; construction of a concrete base; connection of the pump discharge to an existing 16 inch transmission pipeline; and the construction of a control building housing control, measuring and recording equipment. See Figures 4 and 5.

The project site will be cleared, graded, paved and landscaped.

Access to the site will be along the route of an existing unpaved road which intersects an extension of Haiku Road approximately 1,000 feet from the site. This unpaved road also serves as the access road for the Haiku Water Tunnel and contains the 16 inch transmission line from that tunnel. The road will be regraded and paved.

Although the project site is near the Omega Station, no interference is anticipated by the operations of one facility on the other. Care will have to be exercised during construction, however, to prevent damage to the existing Omega Station grounding system.

Electrical power must be provided for the pump and control building. Underground service will be installed from a Hawaiian Electric Co. substation to the project site, a distance of approximately 2,500 feet. Telephone service will also be provided from Hawaiian Telephone Company's system.

Storm runoff from the site will be directed to an existing tributary of Heeia Stream.

C. Economic Characteristics

The estimated cost of the project is $600,000. Board of Water Supply Capital Improvement Funds will be used to construct the project. Scheduled construction year is 1982.

V. OBJECTIVE

The objective of the proposed project is to provide approximately 1.0 mgd of additional water for the Windward Water District to meet current and projected demands. See TABLE I for a summary of Oahu's existing and future water demands. Also, see References (A), (B), (C), (D), (H), (J) and (K).

The Windward Water District is a system of inter-connected pipelines extending from Hauula to Waimanalo and even includes a connection to the Honolulu Water District

DEPARTMENT OF GENERAL PLANNING DISTRIBUTION NO. 4

WATER DISTRICTS

Year	Honolulu	Windward	Waialua Kahuku	Wahiawa	Ewa Waianae	Pearl Harbor	Oahu Total
1980							
Resident Population	366,840	117,320	17,610	56,280	74,150	121,500	753,700
Population Served by BWS*	393,730	111,070	14,290	38,410	59,440	87,240	704,180
Water Demand MGD	78.7	18.7	2.9	6.5	18.4	15.0	140.2
1985							
Resident Population	382,410	121,780	19,150	62,690	88,490	129,280	803,800
Population Served by BWS*	413,480	115,310	18,650	44,760	76,800	95,270	764,270
Water Demand MGD	83.5	19.6	3.8	7.7	23.9	16.6	155.1
1990							
Resident Population	392,730	124,490	20,530	68,720	102,930	135,600	845,000
Population Served by BWS*	427,820	117,800	21,820	50,740	94,330	101,850	814,360
Water Demand MGD	87.7	20.4	4.5	8.9	29.9	18.0	169.4
1995							
Resident Population	401,950	126,810	21,930	74,990	118,290	141,830	885,800
Population Served by BWS*	441,550	119,920	25,010	56,950	113,240	108,040	864,710
Water Demand MGD	92.7	21.0	5.3	10.1	36.4	19.7	185.2
2000							
Resident Population	419,440	131,670	23,830	83,360	137,600	151,300	947,200**
Population Served by BWS*	462,470	124,540	28,690	65,240	135,070	117,420	933,430
Water Demand MGD	99.4	22.2	6.2	11.7	43.9	22.0	205.4

*Includes visitors
**Reflects 5% range

TABLE I

through an existing main around Makapuu Point. Conceivably, the Haiku Well could also serve the Honolulu Water District.

At the present time, the only water source in Haiku Valley is the Haiku Tunnel which is connected to the Windward District system through an existing 16" transmission main. The proposed deep well pump will discharge into this 16" main which is adequate to transport the combined flows from the tunnel and well.

No specific data exist on water demands for specific areas served by specific sources. In 1980, the total water used in the Windward District was 18.7 mgd. Projected demand in the year 2000 is 22.4 mgd. Present long-term available capacity is 20.4 mgd. Present sources are adequate for present demands except during peak demand periods. The proposed Haiku Well will initially be used to back up existing sources during peak demand periods and will eventually be used to meet progressively increasing normal demands.

VI. DESCRIPTION OF THE AFFECTED ENVIRONMENT

A. Location

The proposed project site is on property owned by the City and County of Honolulu. Current assignment of the property on the Detailed Land Use Map of the City and County Department of Planning is "Preservation". See Figure 7. Current zoning is "P-1". See Figure 8. Wells and water control structures are permitted uses in this zone.

Although certain areas are presently zoned for agriculture, no known commercial farm exists in upper Haiku Valley.

To determine if anyone, located makai of Kahekili Highway, were using Heeia Stream for agricultural water, two field surveys were made on July 23 and August 31, 1981. The surveys revealed no one using stream water directly but two operations were found to use stream water indirectly. One operation involved cattle raising where some of the cattle drank from the stream. The other operation was a small truck farm which relied upon rainfall and the high water table in the vicinity for agricultural water. Both operations will not be affected by the proposed well.

The State Land Use Designation of the property is "Conservation". Regulations of the Department of Land and Natural Resources designate the areas as a "Protective (P)" subzone. See Figure 6. Application must be made to that department for approval as a permitted use under Section 2B.2.h. of Reference (I) which states that a permitted use in this subzone is "Any other government facilities not enumerated herein where the public benefit outweighs any impact on the Conservation District".

The closest habitation to the project site other than the U. S. Coast Guard Omega Station is

approximately 2,800 feet away. The Omega Station is approximately 600 feet away.

Rainfall varies from 75 to 100 inches a year. The proposed site is not situated within any known flood hazard area and is located within an area designated Zone D, or area of undetermined but possible flood hazard, according to the federal flood insurance study for the island of Oahu. The zone designations are on the Flood Insurance Rate Maps prepared by the U. S. Department of Housing and Urban Development.

B. Archeological and Historical Sites

No known archaeological or historic site exists in the project area. The Leleahina Heiau is the nearest known point of significance and is in the adjacent Iolekaa Valley. The Heeia Fish Pond which has also been placed on the Hawaii Register of Historical Places is at the mouth of the Heeia Stream, approximately 3 miles away. (See Page C57 for response from the Historic Sites Section, Department of Land and Natural Resources, State of Hawaii.)

C. Flora

The vegetation near the project site is predominantly exotic (non-Hawaiian). The canopy along the access road is Leucaena leucocephala (Haole Koa). A dense thicket of Hibiscus tiliaceus (Hau) and several Mangifera indica (Mango) trees grow near the Haiku Tunnel Portal. Aleurites moluccana (Kukui) trees and several large stands of Cordyline terminalis (Ti) and big grass Coix lachryma-jobi (Job's Tears) and Spathodea campanulata (African Tulip) grow along the stream. Appendix A contains a complete species list. No threatened or endangered plants were noted.

D. Fauna

No fauna were observed although the area is likely to be inhabited by mongoose, rats, mice, doves, mynahs, white eyes, rice birds and other common animals. The Hawaiian Owl, or Pueo (Asio flammeus sandwichensis),

which is regularly found in forest areas and open grasslands, may inhabit the project area. The Pueo, a native to all the main Hawaiian islands, is listed on the State's Endangered Species List for Oahu.

An assessment of aquatic fauna in Heeia Stream was performed in 1978 by the Hawaii Cooperative Fishery Research Unit. Crustacean life present include the Atya bisulcata (Atyid shrimp) which is generally found in the upper reaches of the stream where the water is cool and fast-running, the Macrobrachium lar (Tahitian prawn) and Procambarus clarkii (Crayfish). Fishes inhabiting the stream include Awaous stamineus (Goby) which is generally abundant in the mid-reaches of streams and can be identified by its two pelvic fins being fused to form a sucking disc, Clarias fuscus (Chinese catfish), Eleotris sandwicensis (Eleotrid) which are generally found in the estuaries or low gradient reaches of streams and are abundant in brackish waters, Gambusia affinis (Mosquito fish), Misgurnus anguillicaudatus (Oriental weatherfish), Poecilia mexicana (Shortfin molly), Poecilia reticulata (Guppy) and Xiphophorus helleri (Green swordtail).

E. Topography

The project site is located between two tributaries of Heeia Stream. Ground slopes vary from flat to a maximum of about 2 horizontal to 1

vertical. Surface soil is classified as Lolekaa Silty Clay (LoD), 15 to 25 per cent slopes. See Reference (E). Runoff is rated medium for this soil and the erosion hazard moderate.

F. Geology

The geology of Windward Oahu has been described in detail in Reference (F) and summarized in Reference (G) in relation to Windward Oahu water resources. The

significant geologic units in the vicinity of the project are shown on Figures 10 and 11.

The hydrologic cycle in Haiku Valley is typical of most Windward Oahu valleys and is schematically shown in Figure 11. Because of the high water table, stream flow is intimately tied to ground water levels. The ground water body recharges over 75 per cent of total flow and 100 per cent of base flow in the stream. In addition to recharging the streams, an undetermined amount of ground water moves through the basin as underflow and leaks into the ocean. Some water is also lost to evapotranspiration.

Heeia Stream discharges into the sea at Heeia Fish Pond. The seaward levee of the pond has been partially destroyed and the pond is contiguous with the sea.

Several small springs discharge from the basalt. The Baskerville Spring discharges at an elevation of approximately 190 feet. The spring at one time was pumped for domestic use and irrigation, but at present is used as the source of water for a scenic pond at the Haiku Gardens restaurant. No other spring in Haiku Valley west of Kahekili Highway is known to be utilized as a water source.

G. <u>Population and Socio-Economic Characteristics</u>

Table II, which contains data obtained from Reference (O), shows population and socio-economic

TABLE II

POPULATION AND SOCIO-ECONOMIC CHARACTERISTICS
OF KANEOHE AND HONOLULU COUNTY (OAHU)
1975 CENSUS UPDATE SURVEY

	OAHU	KANEOHE
POPULATION:		
1970 (U.S. Census)	630,528	34,999
1975 (Survey Estimate)	704,455	41,620
Increase from 1970 - 1975	11.7%	18.9%
GENERAL CHARACTERISTICS:		
Number of Households	209,685	10,448
Persons per Household	3.36	3.98
Household Income	$14,139	$16,734
Hawaii born	58.6%	64.6%
Males	50.7%	49.7%
Females	49.3%	50.3%
Under 5 years of age	9.0%	10.0%
Under 20 years of age	37.6%	44.5%
65 years and over	5.5%	2.5%
Median age	25.9	22.7
MARITAL STATUS:		
Estimated study population 14 years or older	503,016	28,549
Now married (excl. separated)	62.4%	66.2%
Widowed	3.8%	2.7%
Divorced	3.0%	3.3%
Separated	0.7%	0.1%
Never married	30.1%	27.7%

ETHNIC GROUPS:	OAHU	KANEOHE
Estimated study population	678,979	41,620
Black, Negro	1.4%	1.5%
Caucasian, not Portuguese	27.9%	29.7%
Portuguese	2.6%	4.9%
Chinese	5.6%	3.0%
Filipino	10.2%	3.9%
Hawaiian	0.9%	0.4%
Part-Hawaiian	14.4%	20.7%
Japanese	24.6%	27.2%
Korean	1.5%	0.1%
Puerto Rican	0.6%	0.5%
Samoan	1.0%	0.0%
Mixed (not Part-Hawaiian)	8.2%	7.2%
Other	1.4%	0.9%
EDUCATION - HIGHEST GRADE COMPLETED:		
Estimated study population 6 years or older	604,496	36,606
No grade	2.0%	3.0%
Grades 1 - 7	20.1%	21.1%
Grade 8	5.2%	4.3%
Grades 9 - 11	13.8%	16.3%
Grade 12	28.2%	32.4%
Some college	15.0%	11.4%
Bachelor's degree	7.8%	7.0%
Some graduate work	1.4%	1.2%
Graduate degree	3.2%	1.6%
Business/Trade school	2.2%	1.2%
No data	0.0%	0.0%
Refused/ Don't know	1.1%	0.5%
EMPLOYMENT:		
Estimated study population 14 years or older	503,016	28,549
Employed part-time or full-time	49.9%	46.9%
Employed, but laid off, on strike, or on leave	1.5%	1.5%
Unemployed, looking for work	4.4%	4.5%
Not in labor force	27.6%	31.4%
In military service	7.2%	9.6%
Retired	9.1%	5.7%
No data	0.1%	0.3%
Refused/Don't know	0.2%	0.1%

	OAHU	KANEOHE
OCCUPATION:		
Estimated employed population 16 years or older	258,088	13,841
Professional, technical, managerial	30.8%	31.9%
Clerical, sales	25.8%	27.2%
Service	15.7%	12.3%
Farming, fishing, forestry	1.8%	0.9%
Processing	1.4%	0.8%
Machine trade	3.6%	4.4%
Bench work	2.5%	3.7%
Structural work	10.2%	10.8%
Miscellaneous	7.1%	7.1%
Insufficient information	0.2%	0.3%
Refused/Don't know	0.9%	0.6%
HOUSING - TYPE OF OCCUPANCY:		
Estimated number of occupied housing units (not corrected for vacancy)	209,676	10,448
Owned or being purchased	44.3%	54.9%
Condominium or cooperative owned or being purchased	3.5%	0.5%
Rented for cash rent	50.0%	42.4%
Occupied without payment of cash rent	1.7%	1.0%
Refused/Don't know	0.5%	1.2%

characteristics of the island of Oahu and Kaneohe City, respectively. Kaneohe City consist of the following census tracts: 103.02, 105.01, 105.02, 106.01, 106.02, 107.01, 107.02 and 108.

The table shows Kaneohe to be fairly representative of the island of Oahu with the following noteworthy differences:

1. The growth rate in Kaneohe from 1970 to 1975 has far exceeded that on Oahu. (18.9% for Kaneohe to 11.7% for Oahu.)
2. The median age of the Kaneohe area is far less than that of the population for all of Oahu. (22.7 for Kaneohe and 25.9 for Oahu.)
3. The "persons per household" in Kaneohe exceeds that on Oahu by over 0.6. (3.98 for Kaneohe compared to 3.36 for Oahu.)
4. The median household income in Kaneohe exceeds that on Oahu by nearly $2,600. ($16,734 for the Kaneohe area and $14,139 for Oahu.)
5. Housing units in Kaneohe are predominantly owner-occupied. (54.9% for Kaneohe and 44.3% for Oahu.)

It should be noted that Table II is based on a 1975 Census Update Survey and the characteristics noted above could be considerably altered in six years. See Reference (0) for updating methods.

VII. PROBABLE ENVIRONMENTAL IMPACTS

A. Long Term

1. Land Transformation

Grading and construction of the Control Building will alter the present topography of the immediate site.

2. Noise

The pump motor will generate noise as will the air compressors in the Control Building.

3. Drainage

Pump operations will generate small quantities of water at each start up which will be conveyed to the existing tributary of Heeia Stream for disposal. This water is potable and should not adversely affect the quality of water in the stream. No siltation problems are anticipated.

4. Traffic

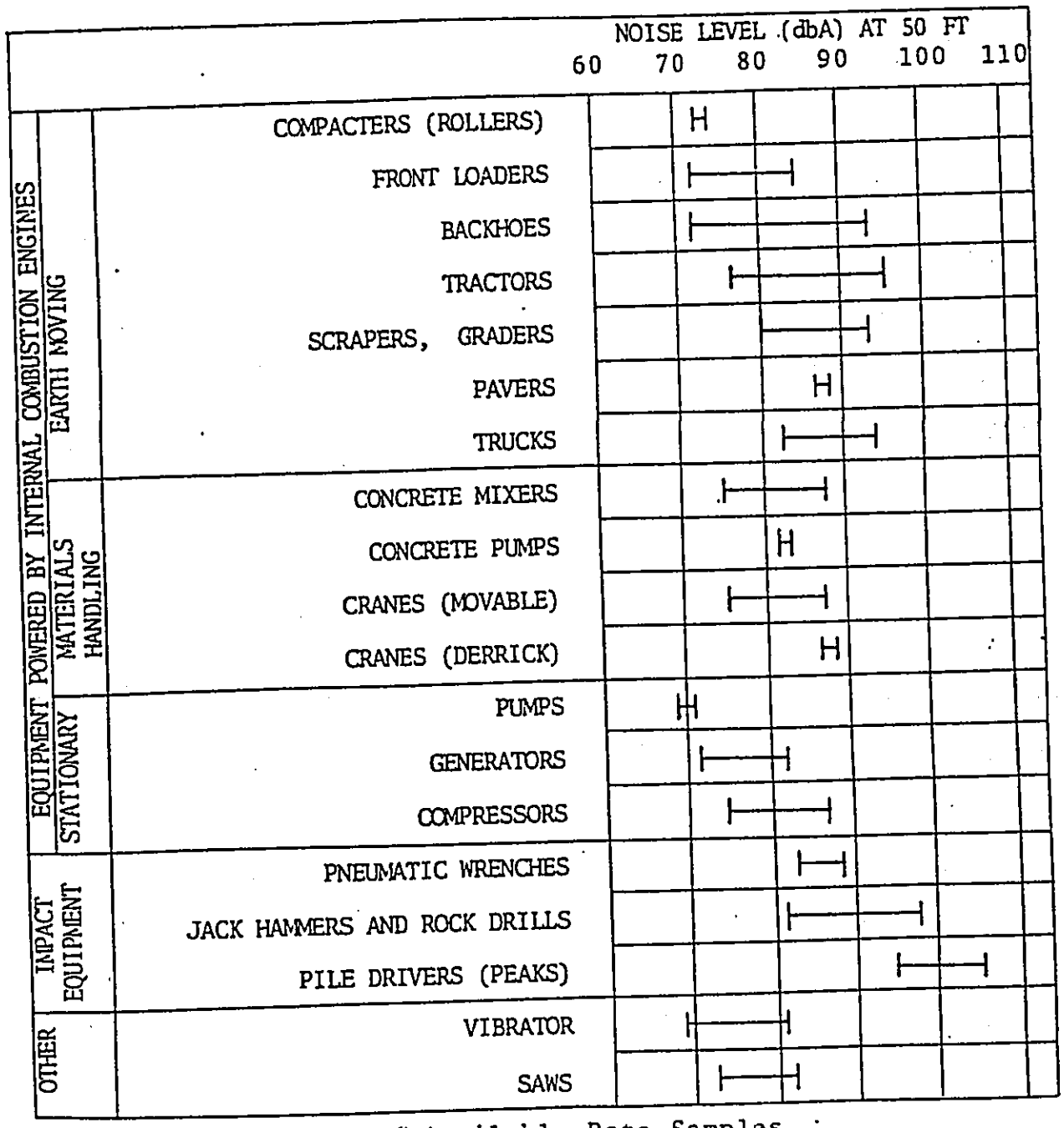
Full time personnel will not be required at the site for operating the facility. The traffic generated by periodic maintenance personnel will be negligible.

5. BWS Water System

This installation is intended to add approximately 1.0 mgd to the Windward Water District System. See Part V for a discussion of existing and projected demands.

TABLE IA

CONSTRUCTION EQUIPMENT NOISE RANGES



Note: Based on Limited Available Data Samples

Source: Noise From Construction Equipment and Operations Building Equipment, and Home Appliances, EPA, 1971

6. Ground Water Quantity and Quality

Ground water levels in the marginal dike zone near the well will be lowered; however, this effect will not extend any great distance beyond the immediate vicinity of the well. Except for lowering of the ground water level near the well, no significant impact is expected on local ground water bodies. Existing wells developing water from the marginal dike zone groundwater body in the area should not be impacted in any way by the proposed well development because there are no other wells in upper Haiku Valley and the nearest wells, 407-17 to the north and 416, 416-1, 2, 3 to the south (see Figure 9) do not develop their water from the upper Haiku Valley drainage basin. Lowered ground water levels near the well should actually reduce losses to evapotranspiration.

No significant impact is expected either quantitatively or qualitatively on Haiku Tunnel or on other water developing wells in the area.

7. Surface Streams and Springs

Heeia stream will generally remain the same below the Coast Guard Station because of the numerous inflows to the stream along its entire length; therefore, little impact is foreseen on aquatic life due to the proposed

project below the Coast Guard Station. It was anticipated that stream flow in the area immediately adjacent to the well and flow in Baskerville Spring could be reduced, by an undetermined amount, with consequent impact on aquatic fauna.

However, during the five-day pump tests conducted from February 18, 1981 to February 23, 1981, stream flow measurements (Appendix E) taken at six different sites (Figure 9) before, during and after the pump tests, were very encouraging. The results showed no decrease in Heeia stream flow during the period of observation.

Additional subsurface recharge to the marginal dike zone groundwater body could occur due to the lowering of ground water levels. Similar impacts have sometimes been observed in other Hawaiian ground water basins.

Little impact is foreseen on kuleana water rights because of the limited reduction in the flow anticipated in the bulk of Heeia Stream.

8. Secondary Impact

As previously stated, the objective of this installation is to provide, together with other sources, a sufficient supply of water to meet current and projected demands in the Windward Water District. The projected demand is a composite figure developed by the Board of Water Supply which conforms closely, to the pattern defined by the Department of General Planning and the Series II-F projection of the State Department of Planning and Economic Development. Distribution of this projection is by the City and County of Honolulu Department of General Planning. The Windward Water Distict total resident population is estimated at approximately 132,000 in the year 2000 as compared with the 1980 population of approximately 117,000.

B. Short Term

The following effects on the environment will be of relatively short duration and limited to the construction period. The construction is estimated to take place over a period of approximately 12 months (total contract time).

1. Construction activities and equipment will produce local air pollutants in the form of dust generated by excavation activities and emissions from operation of equipment. Emissions from operation of construction equipment are not expected to have a significant impact on local air quality.
2. Construction noises will be generated; however, their effect should be negligible because of the considerable distance between the project site and the nearest habitation.
3. Additional traffic will be generated along the access routes to the project site by the construction activity because of the equipment, materials and personnel that must be transported to and from the site. Little disruption to normal traffic patterns should occur because of the infrequent vehicle trips required by projects of this nature.
4. The potential for erosion will exist during the construction period.
5. The potential for surface water pollution will exist during construction.
6. Existing vegetation within the immediate grading area will be destroyed but will be replaced with new plantings.

VIII. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

Although preventive and corrective measures will substantially reduce their severity some adverse impacts cannot be fully mitigated. The following is a list of the adverse effects of the project:

A. Dust generation during construction.

B. Noise generation.

C. Air pollution from exhaust emissions from construction equipment.

D. Land transformation and destruction of existing vegetation at the project site.

IX. MITIGATIVE MEASURES

A. Long Term

1. Land transformation. The natural appearance of the site will be altered; however, the total effect should be softened with the use of harmonious landscaping and architecture.

2. Noise pollution. The noise impact should be negligible because of the considerable distance between the project site and the nearest homes. Public Health Regulations, Chapter 44B, Community Noise Control for Oahu will be followed and sound attenuators will be used if necessary.

3. Ground water quality. The water quality impact should be negligible. Periodic monitoring of the well water will be performed to assure that the water meets the State Drinking Water Standards.

4. Surface streams and springs. Stream flow will generally remain the same in Hecia Stream and its tributaries. Streamflow monitoring will be performed when the station becomes operational to detect if there are any adverse impacts to streamflow. Pumpage from the well will be reduced or curtailed to meet minimum stream-flow standards that may be established by the State. The water level at Baskerville Springs will also be monitored.

B. Short Term

Short term impacts associated with construction activities are expected. The project area will be subjected to dust, air pollution, noise, possible erosion and water pollution.

1. Dust generation potential will be reduced by implementing mitigative measures such as water sprinkling as specified in the Air Pollution Control Regulations (Chapter 43, Section 10) of the State Department of Health.
2. Noise from construction equipment will be audible during construction. Noise regulations of the State Department of Health will be enforced.
3. The project site will be subject to possible erosion and surface water pollution during construction. The construction plans will be

coordinated with the Division of Engineering of the Department of Public Works, City and County of Honolulu, for compliance with the grading ordinance to avoid soil erosion or at least to render its effect negligible.

4. Should any unanticipated archaeological sites or remains such as artifacts, shell, bone or charcoal deposits; human burials; rock or coral alignments, pavings or walls are encountered, all work will be suspended and the Historic Sites Section of the Department of Land and Natural Resources will be notified.

X. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Development of Haiku Well, according to constraints imposed by the BWS and in conformance with Chapter 166 of Title 13, should not result in long-term adverse impacts to the ground water aquifer.

Until pilot studies on development of alternate water sources are complete, ground water development will have to be optimized to meet current and near future water demands of planned growth for this region of Oahu.

Optimizing current options will provide the BWS with the time required to develop alternate potable water sources. Current estimates are that it will be another 20 years before feasible alternates will be available.

The well will be carefully monitored to determine its effect on the aquifer and Hecia Stream. The project, therefore, will not narrow the range of beneficial uses of the environment or pose long-term risks to health and safety.

XI. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

On a long term, continuing basis, the proposed project will irreversibly commit approximately 0.5 acre of presently unused land to the proposed facility. The project will also commit labor, materials, equipment and energy to the operation and maintenance of the pump, control building and appurtenances.

For the short term, labor, materials, equipment and energy will be irreversibly and irretrievably expended in the design and construction of the facility.

The benefits of this project, which is to contribute to the health and well being of the growing community, far outweigh the irretrievable loss of the use of land and the loss of labor, materials, equipment and energy necessary for the construction, operation and maintenance of the facility.

XII. AN INDICATION OF WHAT OTHER INTERESTS AND CONSIDERATIONS OF GOVERNMENTAL POLICIES ARE THOUGHT TO OFFSET THE ADVERSE ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION

As stated in Section VII, PROBABLE ENVIRONMENTAL IMPACTS, most of the adverse impacts associated with this project are short-term, construction oriented activities. The impacts, which include local air pollution, construction noise, traffic, erosion and surface water pollution, are limited to the construction site. The impacts which are long-term are generally secondary impacts which occur wherever growth takes place.

The Board of Water Supply has a long range plan for supplying water to the general public. Projected demands necessitate additional water sources, for present sources are adequate for present demands only. The proposed Haiku Well will eventually be used to meet progressively increasing normal demands. The goal, to maintain a sufficient water supply, will be accomplished with minimal adverse environmental effects.

XIII. UNRESOLVED ISSUES

A quantitive assessment of the impact of the proposed project on surface stream flow and its consequent effect on aquatic biota cannot be made at this time, but can only be monitored over a long period of pumping.

Therefore, the Board of Water Supply will coordinate with the U. S. Geological Survey to re-establish a gaging station down stream of the well site. If there are any indication that adverse effects to streamflow could occur, the Board will either decrease or cease pumping as the situation dictates. In addition, the Board will contact the U. S. Fish and Wildlife Service for an assessment on stream aquafauna.

XIV. ALTERNATIVE

A. No Action

This alternative is untenable in view of the growing demand for water in the Windward Water District and could be justified only if population growth could be stopped.

B. Location of Well Outside Haiku Valley

This is not a real alternative because the Board of Water Supply is already implementing a program to develop water sources at other locations as well as at Haiku Valley. See Figure 12.

C. Location of Well at Another Site in Haiku Valley

While other sites in Haiku Valley with a similar water-bearing potential could probably be developed,

none would offer the cost advantages of the combination of available public land, available access and proximity to an existing transmission pipeline.

D. Alternatives to a Ground Water Source

Some alternatives to a ground water source are:

1. Development of surface water of a lesser quality than required for domestic use for exchange with other users of high quality ground water sources but who actually require a lesser quality of water.
2. Demineralization of brackish water.
3. Development of surface sources for domestic consumption.
4. Waste water reclamation.
5. Desalination of sea water.

These alternatives are discussed in depth in Reference (C) and will undoubtedly become more viable as the limit of developable ground water sources is reached. For the present, the development of ground water sources provides a more favorable benefit to cost ratio than the development of other alternative sources.

E. Conservation

Conservation is and should be an on-going policy of the Board of Water Supply. Significant reduction in per capita consumption has already been observed as a result of current conservation efforts. However, population growth and its redistribution will still require the development of additional sources.

XV. LIST OF NECESSARY APPROVALS

A. City and County of Honolulu

1. Department of Public Works

2. Department of Buildings

B. State of Hawaii

1. Department of Land and Natural Resources

2. Department of Health

C. United States Government

1. United States Coast Guard Omega Station - Haiku

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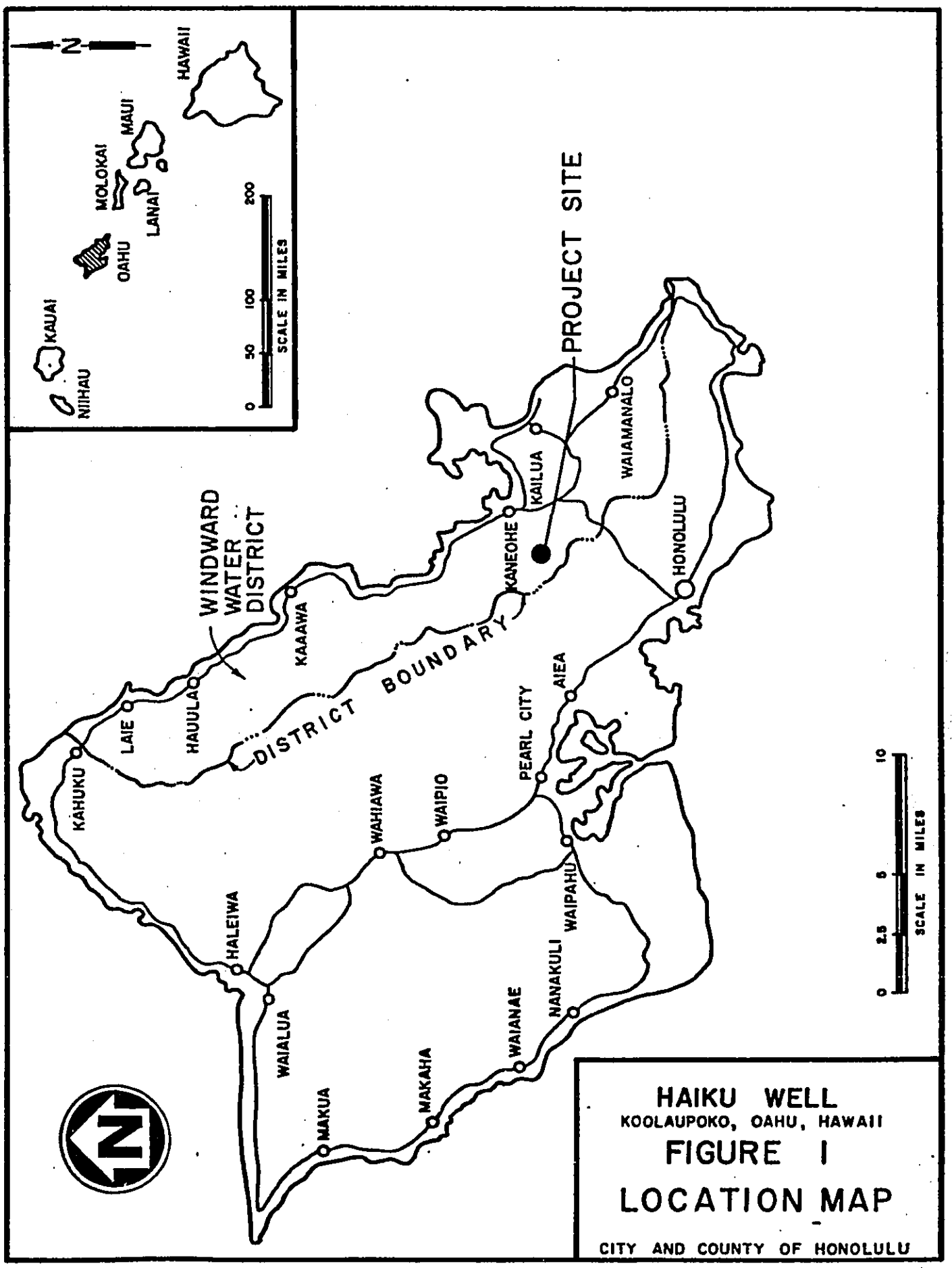
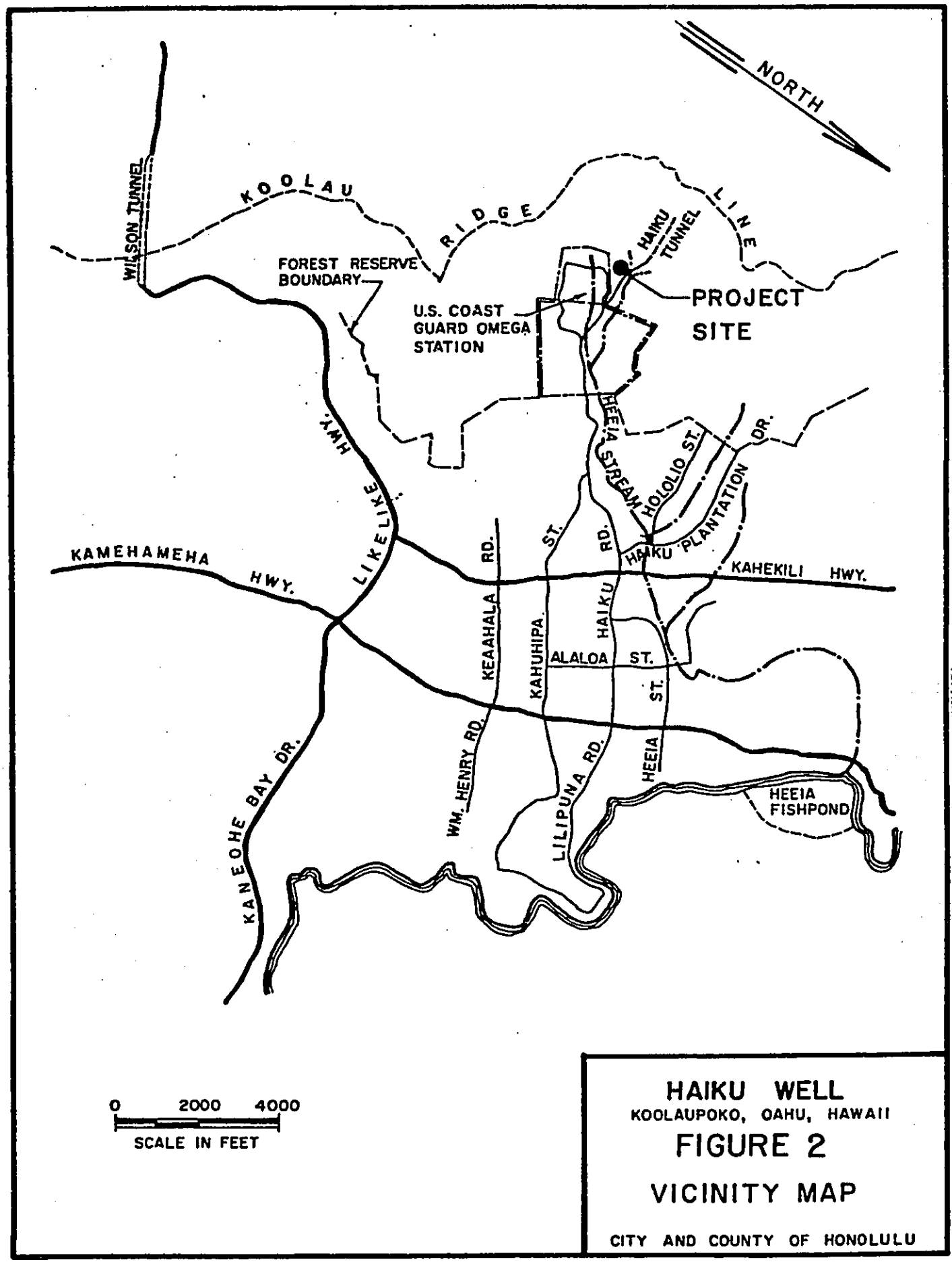
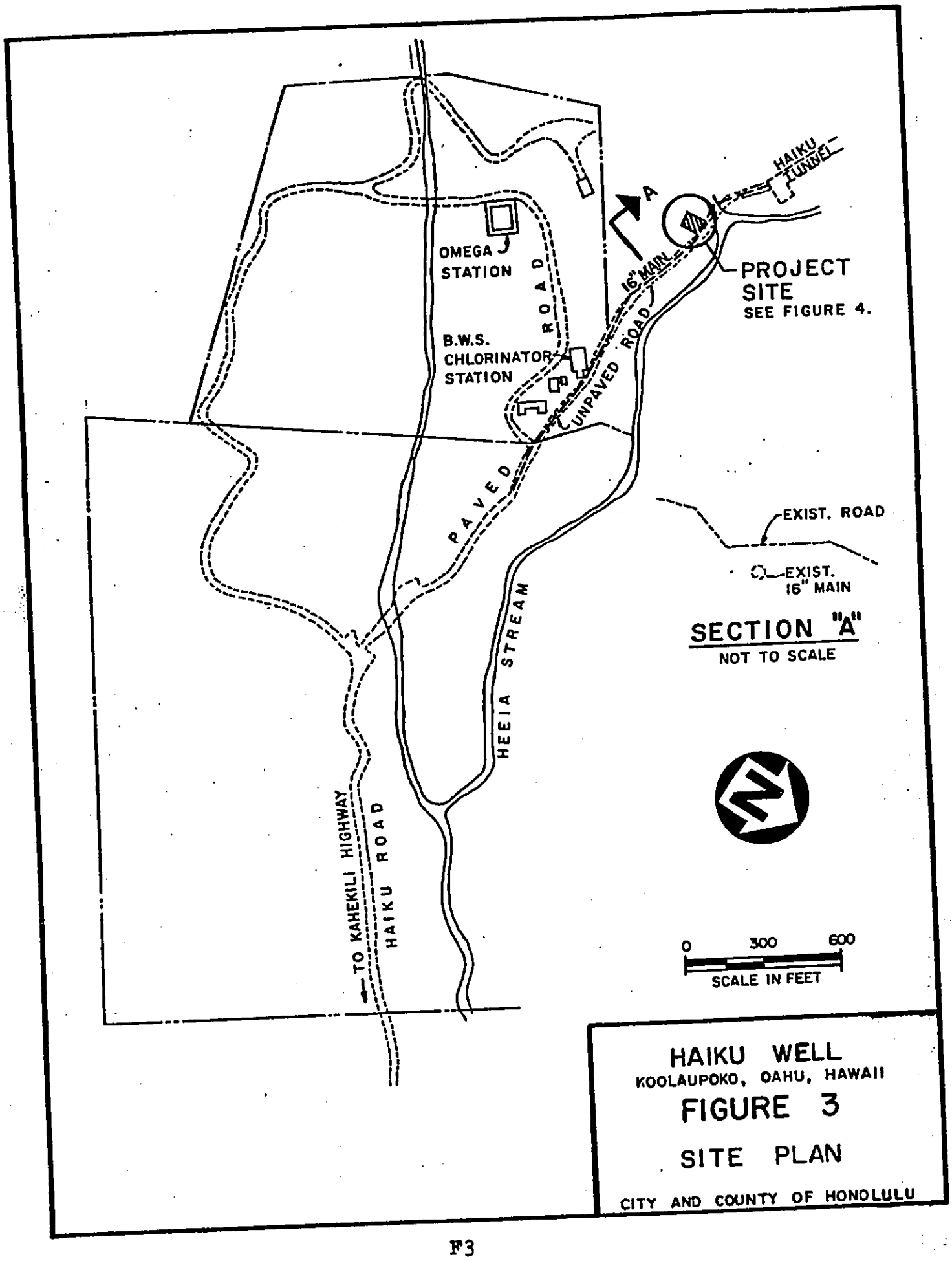
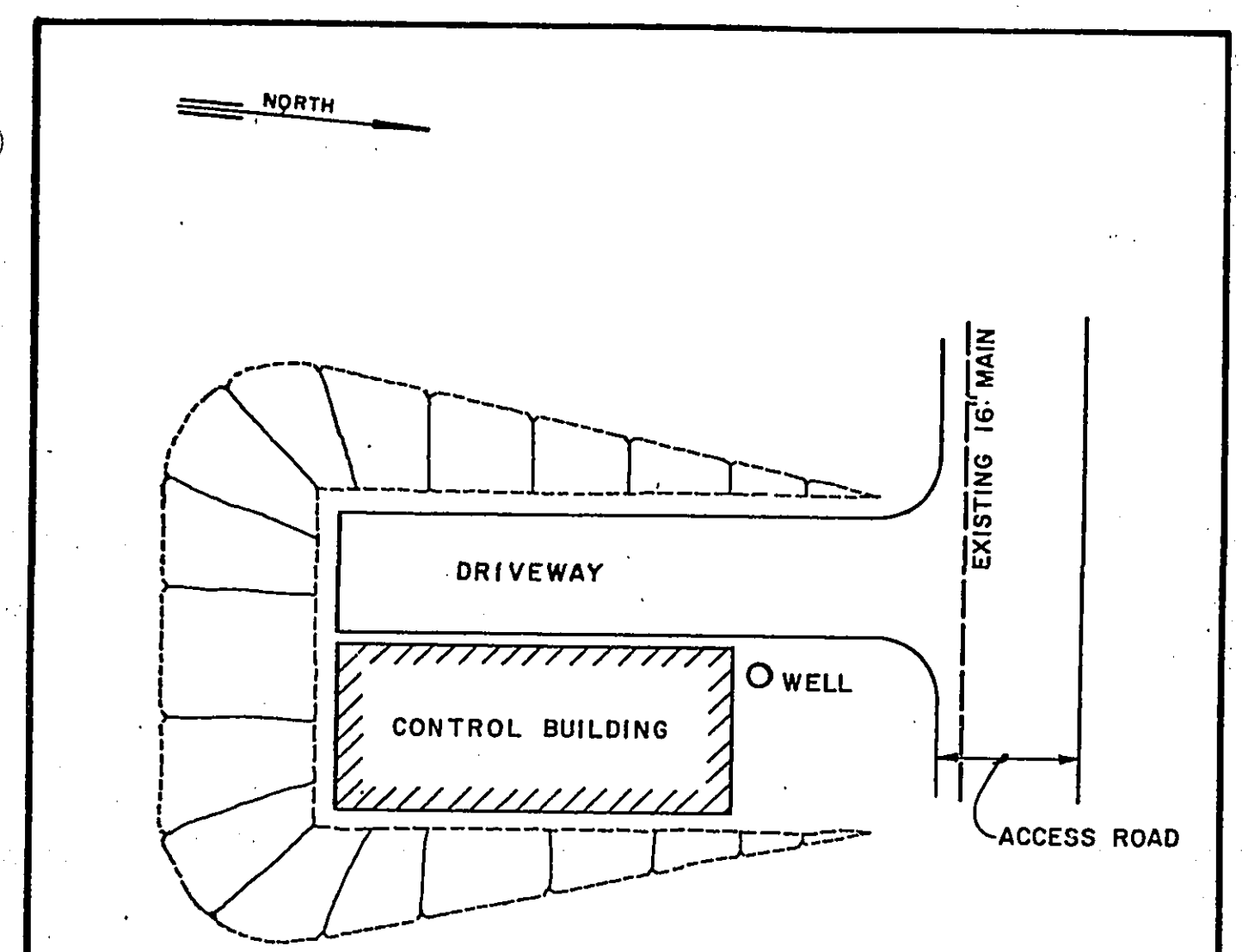

N
KAUAI
NIIHAU
OAHU
MOLOKAI
LANAI
MAUI
HAWAII
0
50
100
200
SCALE IN MILES
WINDWARD WATER DISTRICT
KAAAWA
KANEOHE
KAILUA
PROJECT SITE
WAIAMANALO
HONOLULU
DISTRICT BOUNDARY
AIEA
PEARL CITY
LAIE
HAUULA
KAHUKU
WAHIAWA
WAIPIO
WAIPAHU
HALEIWA
NANAKULI
WAIANAE
WAIALUA
MAKAHA
MAKUA
N
0
2.5
5
10
SCALE IN MILES
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 1
LOCATION MAP
CITY AND COUNTY OF HONOLULU

F1


NORTH
KOOLAU RIDGE LINE
WILSON TUNNEL
FOREST RESERVE BOUNDARY
HAIKU TUNNEL
PROJECT SITE
U.S. COAST GUARD OMEGA STATION
HEEIA STREAM
HOLOLIO ST.
OR.
HAIKU PLANTATION
KAMEHAMEHA HWY.
LIKELIKE HWY.
KEAAHALA RD.
KAHUHIPA ST.
HAIKU RD.
ALALOA ST.
HEEIA ST.
KAHEKILI HWY.
KANEOHE BAY DR.
WM. HENRY RD.
LILIPUNA RD.
HEEIA FISHPOND
0 2000 4000
SCALE IN FEET
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 2
VICINITY MAP
CITY AND COUNTY OF HONOLULU

F2


HAIKU TUNNEL
A
OMEGA STATION
B.W.S. CHLORINATOR STATION
ROAD
16" MAIN
UNPAVED ROAD
PROJECT SITE
SEE FIGURE 4.
PAVED
HEEIA STREAM
EXIST. ROAD
EXIST. 16" MAIN
SECTION "A"
NOT TO SCALE
TO KAHEKILI HIGHWAY
HAIKU ROAD
0 300 600
SCALE IN FEET
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 3
SITE PLAN
CITY AND COUNTY OF HONOLULU



SITE PLAN

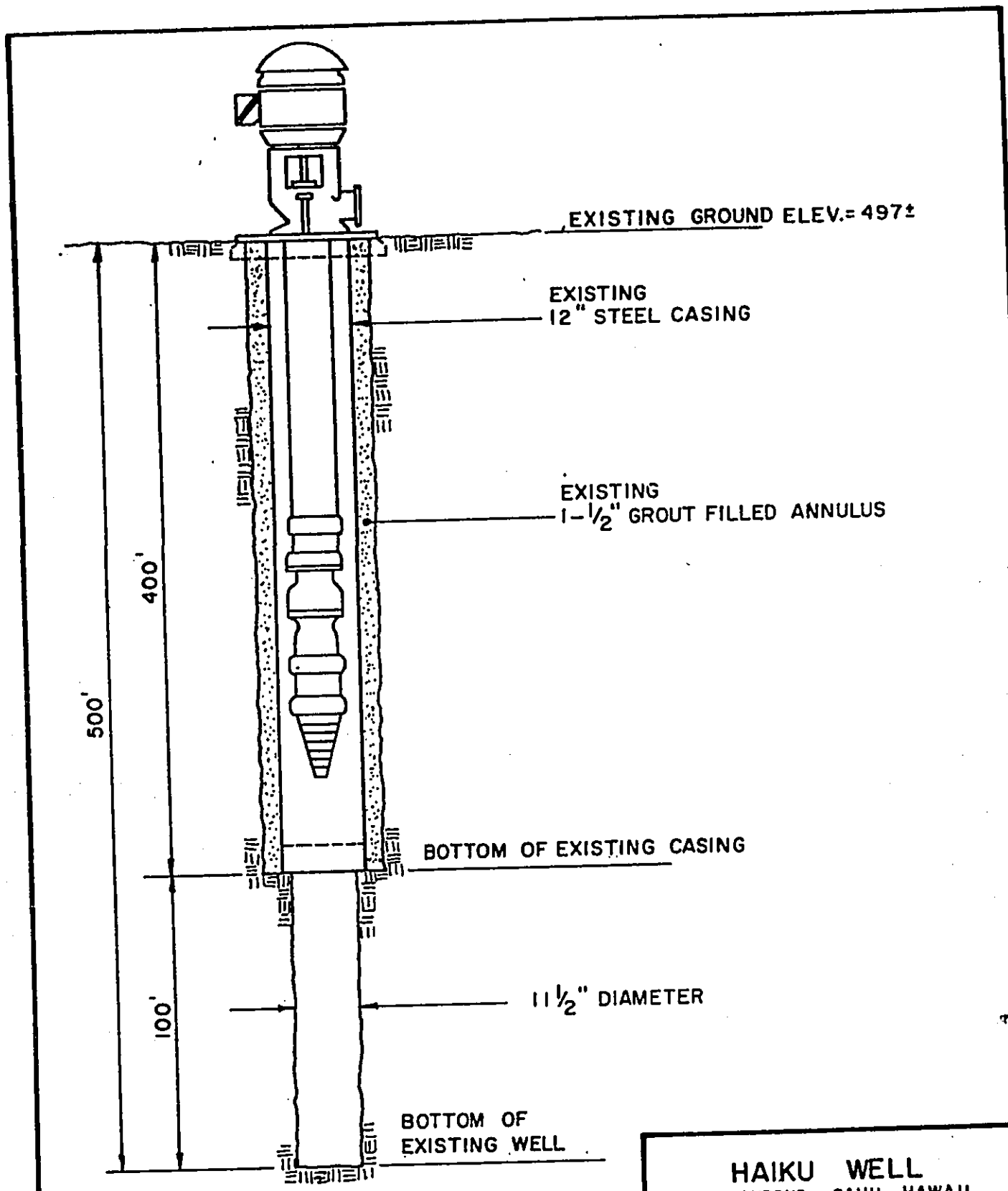
NOT TO SCALE

HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII

FIGURE 4

SITE PLAN

CITY AND COUNTY OF HONOLULU



TYPICAL SECTION OF PUMP

NOT TO SCALE

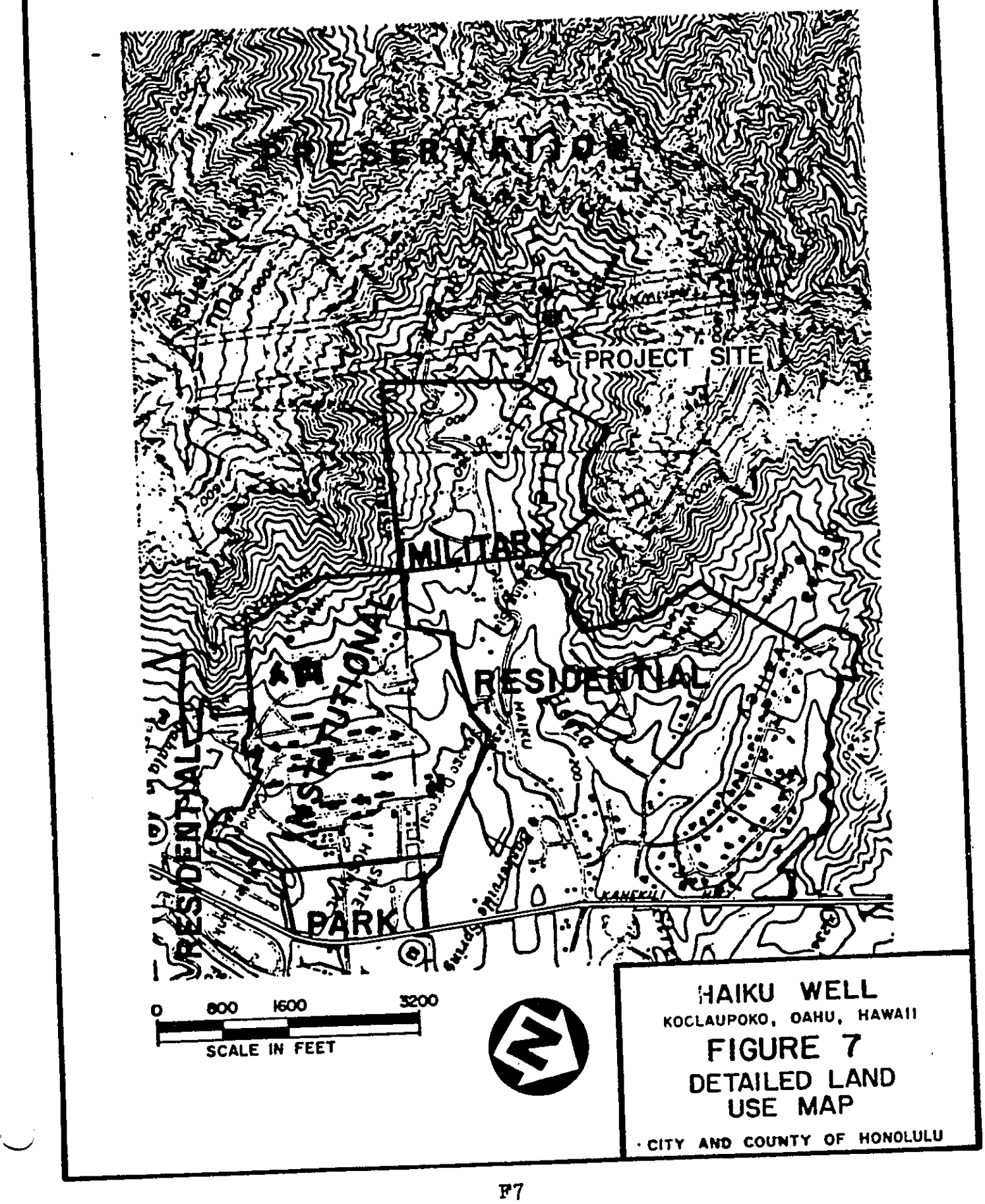
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII

FIGURE 5

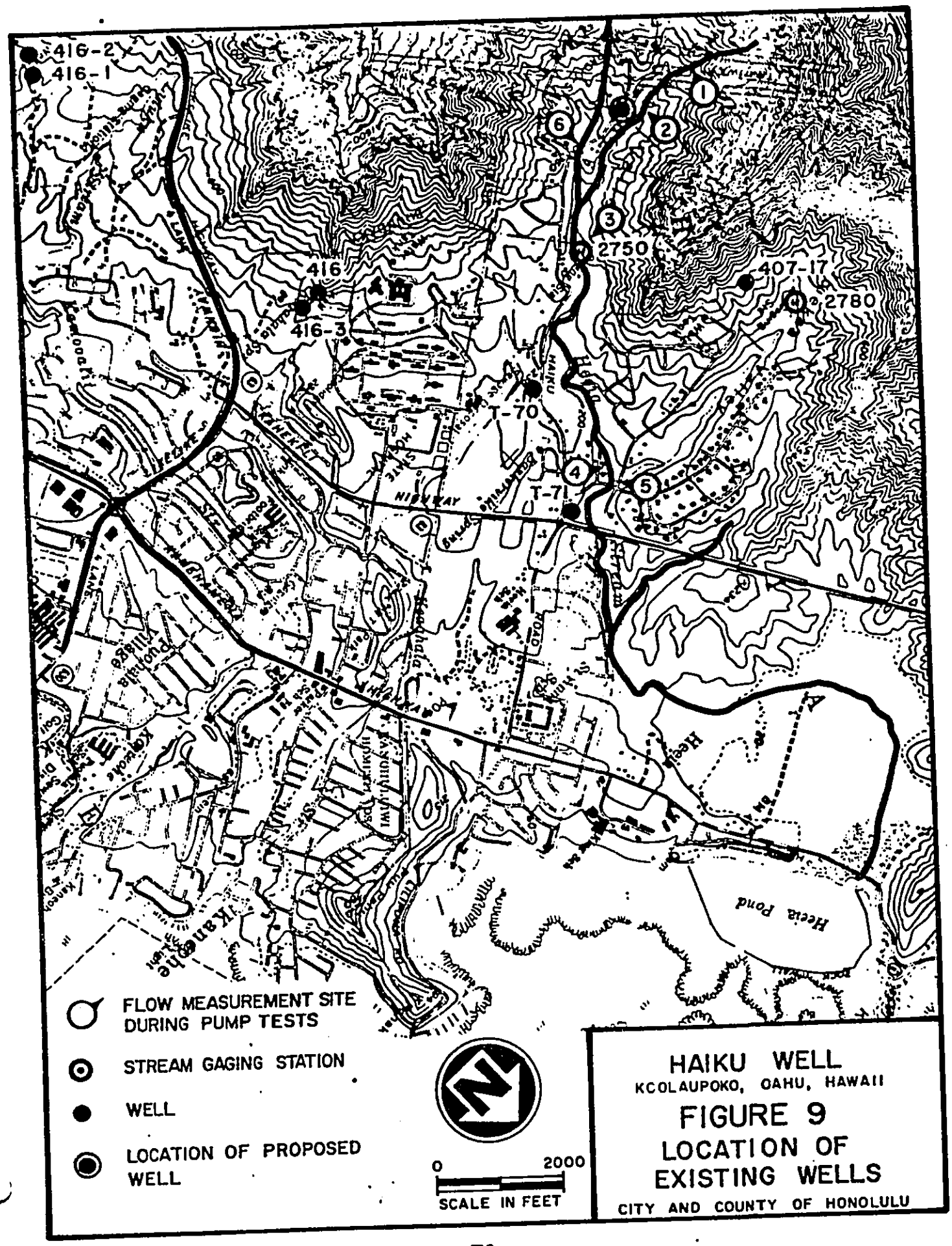
PUMP SECTION

CITY AND COUNTY OF HONOLULU


R
P
PROJECT SITE
L
CONSERVATION
G
G
G
URBAN
HAIKU
KAHEKILI
CONSERVATION DISTRICT SUBZONES
(P)= PROTECTIVE (L)= LIMITED
(R)= RESOURCES (G)= GENERAL
LEGEND
DISTRICT BOUNDARY
SUBZONE BOUNDARY
0 800 1600
SCALE IN FEET
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 6
STATE LAND USE DESIGNATIONS
CITY AND COUNTY OF HONOLULU


PRESERVATION
PROJECT SITE
MILITARY
RESIDENTIAL
AGRICULTURAL
RESIDENTIAL
PARK
HAIKU
KAMEHAMEHA HWY
0 800 1600 3200
SCALE IN FEET
N
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 7
DETAILED LAND USE MAP
CITY AND COUNTY OF HONOLULU


PROJECT SITE
AG-1
R-4
AG-1
R-6
PDH
AG-1
R-4
R-6
R-4
0 800 1600 3200
SCALE IN FEET
P -PRESERVATION
AG -AGRICULTURAL
R -RESIDENTIAL
PDH -PLANNED DEVELOPMENT HOUSING
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 8
ZONING MAP
CITY AND COUNTY OF HONOLULU


416-2
416-1
416
416-3
2750
407-17
2780
T-70
T-71
1
2
3
4
5
6
Heeia Pond
FLOW MEASUREMENT SITE DURING PUMP TESTS
STREAM GAGING STATION
WELL
LOCATION OF PROPOSED WELL
0
2000
SCALE IN FEET
N
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 9
LOCATION OF EXISTING WELLS
CITY AND COUNTY OF HONOLULU

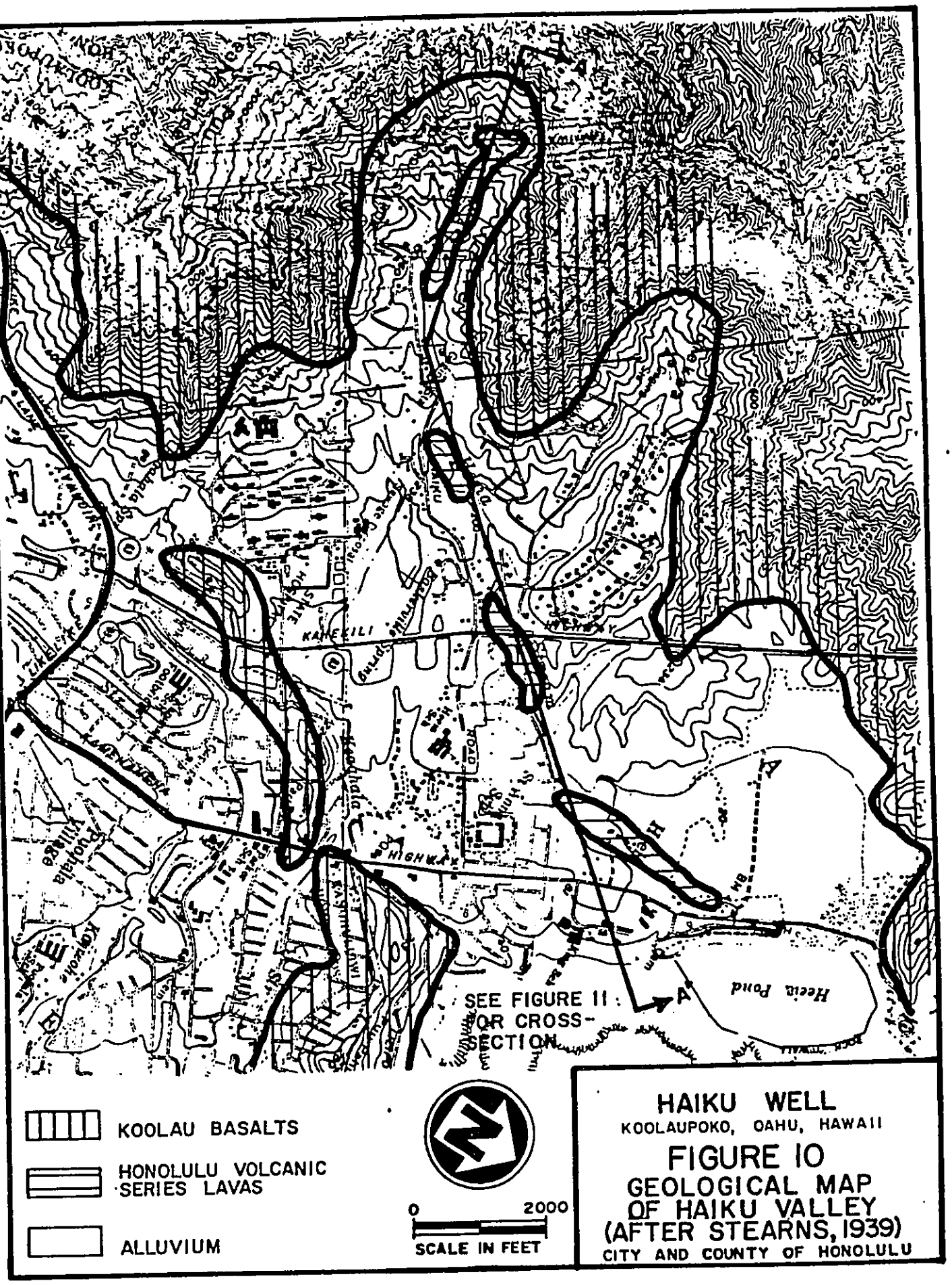
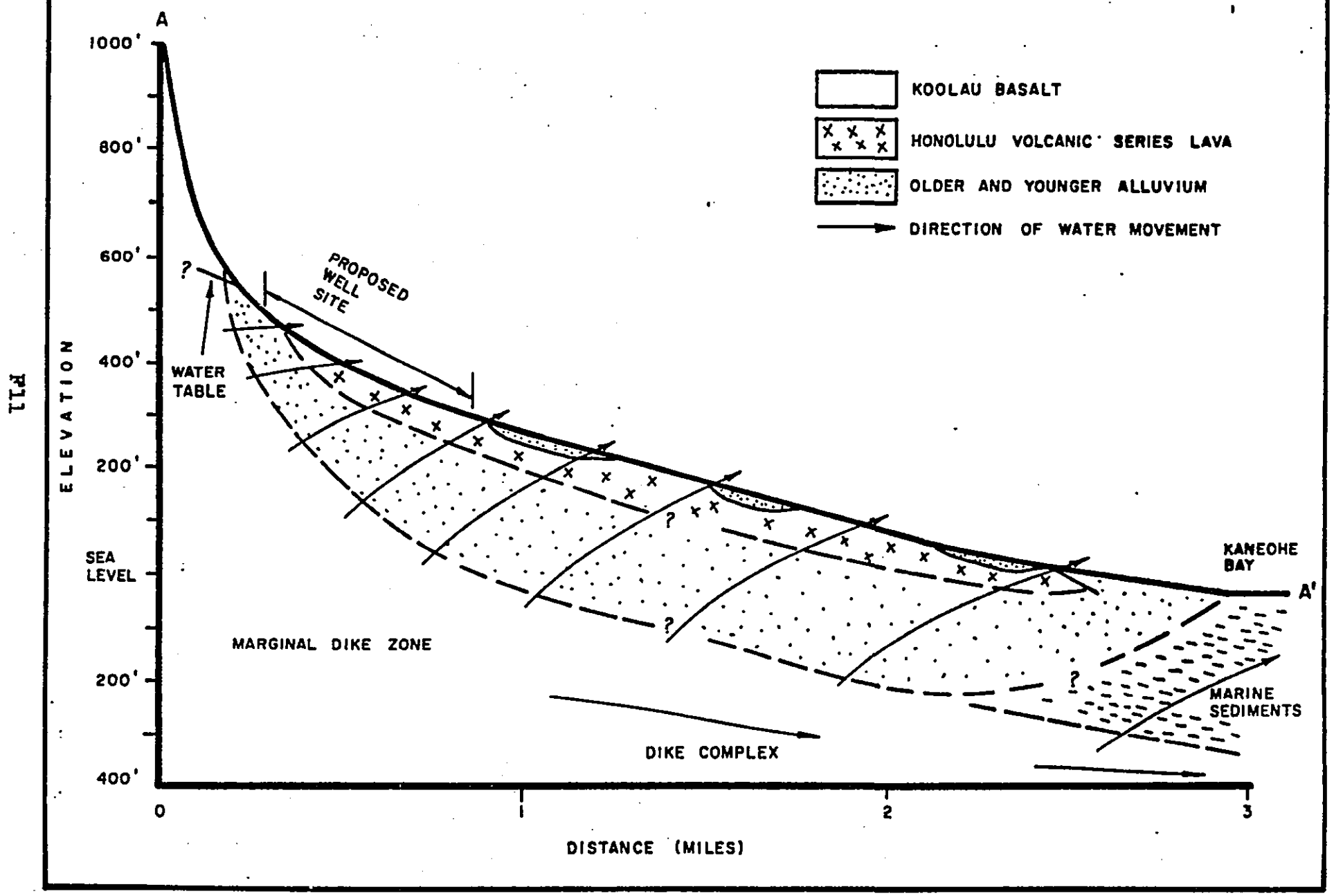
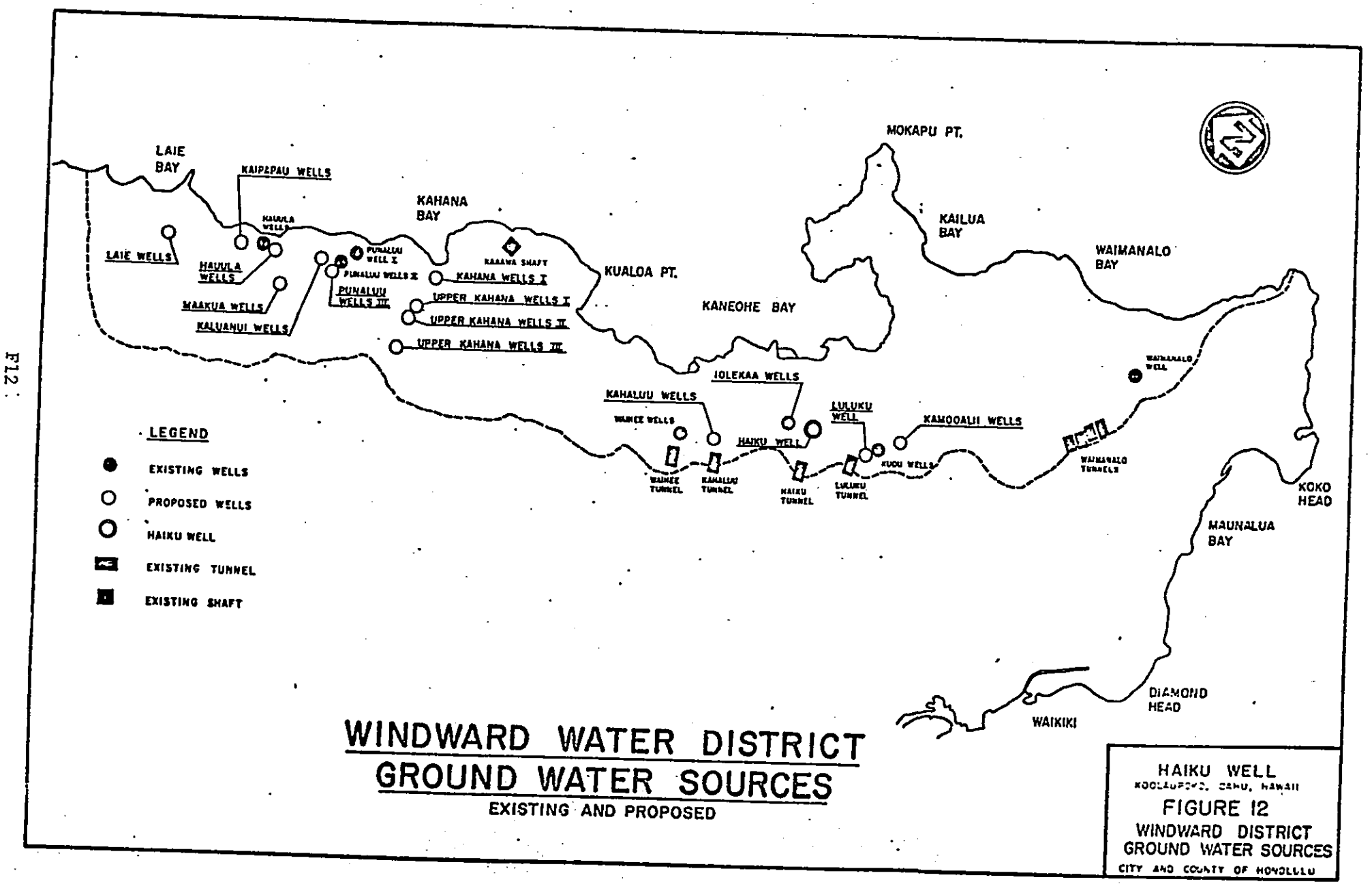

KAHEKILI
HIGHWAY
SEE FIGURE 11 FOR CROSS-SECTION
Heeia Pond
KOOLAU BASALTS
HONOLULU VOLCANIC SERIES LAVAS
ALLUVIUM
0 2000
SCALE IN FEET
HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII
FIGURE 10
GEOLOGICAL MAP OF HAIKU VALLEY (AFTER STEARNS, 1939)
CITY AND COUNTY OF HONOLULU

FIGURE 11. GENERALIZED GEOLOGIC CROSS-SECTION ALONG AA' AND HYDROLOGIC CYCLE.



F12 :



WINDWARD WATER DISTRICT
GROUND WATER SOURCES
EXISTING AND PROPOSED

HAIKU WELL
KOOLAUPOKO, OAHU, HAWAII

FIGURE 12
WINDWARD DISTRICT
GROUND WATER SOURCES
CITY AND COUNTY OF HONOLULU

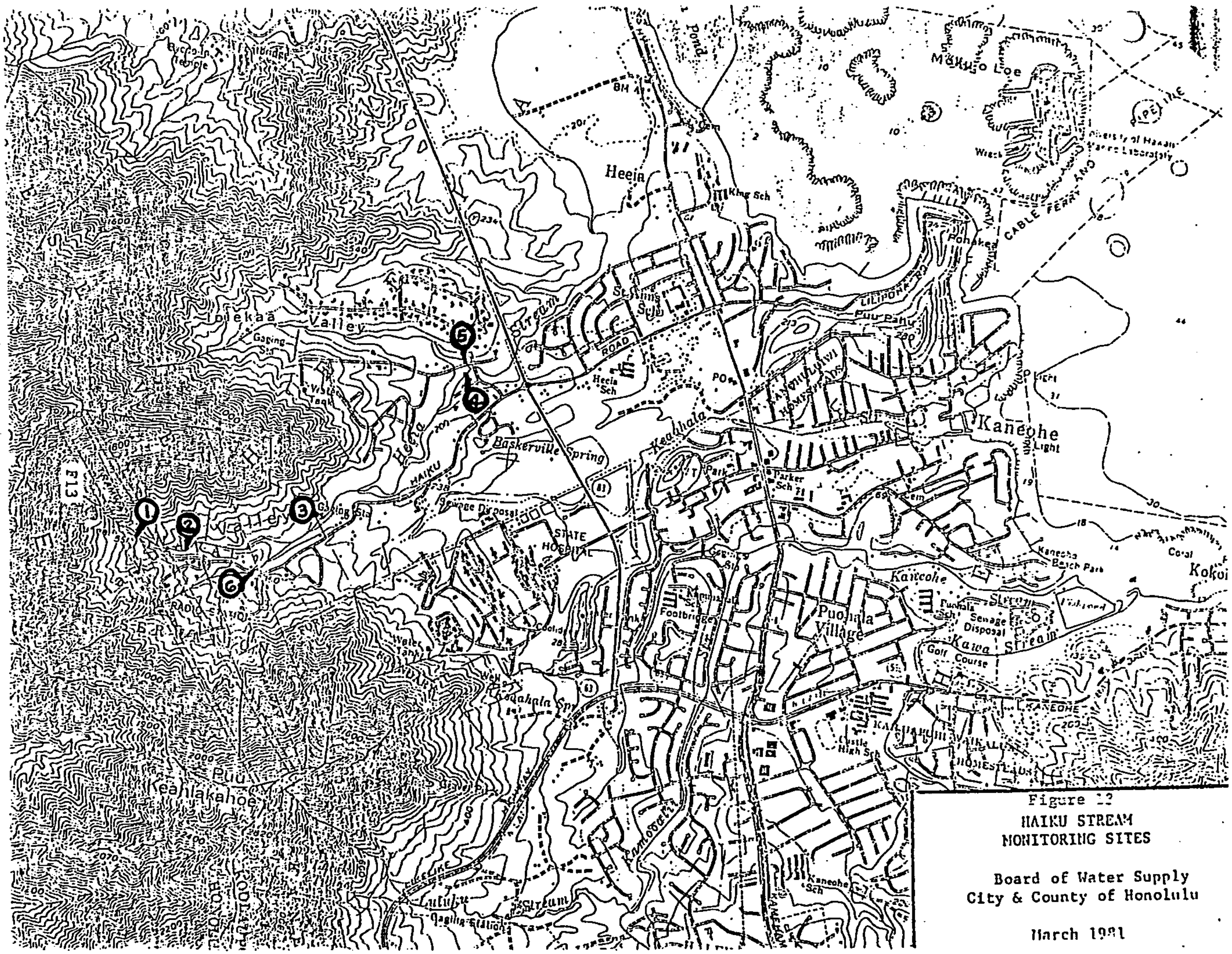


Figure 12
HAIKU STREAM
MONITORING SITES

Board of Water Supply
City & County of Honolulu

March 1981

APPENDIX A

Botanical Survey of a Haiku Well Site
Kaneohe, Hawaii

Prepared for Paul T. Taniguchi, Ltd.
Civil and Structural Engineers
1700 Kapiolani Boulevard, Honolulu, Hawaii 96814

By Evangeline Funk, Botanist

The data included in the following botanical survey of the Haiku well site, were collected on April 28, 1979 and May 5, 1979. The species list includes the scientific name and where possible, the common names of all taxa. The notation "P" denotes plants of known polynesian introduction. "E" signifies exotic plants, "N" denotes declared noxious weeds and "H" is endemics (known only to Hawaii). The phylogenetic scheme (arrangement of plant families) follows Harold St. John's List of the Flowering Plants of Hawaii.

Because the exact well site was uncertain at the time of this survey, a strip of land 1000 m long and 500 m wide from the intersection of the Loop Road and the Access Road to just above the Haiku Water Tunnel Portal, and from the top of the small cliff on the Omega Station side of the Access Road to the top of the cliff on the Ahuimanu side of the stream was surveyed. The vegetation was found to be entirely exotic (non-Hawaiian) except for two plants of Pipturus albidus, (Mamake) that are growing just below the building near the intake portal. The canopy along the Access Road is Leucaena leucocephala that varies from 6 to 8 m high and forms an open canopy of approximately 60 per cent coverage. Just above the intake is a dense thicket of Hibiscus tiliaceus (Hau) which is flanked by several very large Mangifera indica (Mango) trees of 7 to 9 m which indicate that there may have been houses in this area at one time.

The herb layer is composed of many exotic weeds, some noxious. Near the intake the principle ground cover is Oplismenus hirtellus (the grass with the wavy leaves) which makes up approximately 85 per cent cover. Along the road in the drier portion, Brachiaria mutica, (California grass) is the ground cover and near the Loop road, Melinus minutifolia (Molassas grass) form dense matts. On the slope near the Loop road is a large stand of Alocasia macrorrhiza (Ape). Along the small stream that runs through the area are several Aleurites moluccana (Kukui) trees and several large stands of Cordyline terminalis (Ti) with the big grass Coix lachryma-jobi and Spathodea campanulata (African tulip) getting started along the stream. These last two are very successful invader species and will probably take over the stream banks in a few years. Another very successful invader species just getting started is Pluchea indica along the access road. This plant is a noxious weed and is very successful in damp abandoned fields.

The area above the access road on the Omega Station side appears to have been cut over and the vegetation is composed entirely of exotic weeds and grasses.

No threatened or endangered plants were seen and the area appears to have been subjected to human activity for a considerable period of time. It is very unlikely that the biota will be adversely affected by the well installation. All of the plants in the area are shallow rooters that depend on surface water.

The attached species list principally reflects the composition of the herb layer. The dominants have been noted in the site description and are included in the list to make it as complete as possible.

The site dimensions are approximate and should not be interpreted as measured distances.

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Whitney, L. D. et al, 1939, Grasses of the Hawaiian Ranges, H. A. E. S. Bull. 82.

Species List

Family	Common Name	Designation
Poaceae (Grasses)		
Eleusine indica (L.)Gaertn.	Goose Grass	"E"
Chloris virgata Sw.	Feather Finger Brass	"E"
Coix lachryma - jobi	Job's tears	"E"
Brachiaria mutica(Forsk)Staph.	California Grass	"E"
Cenchrus echinatus (L.)	Sandbur Grass	"E", "N"
Melinus minutifolia Beauv.	Molassas Grass	"E"
Oplismenus hirtellus (L)Beauv.	Basket Grass	"E"
Paspalum sp. L.	Paspalum	"E"
Sporobolus sp. R.Br.		
Cyperaceae (Sedge)	Nut Grass	"E", "N"
Cyperus rotundus L.	Uki'	"E"
Machaerina mariscoides (Gaud.)Kern		
Araceae (arum)	'ape'	"P"
Alocasia macrorrhiza (L.) Schott		

Species List

Family	Common Name	Designation
Commelinaceae (Wandering jew)		
Commelina diffusa Burm	Hono Grass	"E"
Diascoreaceae (Yam)		
Dioscorea bulbifera L.	Bitter yam	"p"
Zingiberaceae (Ginger)		
Phaeomeria speciosa(Bl) Koord.	Torch ginger	"E"
Zingiber zerbumbet(L.) Smith	Shampoo ginger	"E"
Liliaceae (lily)		
Cordyline terminalis (L.) Kunth	Ti	"p"
Orchidaceae (orchid)		
Spathoglottis sp.	Ground orchid	"E"
Urticaceae (Nettle)		
Pipturus albidus(H&A) Gray	Mamake	"H"
Pelea microphylla(L.) Lichm	Artillery plant	"E"
Rosaceae (Rose)		
Rubus rosaefolius Sm.	Thimble berry	"E"

Species List

Family	Common Name	Designation
Leguminosae (Pea)		
Leucaena leucocephala(Lam)deWit.	Haole-koa	"E"
Mimosa pudica L.	Sensitive plant	"E"
Desmanthus virgatus Willd		"E"
Desmodium triflorium(L)DC	Beggar weed	"E"
Oxalidaceae (Oxalis)		
Oxalis corniculata L.	Yellow wood worrel	"E"
Euphorbiaceae		
Aleurites moluccana(L)Willd.	Kukui	"P"
Anacardiaceae (Mango)		
Mangifera indica L.	Mango	"E"
Malyaceae (Hibiscus)		
Hibiscus tiliaceus L.	Hau	Indo-Pacific
Myrtaceae		
Eugenia cumini (L)Duce	Java plum	"E"
Psidium guajava L.	Guava	"E"

Species List

Family	Common Name	Designation
Lythraceae		
Cuphea carthagenensis(Jacq.) Macbride	Tarweed	"E"
Onagraceae		
Ludwigia octivalvis(Jacq) Raven	Kamole	"E"
Araliaceae (Aralia)		
Brassaia actinophylla Endl.	Octopus tree	"E"
Umbelliferae (Carrot)		
Centella asiatica(L.) Urban	Asiatic pennywort	"E"
Primulaceae (Primula)		
Anagallis arvensis L.	Scarlet pimpernel	"E"
Loganiaceae		
Buddleja asiatica Lour.	Dogtail	"E"
Convolvulaceae (Morning glory)		
Ipomoea congesta R.Br.	Purple Morning glory	"E"

Species List

Family	Common Name	Designation
Labiatae (Mint)		
Coleus blumei Lour.	Coleus	"E"
Solanaceae (Tomato)		
Solenum nigrium L.	Popolo berry	Indo-Pacific
Bignoniaceae		
Spathodea campanulata Beauv.	African tulip tree	"E"
Plantaginaceae		
Plantago major L.	Laukahi	"E"
Rubiaceae (Coffee)		
Paederia foetida L.	Maile pilau	"E"
Borreia laevis (Lam) Griseb.	Bottom weed	"E"
Composite (Sunflower)		
Ageratum conyzoides L.	Ageratum	"E"
Bidens pilosa L.	Spanish needle	"E"
Emilia javanica (Burm) C. B. Robins	Emilia	"E"

Species List

Family	Common Name	Designation
Eupatorium reparium L.	Hamakua pa'makani	"E", "N"
Pluchea indica (L) Less	Indian pluchea	"E"
Siegesbeckia orientalis L.		"E"
Youngia japonica (L)DC	Oriental hawksbeard	"E"
Eclipta alba (L) Hassk.	False daisy	"E"
Erechtites hieracifolia L.	Fireweed	"E"
Ferns		
Sphenomeris chusana (L) Copel	papala	"E"
Cyclosorus dentatus (Frosk.)	Ching	"E"
Sadleria cyatheoides Kaulf.	'Ama'u	"H"
Pityogramma chrysophylla (Sw) Link.	Gold fern	"E"

APPENDIX B

Assessment of Environmental Impact of Proposed BWS Well in Upper Haiku Valley

By Frank L. Peterson

Introduction

The purpose of this report is to assess the potential impact of the proposed BWS well in upper Haiku Valley on the hydrologic cycle in the immediate and surrounding areas. Specifically, this report evaluates potential effects, both on the quantity and the quality of all nearby water bodies and water developments, including: (1) basal and dike-confined groundwater bodies, (2) existing local groundwater developments such as Haiku tunnel, Baskerville Spring, and nearby wells, and (3) nearby surface water bodies such as Haiku and Heeia streams.

This report is based entirely on analysis of existing information, and no new field work was undertaken other than a brief site visit.

Hydrogeology

The geology of Windward Oahu has been described in detail by Stearns and Vaksvik (1935), and summarized by Takasaki, Hirashima and Lubke (1969) in relation specifically to Windward Oahu water resources. The significant geologic units in the vicinity of the proposed Haiku well are shown on the geologic map in Figure 10 and the cross-section in Figure 11.

Although the general area for the well was delineated (see location map in Figure 9), the exact site remains to be selected. If the well is constructed in the westernmost portion of the area, nearest Haiku tunnel, it should penetrate at the most only a few tens of feet of young alluvium, and then enter the Koolau basalts. However, if the well is located farther away from Haiku tunnel toward the valley center, the well should first penetrate several tens of feet of Honolulu Volcanic Series lavas (probably capped by a few feet of young alluvium), then penetrate a few hundred feet of older alluvial deposits, and finally enter the Koolau basalts. The exact thickness of the Honolulu Volcanic Series lavas at this site is not well known, and likewise, the location of the alluvium-Koolau basalt contact is not known but probably occurs somewhat above sea level.

Takasaki, Hirashima and Lubke (1969, p. 13) assess the permeability of older alluvial deposits in Windward Oahu as generally low, the permeability of Honolulu Volcanic Series lavas as

low to moderate, and the permeability of Koolau basalts in the marginal dike zone (which upper Haiku Valley is) as moderate to high. It is anticipated that the well will be constructed so as to develop water from whatever depth it becomes available (personal communication, C. Lao, BWS). If the well is drilled near Haiku tunnel this will mean developing water primarily from the Koolau basalts, however, if the well is drilled nearer the valley center, this will probably mean developing water from both the underlying Koolau basalts as well as the overlying alluvium, and possibly also from the Honolulu Volcanic Series lavas. At any rate, based on the performance of other wells in Windward Oahu which obtain water from similar geologic units, the proposed well should have little difficulty yielding 0.5 mgd, and probably will be capable of producing even higher rates. For example, wells 416-1,2 immediately southeast of this site (see Figure 9) develop up to 2 mgd from Koolau basalts in the marginal dike zone, and well 407-17, also drilled in Koolau basalts in the marginal zone immediately northeast of Haiku Valley (see Figure 9), has been tested at rates up to about 0.7 mgd, although the drawdown at this pumping rate exceeds 100 feet (data from BWS files).

Hydrologic Cycle

The hydrologic cycle in Haiku Valley is typical of most Windward Oahu valleys, and is schematically depicted in Figure 11.

Recharge to the basin from precipitation is transmitted through the valley as groundwater flow and surface runoff, and from the valley as evapotranspiration. Because of the high water table, streamflow is intimately tied to groundwater levels, and the groundwater body recharges over 75 per cent of total flow (based on 11 years of data for upper Haiku Valley, from Takasaki, Hirashima and Lubke, 1969, p. 24) and of course 100 per cent of baseflow in the stream. As indicated in Figure 9 the Haiku-Heeia stream system gains water in the downstream direction. Takasaki, Hirashima and Lubke (1969, p. 70) report $Q_{ave.}$ = 2.4 mgd and Q_{90} = 1.2 mgd at the gaging station on Haiku stream (station 2750 on Figure 9) and $Q_{ave.}$ = 5.5 mgd and Q_{90} = 2.8 mgd for the entire Heeia stream drainage system. These values represent flow under natural conditions and the water diversion at Haiku tunnel ($Q_{ave.}$ is approximately 1.5 mgd) must be subtracted to obtain actual flow in the stream.

In addition to recharging the streams, an undetermined amount of groundwater moves through the basin as underflow and leaks directly into the ocean. Also, because of the very shallow water table a considerable volume of water is lost to evapotranspiration, especially in the lower portion of the basin (according to Takasaki, Hirashima and Lubke, 1969, p. 24, approximately one-third of total recharge in upper Haiku Valley goes for evapotranspiration, and undoubtably even more than this is lost to evapotranspiration in the lower part of the basin).

Impact of Proposed Water Development

Two major questions must be satisfactorily addressed before development of the type proposed here should proceed. First, is there a reasonable probability that water of the quantity and quality desired can be developed from the site as planned, and secondly, what are the potential impacts of the proposed development on the hydrologic cycle and existing water development in the area?

The answer to the first of these concerns would appear to be highly positive. All available information indicates that from a water supply standpoint the proposed site is well suited for additional groundwater development. Quantities of water well in excess of those desired for development are flowing through the basin and are being discharged into the ocean by streamflow and groundwater flow. In addition, significant quantities of water also are being lost from the basin by evapotranspiration from the shallow water table.

The answer to the second question, that of the potential impacts of the proposed development, is more problematical and is treated in this discussion by considering the possible impacts on each component of the hydrologic cycle.

Impact on Groundwater

The principal groundwater body in the immediate vicinity of the proposed development is the water contained within the marginal dike zone (see Figure 11). At somewhat greater distances from the development site groundwater is confined within the dike

complex, and at even greater distances away small quantities of coastal basal groundwater occur. The high-level groundwater in the alluvial deposits, while not dike-confined, is controlled by the water levels in the underlying marginal dike zone and the dike complex.

1. Marginal dike zone groundwater: Because the proposed well will develop groundwater from the marginal dike zone, pumpage will have an immediate and direct effect on marginal dike zone groundwater levels near the well. The magnitude and areal extent of the drawdown will not be known with certainty until the well is completed and pump tests conducted, however, it is unlikely that the effects will extend any great distance beyond the immediate vicinity of the well. Existing wells developing water from the marginal dike zone groundwater body in the area should not be impacted in any way by the proposed well development, simply because there are no wells in upper Haiku Valley, and the nearest wells (404-17 to the north and 416, 416-1, 2, 3 to the south) do not develop their water from the upper Haiku Valley drainage basin. Furthermore, the proposed well development should have little if any significant effect on the water developed from nearby Haiku tunnel which is also in the marginal dike zone, but up-gradient from the proposed well. The water level in Haiku tunnel stands well above the groundwater level at the proposed well site (and in fact the head differential was even much greater before Haiku tunnel was developed) which strongly indicates that these are separate and poorly connected dike

compartments. Undoubtably, there is some leakage at depth but this must be minimal in order for the differential heads to be maintained.

2. Dike complex and basal groundwater bodies: The impact of the proposed well should be negligible on the dike complex and coastal basal groundwater bodies because of their distance from the development site.

3. Baskerville Springs: It is possible, however, that flow from Baskerville Springs may be reduced by an undetermined amount due to pumping from the proposed Haiku well. There are no data available which could indicate the magnitude of such an impact, but since the water for Baskerville Springs most likely comes primarily from either the alluvium and/or the Honolulu Volcanic Series lavas and not to a significant degree from the underlying Koolau basalts (personal communication, K. Takasaki, U. S. Geol. Survey and C. Lao, BWS), a well developing significant quantities of water from the alluvium and/or Honolulu Volcanic Series lavas would be expected to have a greater impact on Baskerville Springs than a well developing water mainly from the Koolau basalts.

4. Groundwater recharge: A potential impact of well development in Haiku Valley is that the lowering of groundwater levels may induce additional subsurface recharge to the marginal dike zone groundwater bodies. Both the possible magnitude of and the exact mechanism to produce this potential impact in Haiku Valley are unknown, but similar impacts have sometimes been observed in other Hawaiian groundwater basins.

5. Groundwater quality: Because of the distance of the

proposed well from the coast, and the thick groundwater bodies in the area, no impact on groundwater quality is foreseen.

Impact on Streamflow

1. Haiku-Heeia streams: It is possible that pumping from the proposed Haiku Valley well will reduce flow in Haiku and Heeia streams, especially during periods of low flow. The reduction in streamflow should be more significant in upper Haiku Valley near the well, and then should become progressively less in the downstream direction, and probably will be virtually negligible in the lower portion of Heeia stream. Unfortunately, a more quantitative estimate of the impact of streamflow cannot be stated with certainty owing to a lack of pertinent data, and consequently the full magnitude of the impact will not be known until the well is constructed and actually put into operation. It should be pointed out that the effects on streamflow of diversion of dike-confined water by tunneling in Windward Oahu are well documented (Hirashima, 1971). However, little quantitative data is available on the effects of basal groundwater development on streamflow in Windward Oahu. Consequently, if the Haiku well is constructed and operated as planned, reliable streamflow and well discharge data should be collected, not only to determine the impact on streamflow at this site but also for use in further Windward Oahu basal groundwater developments.

2. Surface water quality: No significant impact on the

quality of water in Haiku and Heeia streams is expected. Any effects on water quality would be expected to occur in the reaches where the streamflow may be significantly reduced, and since flow reductions should be most significant in the upper faster-moving portions of the streams, quality effects are not expected to be significant.

Impact on Evapotranspiration

Because the groundwater table in this area is very shallow, under natural conditions evapotranspiration is high. It is probable that by lowering water levels the amount of water lost to evapotranspiration may be reduced, at least in upper Haiku Valley. The magnitude of this potential effect is unknown but it is possible that a significant portion of the reduction in streamflow may be offset by the reduction in losses to evapotranspiration.

Assessment of Impact of Groundwater Development

From the standpoint of groundwater development and management it is important that impacts of water development be capable of rapid and straight-forward assessment so that adverse effects are discovered early before they have the opportunity of producing long-term and sometimes irreversible negative results. From this standpoint there certainly is a point to be made for groundwater development of the type in Haiku Valley where the impacts, which primarily affect surface waters, can be easily and quickly evaluated. This is often not the case for development in which the impacts are primarily on the groundwater body itself in the form of

salt-water intrusion and upconing, etc., which often take long periods of time to develop and are relatively difficult to assess.

Summary of Potential Impacts

1. No significant impact, either quantitatively or qualitatively is expected on Haiku tunnel.
2. Groundwater levels in the marginal dike zone will be lowered by an undetermined amount near the proposed well but no impact is expected on existing wells in the area.
3. The flow from Baskerville Springs may be reduced by an unknown amount, especially if the proposed well develops significant quantities of water from the alluvium and/or Honolulu Volcanic Series lavas, and probably to a lesser extent if water is developed primarily from the Koolau basalts.
4. No sigificant impact on the quality of the marginal dike zone groundwater body is expected.
5. The lowering of groundwater levels in the marginal dike zone in upper Haiku Valley in the vicinity of the proposed well could cause a reduction in the flows of Haiku and Heeia streams, with the greatest impact expected in the upper valley near the well and successively lesser effects downstream.
6. There probably will be little or no impact on the quality of stream flow.

7. Lowered groundwater levels should reduce losses to evapotranspiration, especially in upper Haiku Valley.

References Cited

Hirashima, G. T., 1971, Tunnels and Dikes of the Koplau Range, Oahu, Hawaii and Their Effect on Storage Depletion and Movement of Ground Water, U. S. Geol. Survey Water Supply Paper 1999-M.

Stearns, H. T., 1939, Geologic Map and Guide of Oahu, Hawaii, Hawaii Division of Hydrography Bull. 2.

Stearns, H. T. and K. N. Vaksvik, 1935, Geology and Ground-Water Resources of the Island of Oahu, Hawaii, Hawaii Division of Hydrography Bull. 1.

Takasaki, K. J., G. T. Hirashima, and E. R. Lubke, 1969, Water Resources of Windward Oahu, Hawaii, U. S. Geol. Survey Water Supply Paper 1894.

APPENDIX C

Comments from Agencies and Citizens and

Response from the Board of Water Supply

80-1337

ENV 80-123

P/E

April 21, 1980

MEMORANDUM

TO : HONORABLE FRANK F. FASI, MAYOR
CITY AND COUNTY OF HONOLULU

FROM : WALLACE MIYAHIRA, DIRECTOR AND CHIEF ENGINEER

SUBJECT: EIS FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL, HAIKU, OAHU

We have reviewed the subject EIS and have the following comment.

1. Construction plans should be coordinated with our Division of Engineering.

Wallace Miyahira
WALLACE MIYAHIRA
Director and Chief Engineer

cc: Board of Water Supply

7

C1

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

April 28, 1980

TO : MR. WALLACE MIYAHIRA
DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF APRIL 21, 1980 COMMENTING ON THE ENVIRONMENTAL IMPACT STATEMENT FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL, HAIKU, OAHU

Thank you for your comment on the EIS for our proposed project.

The construction plans will be coordinated with your Division of Engineering.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

C2

RECEIVED
5/2/80

State of Hawaii
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3949 Diamond Head Road
Honolulu, Hawaii 96816

23 APR 1980

APR 25 1 34 PM '80

HIENG

Mayor Frank F. Fasi
City and County of Honolulu
530 So. King St., Third Floor
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Deep Well Pump and Control Building for Haiku Well
Haiku Valley, Koolaupoko, Oahu

Thank you for sending us a copy of the "Deep Well Pump and Control Building for Haiku Well" Environmental Impact Statement. We have no comments to offer at this time. The EIS is being forwarded to the Environmental Quality Commission as requested.

Yours truly,

signed

JERRY M. MATSUDA
Captain, HANG
Contr & Engr Officer

cc:
Board of Water Supply

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

April 28, 1980

Capt. Jerry M. Matsuda
Contracts and Engineering Officer
Department of Defense
State of Hawaii
3949 Diamond Head Road
Honolulu, Hawaii 96816

Dear Capt. Matsuda:

Subject: Your Letter of April 23, 1980, Commenting on the "Deep Well Pump and Control Building for Haiku Well" Environmental Impact Statement (EIS)

Thank you for your comment on our proposed project. Your letter will be appended to the revised EIS document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

MHS:am
cc: K Hayashida
L. Whang

RECEIVED 5/2/80

80-1336

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4101

FRANK F. FASI
MAYOR

EDWARD Y. HIRATA
MANAGING DIRECTOR

BARRY CHUNG
DIRECTOR

MYRA M. TAKASAKI
DEPUTY DIRECTOR

April 23, 1980

Honorable Frank F. Fasi, Mayor
City and County of Honolulu
530 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Subject: Deep Well Pump and Control
Building for Haiku Well
Environmental Impact Statement

We have reviewed the Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of a Control Building for the Haiku Well and have no comment.

Very truly yours,

Barry Chung

Barry Chung

cc: Board of Water Supply
Environmental Quality Commission

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

May 5, 1980

TO : MR. BARRY CHUNG
DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF APRIL 23, 1980, COMMENTING ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR INSTALLATION OF DEEP WELL PUMP AND CONSTRUCTION OF CONTROL BUILDING FOR HAIKU WELL, HAIKU VALLEY, KOOLAUPOKO, OAHU

Thank you for your comments on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul T. Taniguchi, Ltd.

C6

80-1380

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DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

25 APR 1980

APZV-EHE-E

Honorable Frank F. Fasi
Mayor of City and County of Honolulu
530 South King Street, Third Floor
Honolulu, Hawaii 96813

Dear Mayor Fasi:

The Environmental Impact Statement (EIS) for Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu, has been reviewed and we have no comments to offer. There are no Army installations or activities in the vicinity of the proposed project.

Sincerely,

Original signed

PETER D. STEARNS
COL, EN
Director of Engineering and Housing

Copy Furnished:
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

May 2, 1980

Colonel Peter D. Stearns
Director of Engineering
and Housing
Headquarters United States Army
Support Command, Hawaii
Fort Shafter, Hawaii 96858

Dear Colonel Stearns:

Subject: Your Letter of April 25, 1980, Commenting on the Environmental Impact Statement (EIS) for Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu

Thank you for your comments on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: √Paul Taniguchi, Ltd.

C8

5/7/80

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Honorable Frank F. Fasi
Mayor
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Subject: Environmental Impact Statement
Deep Well Pump and Control Building
for Haiku Valley, Haiku Valley,
Koolaupoko, Oahu

Thank you for this opportunity to review and comment on the subject project.

The project will not have any adverse environmental effect on any existing or planned facilities serviced by our department.

Respectfully,

HIDEO MURAKAMI
State Comptroller

MI:jm

cc: Board of Water Supply

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

May 2, 1980

Mr. Hideo Murakami
State Comptroller
Department of Accounting and
General Services
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Subject: Your Letter of April 25, 1980, Commenting on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, Koolauloa, Oahu

Thank you for your comments on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul T. Taniguchi, Ltd.

RECEIVED
5/7/80

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MAY 2 3 57 PM '80

BROCK AND ASSOCIATES
SURVEYORS · ENGINEERS

48 MARKET STREET
WAILUKU, MAUI, HAWAII 96793
TELEPHONE [808] 244-7464

P/E

FILE: 7000
April 29, 1980

City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, Oahu, Hawaii
96843

To Whom It May Concern,

I would like to obtain a copy of your Environmental Impact Statement entitled Deep Well Pump and Control Building for Haiku Well, Koolaupoko, Oahu. This Environmental Impact Statment is listed in the Environmental Quality Commission Bulletin of April 23, 1980. If you incur any expenses in sending this document, please contact me and I will promptly forward payment. Thank you.

Very truly yours,
BROCK AND ASSOCIATES

Julie R. Abramson

Julie R. Abramson
Planner

lk:cr

May 7, 1980

Ms. Julie R. Abramson
Brock and Associates
48 Market Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Abramson:

Subject: Your Letter of April 29, 1980, Requesting a Copy of the Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Paiku Well, Koolaupoko, Oahu

Enclosed is a copy of the EIS.

Should you have any comments on the document, we would appreciate receiving them by June 4, 1980.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

Encl.

MHS:am
cc: K. Hayashida
L. Whang
80-1434

80 - 15-24

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DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT. SHAFTER, HAWAII 96858

PODED-PV

1 May 1980

P/E

Honorable Frank F. Fasi
Mayor of Honolulu
Honolulu, HI 96813

Dear Mayor Fasi:

We have reviewed your Environmental Impact Statement for the "Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu," forwarded to us by the State Environmental Quality Commission on 21 April 1980. We have prepared the following comments for your consideration.

The proposed project does not affect any US Army Corps of Engineers civil works program. There are no Corps regulatory requirements that are applicable to the well construction in Haiku. The proposed project site is not situated within any known flood hazard area and is located within an area designated Zone D, or area of undetermined but possible flood hazards, according to the federal flood insurance study for the island of Oahu.

Thank you for the opportunity to comment on your Environmental Impact Statement.

Sincerely,

B. R. SCHLAPAK
Colonel, Corps of Engineers
District Engineer

Copy Furnished:
Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, HI 96813

Environmental Quality Commission
Office of the Governor
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, HI 96813 (w/EIS)

C13

4/19-out

May 14, 1980

Colonel B. R. Schlapak
District Engineer
U. S. Army Engineer District, Honolulu
Department of the Army
Building 230
Fort Shafter, Hawaii 96858

Dear Colonel Schlapak:

Subject: Your Letter of May 1, 1980, Commenting on the Environmental Impact Statement for Deep Well Pump and Control Building for Haiku Well at Haiku Valley, Koolaupoko

Thank you for your comments on our proposed project. Your letter will be appended and your comments will be incorporated into the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:vc
cc: K. Hayashida
L. Whang
Engr. Br.
80-1524

C14

80-1465

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

RECEIVED
BD OF WATER SUPPLY

RAMON DURAN
DIRECTOR

May 2, 1980

MEMORANDUM

TO : KAZU HAYASHIDA, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM : RAMON DURAN, DIRECTOR

SUBJECT: ENVIRONMENTAL IMPACT STATEMENT FOR THE DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL

We have no comments on the EIS for the deep well pump and control building for Haiku Well.

Thank you for the opportunity to comment.

Warm regards.

RAMON DURAN, Director

RD:lm

5/12 cut

May 9, 1980

TO : MR. RAMON DURAN
DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF MAY 2, 1980, COMMENTING ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for your comments on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:vc
cc: K. Hayashida
L. Whang

80-1468

80-1467

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR

GEORGE S. MORIGUCHI
CHIEF PLANNING OFFICER

DGP4/80-1015(CT)

P/E

May 5, 1980

MEMORANDUM

TO : MR. TYRONE T. KUSAO, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM : GEORGE S. MORIGUCHI, CHIEF PLANNING OFFICER

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL--DATED MARCH 25, 1980

We have reviewed the draft environmental impact statement and have no comments.

Thank you for affording us the opportunity of reviewing the impact statement.

GEORGE S. MORIGUCHI
Chief Planning Officer

GSM:fmt

cc: ✓Board of Water Supply

May 9, 1980

TO : MR. GEORGE MORIGUCHI
CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF MAY 5, 1980, COMMENTING ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for your comments on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:vc
cc: K. Hayashida
L. Whang

80-1467

C18

HEADQUARTERS
NAVAL BASE PEARL HARBOR
BOX 110
PEARL HARBOR, HAWAII 96860

IN REPLY REFER TO:
002A:amn
Ser 888

6 MAY 1980

The Honorable Frank F. Fasi
Mayor of Honolulu
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu

The subject EIS, forwarded by the Environmental Quality Commission, has been reviewed and the Navy has no comments to offer. Per the Commission's request the EIS is being returned to the Commission by copy of this letter.

The opportunity to review the subject EIS is appreciated.

Sincerely,

R. D. EBER
CDR, CEC, USN
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Copy to:
BWS
EQC (w/EIS)

5/19-647

May 15, 1980

Cdr. R. D. Eber
Facilities Engineer
Headquarters, Naval Base
Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860

Dear Cdr. Eber:

Subject: Your Letter of May 5, 1980, on the Review of the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:am
cc: K. Hayashida
Engineering
L. Whang

80-1520 C20

80-1478

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4411

FRANK F. FASI
MAYOR

RECEIVED
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TYRONE T. KUSAO
DIRECTOR

LU4/80-1791(SM)
80/EC-4

May 6, 1980

MEMORANDUM

TO : KAZU HAYASHIDA, MANAGER & CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM : TYRONE T. KUSAO, DIRECTOR OF LAND UTILIZATION

SUBJECT: EIS FOR HAIKU WELL
HAIKU VALLEY, KOOLAUPOKO, OAHU
TAX MAP KEY 4-6-15: 01

We have reviewed the above and have the following comment to offer:

Reference: Page B-5

Comment: If the average flow of Heeia Stream measured at Station 2750 is 2.4 MGD, minus the Haiku Tunnel diversion of 1.5 MGD, this means that approximately 1 MGD is the actual flow of the stream. If 0.5 MGD is taken near the source, what will be the effect on Heeia Stream? Will the actual flow of the stream be reduced by as much as 50% under "worst case" conditions? Are there any downstream land uses, i.e. agricultural, that are dependent upon Heeia Stream for water? If so, will they be adversely affected?

If there are any questions, please contact Mr. Sampson Mar of our staff at 523-4077.

TYRONE T. KUSAO
Director of Land Utilization

TTK:ey

C21

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
[illegible] SOUTH BERETANIA
[illegible] OLULU, HAWAII 96843

COPY

May 14, 1980

KAZU HAYASHIDA
Manager and Chief Engineer

TO : MR. TYRONE T. KUSAO
DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF MAY 6, 1980, COMMENTING ON THE ENVIRONMENTAL IMPACT STATEMENT FOR HAIKU WELL

Thank you for your comments on our proposed project.

Our reply, in answer to your comment, is as follows:

"Reference: Page B-5

Comment: If the average flow of Heeia Stream measured at Station 2750 is 2.4 MGD, minus the Haiku Tunnel diversion of 1.5 MGD, this means that approximately 1 MGD is the actual flow of the stream. If 0.5 MGD is taken near the source, what will be the effect on Heeia Stream? Will the actual flow of the stream be reduced by as much as 50% under "worst case" conditions? Are there any downstream land uses, i.e. agricultural, that are dependent upon Heeia Stream for water? If so, will they be adversely affected?"

The draft from our proposed well will reduce flow in the upper reaches of Heeia Stream. However, the extent to which streamflow will be reduced will be determined when the exploratory well is drilled and tested. Flow in the downstream portion of the stream is not anticipated to be significantly affected.

5/21/80

Under the "worst case" condition, only the flow in Heeia Stream near the proposed well would decrease significantly. The flows from Haiku Stream and Iolekaa Stream would still be maintained and flow into Heeia Stream.

Any agricultural activity located along Heeia Stream will be considered when we develop the well. As of now, there are no signs of any agricultural activity along the stream.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Mr. Paul T. Taniguchi

United States Department of Agriculture
Soil Conservation Service
P.O. Box 50006
Honolulu, Hawaii
96850

May 7, 1980

Honorable Frank F. Fasi
Mayor, City and County of
Honolulu
630 South King Street
Honolulu, Hawaii 96813

Dear Sir:

Subject: E.I.S. Haiku Well

We have no comment on subject E.I.S.

Thank you for the opportunity to review this document.

Sincerely,

OTIS M. GRYDE
District Conservationist

cc: Board of Water Supply

5/19-OUT

May 15, 1980

Mr. Otis M. Gryde
District Conservationist
Soil Conservation Service
U. S. Department of
Agriculture
P. O. Box 50006
Honolulu, Hawaii 96850

Dear Mr. Gryde:

Subject: Your Letter of May 7, 1980, on the Review of the Environmental Impact Statement (EIS) for Haiku Well

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:am
cc: K. Hayashida
Engineering
L. Whang
80-1500
80-1548

80-1509

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

RECEIVED
BD OF WATER SUPPLY

FRANK F. FASI
MAYOR

DIRECTOR

TE4/80-1196

May 8, 1980

Mayor Frank F. Fasi
City and County of Honolulu
530 South King Street, Third Floor
Honolulu, Hawaii 96813

Gentlemen:

Subject: Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well

We have no comments on this Environmental Impact Statement.

Very truly yours,

AKIRA FUJITA
Acting Director

cc: BWS

5/19-047

May 13, 1980

TO : MR. AKIRA FUJITA
ACTING DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF MAY 8, 1980, ON THE REVIEW OF THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE INSTALLATION OF A DEEP WELL PUMP AND CONSTRUCTION OF A CONTROL BUILDING FOR HAIKU WELL AT HAIKU VALLEY, KOOLAUPOKO, OAHU

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:am
cc: K. Hayashida
Engineering
L. Whang

80-1509

80-1363

RECEIVED
BD OF WATER SUPPLY
'80 MAY 13 4:08 PM

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING, PACAF
HICKAM AIR FORCE BASE, HAWAII 96853

9 MAY 1980

Asst. Mgr.
P/E

REPLY TO ATTN OF: DEEV (Mr Shepard, 449-1831)

SUBJECT: Draft EIS, Deep Well Pump and Control Building for Haiku Well

TO: Honorable Frank F. Fasi
Mayor of City and County of Honolulu
Honolulu, Hawaii 96813

1. This office has reviewed the subject EIS and has no comment to render relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document.

NEIL E. PRINCE, Colonel, USAF
Director of Civil Engineering

Cy to: Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

C

Ltr out (5/19)

May 15, 1980

Colonel Neil E. Prince
Director of Civil Engineering
Department of the Air Force
Headquarters 15th Air Base
  Wing PACAF
Hickam Air Force Base, Hawaii 96853

Dear Colonel Prince:

Subject: Your Letter of May 9, 1980, on the Review of the Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Haiku Well

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

LHYW:vc
cc: K. Hayashida
L. Whang

80-1565

C29

80-1667

RECEIVED
80 ... WATER SU...

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

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

May 15, 1980

REF NO.: CPO-1651

Honorable Frank F. Fasi
Mayor of Honolulu
Honolulu Hale
Honolulu, HI 96813

Dear Mayor Fasi:

We have reviewed the EIS for a control building and a deep well pump at Haiku and have determined that a Conservation District permit will be required for the project.

In reviewing the EIS, we noticed that there was no information on aquatic fauna which may be affected by this project (page 5).

We also noticed that this project is supposed to benefit the windward area (page 13). Is it possible that this project and the Kahaluu Well may benefit the Honolulu area instead? If so, this should be clarified.

The "no action" alternative (page 19) contains no discussion of Oahu's water needs which were brought to light in connection with public meetings on allocation of Pearl Harbor ground water.

Part of the EIS (page B5) leads us to believe that reduction of flow in the Heeia stream system during periods of low rainfall will be significant. Other statements in the EIS (page B9) lead us to believe that the project's impact on streamflow cannot be stated until after the project is completed and its impact on streamflow monitored. It may be that demands upon system sources will be greatest precisely at moments of low rainfall. Accordingly, we suggest that present aquatic biota in the Heeia stream system be described to establish a baseline and that monitoring encompass effects on aquatic biota relative to baseline measurements.

Very truly yours,

Susumu Ono

SUSUMU ONO, Chairman
Board of Land and Natural Resources

LEND A HAND TO CLEAN OUR LAND - HAWAII - STATE

cc: C&C/Water Supply

C30

DEPARTMENT OF GENERAL PLANNING DISTRIBUTION NO. 4

YEAR	WATER DISTRICTS						
	Honolulu	Windward	Waialua Kahuku	Wahiawa	Ewa Waianae	Pearl Harbor	Oahu Total
197							
Resident Population							
Population Served By BWS*							
Water Demand MGD							
1980							
Resident Population	366,840	117,320	17,610	56,280	74,150	121,500	753,700
Population Served By BWS*	393,730	111,070	14,290	38,410	59,440	87,240	704,180
Water Demand MGD	78.7	18.7	2.9	6.5	18.4	15.0	140.2
1985							
Resident Population	382,410	121,780	19,150	62,690	88,490	129,280	803,800
Population Served By BWS*	413,480	115,310	18,650	44,760	76,800	95,270	764,270
Water Demand MGD	83.5	19.6	3.8	7.7	23.9	16.6	155.1
1990							
Resident Population	392,730	124,490	20,530	68,720	102,930	135,600	845,000
Population Served By BWS*	427,820	117,800	21,820	50,740	94,330	101,850	814,360
Water Demand MGD	87.7	20.4	4.5	8.9	29.9	18.0	169.4
1995							
Resident Population	401,950	126,810	21,930	74,990	118,290	141,830	885,800
Population Served By BWS*	441,550	119,920	25,010	56,950	113,240	108,040	864,710
Water Demand MGD	92.7	21.0	5.3	10.1	36.4	19.7	185.2
2000							
Resident Population	419,440	131,670	23,830	83,360	137,600	151,300	947,200
Population Served By BWS*	462,470	124,540	28,690	65,240	135,070	117,420	933,430
Water Demand MGD	99.4	22.2	6.2	11.7	43.9	22.0	205.4

*Includes Visitors

RECT - 6/12/80

June 9, 1980

Mr. Susumu Ono, Chairman
Board of Land and Natural
Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Your Letter of May 15, 1980, on the Environmental Impact Statement (EIS) for a Well and Control Building for Haiku Well, Koolaupoko

Thank you for your comments on the EIS for our proposed project.

The EIS will be revised to include information on aquatic fauna that may be affected by the project. We shall consider monitoring the effects on aquatic biota should the stream flows be adversely affected by our proposed well project. This will be coordinated with your departmental personnel who have the expertise in these matters.

The EIS will indicate that the project will serve the Windward Water District and the Honolulu District water system through an existing transmission main around Makapuu.

Although the "No Action" alternative does not discuss Oahu's water needs, it is referenced under the project's objectives on page 3. To assist the reader, a summary of Oahu's existing and future water demands will be added to the EIS (see attachment).

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

Attach.

C32

cc: Mr. Paul Taniguchi (w/attach.)
MHS/HHM:vc
cc: K. Hayashida
L. Whang (w/attach.)
80-1667

C32

80-1655-

GEORGE R. ARIYOSHI
GOVERNOR

RICHARD O'CONNELL
DIRECTOR

TELEPHONE NO
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
OFFICE OF THE GOVERNOR
550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

May 16, 1980

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

SUBJECT: Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well

Dear Mr. Hayashida,

We have reviewed the subject EIS and offer the following comments for your consideration:

Summary Sheet

The EIS does not contain a summary sheet as required under Chapter 343 section 1:42(a). It should be included in the Revised EIS.

Page 2

The discussion of the existing water system should be expanded. Do the existing Haiku Well and Tunnel currently supply potable water? If so, how much water is pumped daily? Does this meet current demands? Can the existing 16" transmission line sustain additional water flow? Is a back up pump or transmission line available in case of failures in the system?

Page 3

Is electricity currently available to the site? Will additional lines be necessary?

What are the current and projected water demands for this area? The information contained in the given references should be summarized and included within the body of the EIS. What

areas will be served by these improvements? How much of the 0.5mgd of additional water to be pumped is necessary to meet current demands? Projected housing? How does this project relate to current development plans for windward Oahu?

Page 4

Is the well located within the electric field of the Omega Station? If so will special safety procedures be established for maintenance and construction crews? Will operation of the Omega Station interfer with pump operations?

Page 5

How was it determined that no archaeological or historical sites exist in the project area? This determination should be documented.

The discussion on fauna should also be documented. The Hawaiian Owl (Pueo) listed on the State endangered species list for Oahu is known to nest and feed in the upper Koolau moutains. Aquatic fauna, including native goby, shrimp and Eleotrids exist in Haiku and Heeia streams. A discussion should be included in the revised EIS.

Page 6

The information on geology contained in the references given should be summarized and included in the EIS.

Page 7-12

Population in this area has grown a great deal since 1970. More recent population estimates and characteristics are available and should be used.

Page 13

How much noise will be generated by the pump motor and air compressors?

Page 14

A discussion of the impact of reduced stream flow on native aquatic fauna should be included in the EIS. Are stream waters in this area used for agriculture? If so, a discussion of the effect on agriculture of reduced streamflows and temperture changes should be included.

Page 16

The potential for erosion and sedimentation during construction should be discussed in greater detail How much erosion and sedimentation can be expected? What impact will there be on native stream biota? Will Heeia Fishpond be affected?

Content Requirements

A discussion of the relationship between local short-term uses and the maintenance and enhancement of the area's long term productivity should be included in the EIS. [1:42(a)]

Irreversible and irretrievable commitments of resources should be discussed. [1:42(j)]

The EIS should give an indication of what other interests and considerations of governmental policies are thought to offset the adverse environmental effects of the proposed action. [1:42(k)]

The EIS should list organizations and persons consulted in preparing this statement. [1:42(l)]

The EIS does not contain a reproduction of comments and responses made during the consultation period. These should be included in the revised EIS. [1:42(m)]

The EIS should include a summary and discussion of any unresolved issues [1:42(n)]

We appreciate the opportunity to review the subject EIS and look forward to the revised statement.

Sincerely,

Richard L. O'Connell
Director

cc: Frank F. Fasi, Mayor
City & County of Honolulu

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA
HONOLULU, HAWAII 96843

COPY

June 13, 1980

Mr. Richard O'Connell
Director
Office of Environmental
Quality Control
Room 301
550 Halekauwila Street
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

Subject: Your Letter of May 16, 1980 Commenting on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well

Thank you for your comments on the EIS for our proposed well project.

We have the following replies to them:

"Summary Sheet

The EIS does not contain a summary sheet as required under Chapter 343 section 1:42(a). It should be included in the Revised EIS."

The summary sheet, as required under Chapter 343 Section 1:42(a), will be included in the Revised EIS.

"Page 2

The discussion of the existing water system should be expanded. Do the existing Haiku Well and Tunnel currently supply potable water? If so, how much water is pumped daily? Does this meet current demands? Can the existing 16" transmission line sustain additional water flow? Is a back up pump or transmission line available in case of failures in the system?"

The discussion on the existing water system will be expanded to include the following:

1. *At present, our only water source in Haiku Valley is Haiku Tunnel which discharges, by gravity, about 1.0 mgd into our system. The discharge is adequate to meet current demands.*

2. *The existing 16" transmission line can sustain additional water flows from the proposed Haiku Well.*

3. *There is no back up pump or transmission line available for Haiku Tunnel.*

"Page 3

Is electricity currently available to the site? Will additional lines be necessary?"

The United States Coast Guard's Omega Station currently provides electrical power for the Board of Water Supply (BWS) chlorinator. However, the Omega Station does not have adequate electricity for the proposed pump and control building.

Therefore, an underground service will be installed from a Hawaiian Electric Company Substation located approximately 2,500 feet from the proposed site.

"What are the current and projected water demands for this area? The information contained in the given references should be summarized and included within the body of the EIS. What areas will be served by these improvements? How much of the 0.5 mgd of additional water to be pumped is necessary to meet current demands? Projected housing? How does this project relate to current development plans for windward Oahu?"

We have no data on water demands for specific areas served by specific source stations. Our sources are interconnected through a common transmission main running from the Kahaluu area to Kailua. The proposed Haiku Wells will discharge into our high service system which serve homes above the 173 foot elevation.

In 1979, the total water used in the Windward District was 17.62 mgd, with Haiku Tunnel contributing 1.05 mgd. Projected demand for the District in the year 2000 is 22.4 mgd. Present long-term available capacity for the District is 20.4 mgd.

Present sources are adequate for present demands. However, during peak demands, our gravity tunnel sources have a hard time meeting demands. Therefore, the proposed Haiku Well will initially be used to backup the high system tunnel sources.

Eventually, as housing developments are completed and water demand increase, Haiku Well will be used to meet daily demands.

"Page 4

Is the well located within the electric field of the Omega Station? If so will special safety procedures be established for maintenance and construction crews? Will operation of the Omega Station interfere with pump operations?"

The proposed well site is not within the electric field of the Omega Station. Special safety precautions will not be required for construction or maintenance crews.

The operation of the Omega Station will not interfere with pump operations.

"Page 5

How was it determined that no archaeological or historical sites exist in the project area? This determination should be documented.

The discussion on fauna should also be documented. The Hawaiian Owl (Pueo) listed on the State endangered species list for Oahu is known to nest and feed in the upper Koolau mountains. Aquatic fauna, including native goby, shrimp and Eleotrids exist in Haiku and Heeia streams. A discussion should be included in the revised EIS."

The determination that no archaeological or historical sites exist in the project area and the discussion on fauna will be documented.

Also included in the revised EIS will be a discussion on the endangered Hawaiian Owl (Pueo) and aquatic fauna like the native goby, shrimp and Eleotrids.

"Page 6

The information on geology contained in the references given should be summarized and included in the EIS."

The Section on Geology plus the appended report by Dr. Peterson (Appendix B) presents information from the referenced reports. Therefore, any additional discussion of the referenced technical reports would be unnecessary in the revised EIS.

"Page 7 - 12

Population in this area has grown a great deal since 1970. More recent population estimates and characteristics are available and should be used."

More recent population estimates and characteristics will be used in the revised EIS.

The most recent population estimates are found in the State's II-F projection of 917,000 residents by the year 2000. Distribution of this projection by the City's Department of General Planning dated, October, 1979, is currently being used.

"Page 13

How much noise will be generated by the pump motor and air compressors?"

The amount of noise generated by the pump motor and air compressor will depend on the types used. Sound attenuators will be used as required to meet all codes, ordinances and regulations.

"Page 14

A discussion of the impact of reduced stream flow on native aquatic fauna should be included in the EIS. Are stream waters in this area used for agriculture? If so, a discussion of the effect on agriculture of reduced streamflows and temperature changes should be included."

The revised EIS will include a discussion of the impact of reduced stream flow on native aquatic fauna.

There are no known commercial farms existing in upper Haiku Valley.

"Page 16

The potential for erosion and sedimentation during construction should be discussed in greater detail. How much erosion and sedimentation can be expected? What impact will there be on native stream biota? Will Heeia Fishpond be affected?"

It is difficult to determine exactly how much erosion will take place. However, erosion is expected to be negligible as construction will be controlled by implementation of temporary erosion control measures required by the City's grading ordinance.

Since erosion is expected to be negligible, the contractor's work will have little or no impact on stream biota or Heeia Fishpond.

"Content Requirements

A discussion of the relationship between local short-term uses and the maintenance and enhancement of the area's long term productivity should be included in the EIS. [1:42(h)]

Irreversible and irretrievable commitments of resources should be discussed. [1:42(j)]

The EIS should give an indication of what other interests and considerations of governmental policies are thought to offset the adverse environmental effects of the proposed action. [1:42(k)]

The EIS should list organizations and persons consulted in preparing this statement. [1:42(1)]

The EIS does not contain a reproduction of comments and responses made during the consultation period. These should be included in the revised EIS. [1:42(m')]

The EIS should include a summary and discussion of any unresolved issues.[1:42(n)]"

The EIS will be revised to include, under Content Requirements, Sections 1:42(h), (j), (k), (l), (m) and (n) of Chapter 343, Hawaii Revised Statutes.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: √Paul T. Taniguchi, Ltd.

RECEIVED
BD OF WATER SUPPLY
MAY 27 4 28 PM '80

May 19, 1980

STP 8.0258

The Honorable Frank F. Fasi
Mayor
City and County of Honolulu
City Hall
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Subject: Environmental Impact Statement
Deep Well Pump and Control
Building for Haiku Well
Haiku Valley, Koolaupoko, Oahu

Thank you for giving us the opportunity to review and comment on the above-captioned EIS. We have no substantive comments to offer which could improve the document.

Very truly yours,

Jonathan K. Shimada
Deputy Director

ALK:jk

cc: HWY-P
Board of Water Supply
OEQC

COPY

May 30, 1980

Mr. Jonathan K. Shimada
Deputy Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Shimada:

Subject: Your Letter of May 19, 1980, on the Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu

Thank you for reviewing the EIS on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

MHS:vc
cc: K. Hayashida
L. Whang

C43

80-1718

RECEIVED
6/5/80

COPY

May 30, 1980

Mr. Jonathan K. Shimada
Deputy Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813

Dear Mr. Shimada:

Subject: Your Letter of May 19, 1980, on the Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu

Thank you for reviewing the EIS on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

MHS:vc
cc: K. Hayashida
L. Whang

C43

80-1719

RECEIVED 6/5/80

80-1687

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BD OF WATER SUPPLY
MAY 27 8 07 AM '80

STATE OF HAWAII
DEPARTMENT OF PLANNING AND
ECONOMIC DEVELOPMENT
P. O. Box 2359
Honolulu, Hawaii 96804

May 19, 1980

Ref. No. 1303

The Honorable Frank F. Fasi
Mayor
City and County of Honolulu
Honolulu Hale
Honolulu, Hawaii 96813

Dear Mayor Fasi:

Subject: Environmental Impact Statement for the Installation of a Deep Well Pump and Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu

We have reviewed the subject EIS and find that, in general, it has adequately identified and evaluated the significant environmental impacts which can be anticipated as a result of the proposed project.

Thank you for the opportunity to review and comment on this document.

Sincerely,

Hideto Kono

cc: Board of Water Supply, City and County of Honolulu
Office of Environmental Quality Control

(6/2/80) O.1

May 29, 1980

Mr. Hideto Kono
Director
Department of Planning
and Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:

Subject: Your Letter of May 19, 1980, on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu

Thank you for reviewing the EIS on our proposed project. Your letter will be appended to the revised environmental document.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:am
cc: K. Hayashida
L. Whang
80-1687

50-1695

RECEIVED
BD OF WATER SUPPLY

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

May 21, 1980

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

~~VERNE C. WAITE, M.D.~~
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

~~JAMES C. KUMAGAI, Ph.D., D.C.~~
DEPUTY DIRECTOR OF HEALTH

~~TADAO BEPPU~~
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHS-SS

MEMORANDUM

To: Mr. Kazu Hayashida, Chief Engineer and Manager
Board of Water Supply

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu

Thank you for allowing us to review and comment on the subject EIS. On the basis that the project will comply with all applicable Public Health Regulations, please be informed that we do not have any objections to this project.

As you are aware, Section 29 of Public Health Regulations, Chapter 49, Potable Water Systems, requires approval of the Director of Health prior to the use of any new source to serve potable water. It is our understanding that the Haiku Well will serve potable water, in which case it will be subject to the terms and conditions of Section 29. As required under Section 29, an engineering report must be submitted to the Department. Such report must satisfactorily address concerns such as existing and potential sources of contamination, anticipated benefit, and expected impact on surrounding existing wells.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

for MELVIN K. KOIZUMI

cc: OEQC
Mayor Frank F. Fasi

COPY

May 30, 1980

Mr. Melvin K. Koizumi
Deputy Director for
Environmental Health
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Koizumi:

Subject: Your Letter of May 21, 1980, on the Environmental Impact Statement (EIS) for Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu

Thank you for your comments on the EIS for our proposed project. Your letter will be appended to the revised document.

An engineering report will be submitted for your approval in accordance with Section 29, Chapter 49, Public Health Regulations.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

MHS:vc
cc: K. Hayashida
L. Whang

80-1685

C47

80-1729

LIFE OF THE LAND
A GROUP FOR ENVIRONMENTAL RESEARCH AND ACTION

May 22, 1980

COMMENTS - HAIKU WELL ENVIRONMENTAL IMPACT STATEMENT (EIS)

FROM - LIFE OF THE LAND

An important alternative not mentioned in the draft EIS is water conservation. The State Water Commission has recommended conservation and the Commission's finding that if maximum conservation presently achievable were practiced little if any additional water development would be necessary for Oahu till the year 2000.

We feel that conservation is a viable alternative and should be addressed in every water development project EIS.

The draft EIS indicates that "It is virtually certain that pumping from the proposed Haiku Valley well will reduce flow in Haiku and Heeia streams, especially during periods of low flow." Since there are farmers downstream we feel that an assessment should be done on the effect of drilling wells on the flow of water necessary for agriculture in this area. The farmers on these Kuleana lands have water rights. Studies should be done especially since "the full magnitude of the impact will not be known until the well is constructed and actually put into operation."

We feel these areas should be addressed in the final EIS.

Thankyou for this opportunity to comment.

Sincerly,

Tom Suarez
LOL Staff

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
SOUTH BERETANIA
HONOLULU, HAWAII 96843

COPY

June 6, 1980

Mr. Tom Suarez
Life of the Land
Room 209
404 Piikoi Street
Honolulu, Hawaii 96814

Dear Mr. Suarez:

Subject: Your Letter of May 22, 1980
Commenting on the Haiku Well
Environmental Impact Statement (EIS)

Thank you for your comments on the EIS for our proposed well project.

We have the following comments regarding your letter:

"1. Conservation as a viable alternative:"

The State Water Commission's recommendation on conservation is to "continue and intensify conservation programs undertaken by the Honolulu Board of Water Supply and military agencies to stabilize or reduce the per capita consumption of municipal water on Oahu."

The Board of Water Supply's water conservation program is an on-going program and the importance of reducing water waste is continually stressed.

Since 1977, we have appealed to the public to conserve water and have adopted rules and regulations to control water usage during periods of low ground water levels. We were also instrumental in amending the City's Plumbing Code to include a section on water conservation.

Our pumping records show that our water conservation efforts have been successful in reducing per capita consumption. However, population growth and redistribution of population will require the development of additional sources to meet these water demand requirements.

"2. KuleanaWater Rights:"

Heeia Stream at its lower end will not be affected by our well project. The existing high water table will be maintained in the Heeia Meadowlands area. In addition, Heeia Stream will generally remain the same below the Coast Guard Station because of the numerous inflows to the stream along its entire length.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc:√ Paul T. Taniguchi, Ltd.

May 22, 1980

To: The Honorable Mayor
Frank F. Fasi
City Hall
Honolulu, Hi 96813

From: Ms. Josephine Patacsil
(He'eia Meadowlands Tenant)
P. O. Box 478
Kaneohe, Hawaii 96744

Re: COMMENTS ON HAIKU WELL EIS

Dear Mayor Fasi:

As a longtime resident farmer and landowner (including two other families) in He'eia Meadowlands, I have some concerns regarding the Well you are proposing for upper Haiku Valley. They are:

Pg. 14 section Vll. A. 7. Surface Streams and Springs. Should the He'eia Stream flow be reduced almost 100% of the pump discharge rate (.5mgd) in upper Haiku Valley, how can the recuction be negligible at the lower end of the Stream? I am concerned because we practice self-sufficiency and depend on the high ground water table to nourish wet crops. What will the actual stream flow be in upper Haiku Valley? We are truck farmers depended on produce for both our own sustaince and for sale. Is it possible that the upper He'eia Stream and/or Baskerville Spring flow could be reduced enough to dry up?

I believe that the deep concern you have shown for the people of Honolulu in the past is ~~shoehow~~ somehow not equal in this area.

Sincerely,

Josephine Patacsil

cc. Mr. Kazu Hayashida

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

June 2, 1980

Ms. Josephine Patacsil
P. O. Box 473
Kaneohe, Hawaii 96744

Dear Ms. Patacsil:

Subject: Your Letter of May 22, 1980
Commenting on Haiku Well EIS

Your letter to the Mayor was referred to me for reply.

Heeia Stream at its lower end will not be affected by our well project. The existing high water table will be maintained in the Heeia Meadowlands area. In addition, Heeia Stream will generally remain the same below the Coast Guard Station because of the numerous inflows to the stream along its entire length.

Should you have any other questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Mayor Frank F. Fasi
Paul Taniguchi

C52

RECEIVED

80-1728

RECEIVED
BD OF WATER SUPPLY
MAY 29 10 07 AM '80

May 22, 1980

Re: E.I.S. - Proposed Haiku Well

As kuleana land owners at Kaleki'a which is adjacent to the site of the proposed well, we would like you to consider the following:

1) CONSERVATION AS A VIABLE ALTERNATIVE

. According to the State Water Commission, conservation techniques could make such a well unnecessary until at least the year 2,000.

2) KULEANA WATER RIGHTS

The proposed well may have an effect on the stream flow and thus on agricultural practices in the nearby area.

Sincerely,

Katharine Luse Totto

Ralph Timothy McCabe (kt.

1930 KAKELA DR. 7

HON HI 96822

C53

PH 947-6751

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU
SOUTH BERETANIA
NOLULU, HAWAII 96843

COPY

June 6, 1980

Ms. Katharine Luse Totto
Mr. Ralph Timothy McCabe
1930 Kakela Drive #7
Honolulu, Hawaii 96822

Dear Ms. Totto and Mr. McCabe:

Subject: Your Letter of May 22, 1980 Commenting on the Environmental Impact Statement (EIS) for the Proposed Haiku Well

Thank you for your comments on the EIS for our proposed well project.

We have the following comments regarding your letter:

"1. Conservation as a viable alternative:"

The State Water Commission's recommendation on conservation is to "continue and intensify conservation programs undertaken by the Honolulu Board of Water Supply and military agencies to stabilize or reduce the per capita consumption of municipal water on Oahu."

The Board of Water Supply's water conservation program is an on-going program and the importance of reducing water waste is continually stressed.

Since 1977, we have appealed to the public to conserve water and have adopted rules and regulations to control water usage during periods of low ground water levels. We were also instrumental in amending the City's Plumbing Code to include a section on water conservation.

RECEIVED 6/13/80

COPY

Our pumping records show that our water conservation efforts have been successful in reducing per capita consumption. However, population growth and redistribution of population will require the development of additional sources to meet these water demand requirements.

"2. Kuleana Water Rights:"

Heeia Stream at its lower end will not be affected by our well project. The existing high water table will be maintained in the Heeia Meadowlands area. In addition, Heeia Stream will generally remain the same below the Coast Guard Station because of the numerous inflows to the stream along its entire length.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: √Paul T. Taniguchi, Ltd.

COPY

Our pumping records show that our water conservation efforts have been successful in reducing per capita consumption. However, population growth and redistribution of population will require the development of additional sources to meet these water demand requirements.

"2. Kuleana Water Rights:"

Heeia Stream at its lower end will not be affected by our well project. The existing high water table will be maintained in the Heeia Meadowlands area. In addition, Heeia Stream will generally remain the same below the Coast Guard Station because of the numerous inflows to the stream along its entire length.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: √Paul T. Taniguchi, Ltd.

Paul T. Taniguchi, Ltd.
CIVIL & STRUCTURAL ENGINEERS
1700 KAPIOLANI BOULEVARD, SUITE 203
HONOLULU, HAWAII 96814
PHONE 949-5328

June 30, 1980

Earl Neller
Department of Land and Natural Resources
Historical Sites Division
1151 Punchbowl Street
Honolulu, Hawaii, 96813

Dear Mr. Neller:

SUBJECT: Installation of a Deep Well Pump and Construction of Control Building for Haiku Well
Haiku Valley, Koolaupoko, Oahu
Tax Map Key: 4 - 06 - 15 - 01

We have enclosed copies of a Vicinity Map and Site Plan for the subject project in Haiku Valley in the vicinity of the existing Haiku Water Tunnel.

Our research to date indicates that the closest points of archaeological or historic interest are the Leleahina Heiau in the neighboring Iolekaa Valley and the Heeia Fish Pond at the mouth of the Heeia Stream.

Are there any additional points of interest in the Hawaii Register of Historical Places within the general vicinity; and are there any known <u>potential</u> points of interest?

We are seeking this information in connection with the preparation of an environmental impact statement and your response will be most helpful.

Please call if you have any questions.

Very truly yours,

PAUL T. TANIGUCHI, LTD.

By Paul T. Taniguchi
Paul T. Taniguchi

Encls.

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

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

DIVISIONS:
CONSERVATION AND ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

July 17, 1980

Mr. Paul T. Taniguchi
1700 Kapiolani Boulevard,
Suite 203
Honolulu, Hawaii 96814

Dear Mr. Taniguchi:

Subject: Haiku Valley Well Pump and Control Building
Koolaupoko, Oahu TMK 4-6-15:01

Our office has reviewed the project plans you sent us with your letter of June 30, 1980 regarding the proposed undertaking. The project should have no effect on historic sites.

Our records do not indicate the presence of historical, cultural, architectural and/or archaeological resources on this property which are listed on the Hawaii Register and/or the National Register of Historic Places, or that have been determined eligible for inclusion on the National Register of Historic Places.

In the event that any unanticipated sites or remains such as artifacts, shell, bone or charcoal deposits; human burials; rock or coral alignments, pavings, or walls are encountered during construction, please contact this office (548-6408) immediately.

Sincerely yours,

Ralston Nagata, Director
Historic Sites Section

BD OF WATER SUPPLY
AUG 13 3 35 PM '80 RECEIVED 8/21/80

DEPARTMENT OF TRANSPORTATION
UNITED STATES COAST GUARD

COMMANDER (ecv)
Fourteenth Coast Guard District
Prince Kalanianaole Federal Bldg.
300 Ala Moana Blvd.
Honolulu, Hawaii 96850
Ph: (808)546-3121

11000
Serial s-16385
13 AUG 1980

Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania
Honolulu, HI 96843

Dear Mr. Hayashida:

Haiku Exploratory Well, Job 80-7

In your letter of July 18, 1980, you requested to know whether the Coast Guard had any objections to the proposed well facility.

It is our understanding that the first phase of the project is the exploratory well which will be a 16-inch diameter hole, 600 feet deep, with a 12-inch steel casing down to 400-foot depth and that the building shown on the sketch sent with your letter is planned for a later phase and is not yet designed.

We have no objections to the exploratory well and proposed production well facility provided that electronic requirements regarding the radial ground system are met. In the area of your project, the radial ground system consists of #8 solid copper wires buried about 1 foot or deeper. They are spaced at 1^{o} arcs referenced from the center of the Transmitter-Helix Building which is located approximately 700 feet away from the proposed well. The requirements regarding the ground system are as follows:

a. Locate the well approximately 6 feet from the nearest radial wire.

b. If the copper radial wires are damaged, they shall be reconnected by exothermic welding.

c. Copper radial wire exposed during construction but undamaged shall be reburied at least 12 inches deep.

d. The copper radial wires may be diverted up to 4 feet from the original location to avoid any obstruction.

11000
13 AUG 1980

Subj: Haiku Exploratory Well, Job 80-7

The grounding requirements for the building will be furnished when the design is begun and specific details become known. Generally, they require all steel components be electrically bonded to ground. This may include reinforcing steel in concrete. Also, the radial ground system will have to be routed around any structures if interference exists.

Please coordinate your exploratory well work with the Commanding Officer of the Omega Station (phone 235-3041). Contact for engineering design of the production well is Mr. Tom Morinaga of my staff (phone 546-3121).

Sincerely,

S. L. WILSON
Captain, U. S. Coast Guard
Chief of Staff
Fourteenth Coast Guard District

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

COPY

November 17, 1980

Captain S. L. Wilson
Chief of Staff
Fourteenth Coast Guard District
Prince Kalanianaole Federal Bldg.
300 Ala Moana Boulevard
Honolulu, Hawaii 96850

Dear Capt. Wilson:

Subject: Your Letter of August 13, 1980, on the Environmental Impact Statement for the Haiku Well, Koolaupoko, Oahu

Thank you for your comments on the environmental impact statement for our proposed project. Your letter will be appended to the revised environmental document.

We will comply with your electronic requirements to protect your radial ground system as outlined in your letter. All work will be coordinated with the Commanding Officer of the Omega Station.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Paul Taniguchi, Ltd.

C60

RECEIVED
NOV 20

APPENDIX D

Comments and Responses to Environmental Impact Statement's Preparation Notice

79-4051

LIFE OF THE LAND
A GROUP FOR ENVIRONMENTAL RESEARCH AND ACTION

RECEIVED
BD OF WATER SUPPLY
OCT 11 9 19 AM '79

Acct. mgr. [illegible]
P/E

September 28, 1979

Mr. Lawrence Whang
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Re: Haiku Well

Dear Mr. Whang:

Life of the Land would like to be a consulted party on the EIS being prepared for Haiku Well, Koolaupoko, Oahu.

Please send us a copy of the draft EIS when it becomes available.

Thank you for your kokua.

Sincerely,

Dee Dee Letts

Dee Dee Letts
Administrator

D1

404 PIIKOI STREET HONOLULU HAWAII 96814 TELEPHONE 521-1300

October 16, 1979

Ms. Dee Dee Letts
Administrator
Life of the Land
404 Piikoi Street
Honolulu, Hawaii 96814

Dear Ms. Letts:

Subject: Your Letter of September 28, 1979 on the Haiku Well EIS Preparation Notice

We will add Life of the Land to the consulted party's list for the Haiku Well EIS and will send a draft of the EIS to you when it becomes available.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

cc: Mr. Paul T. Taniguchi
Paul T. Taniguchi, Ltd.

FI:vc
cc: K. Hayashida
L. Whang (10/17)

79-4057

79.4:47

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

VERNE C. WAITE, M.D
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

JAMES S. KUMAGAI, PH.D., P.E.
DEPUTY DIRECTOR OF HEALTH

TADAO BEPPU
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHSD/San

Mgr. KH
Asst. Mgr. [illegible]
P/E

October 3, 1979

Mr. Kazu Hayashida
Manager and Chief Engineer
Honolulu Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Hayashida:

SUBJECT: Haiku Well
Koolaupoko, Oahu, Hawaii
Tax Map Key: 4-06-25-01

This letter was precipitated by notice of the captioned project in the August 8, 1979 EQC Bulletin and notice of a pump and control building for the project in the September 23, 1979 edition of the same publication. It is our understanding that if found economically feasible, this well will become part of the Board's Windward district water system. As you know, Section 29 of Chapter 49 Public Health Regulations requires approval by the Director of Health of all new potable water sources.

This is to inform you that in the event that the Haiku well proves to be a viable source of potable water, the terms and conditions of Section 29 must be satisfied prior to its use as a domestic source.

Thank you for your time and attention to this matter.

Sincerely,

THOMAS E. ARIZUMI
Supervisor, Drinking Water Section
Sanitation Branch
Environmental Protection and Health
Services Division

MJH:dnn

cc: Engineering

D3

FILE: HAIKU WELL #1

October 18, 1979

Dr. James S. Kumagai
Deputy Director for
Environmental Health
State of Hawaii
Department of Health
P. O. Box 3378
Honolulu, Hawaii 96801

Attention Mr. Thomas E. Arizumi

Dear Dr. Kumagai:

Subject: Your Letters of October 3, 1979 Informing us of the Section 29, Chapter 49, Public Health Regulations Requirements for Our Proposed Haiku and Kahaluu Wells

Thank you for keeping us informed of the Section 29 requirements.

We shall comply with the requirement of Section 29 when we proceed with the project.

Should you have questions or require additional information, please call Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

LHYW/HHM:pvk
cc: K. Hayashida
Engineering (w/copies of incoming letters)
L. Whang

79-4043
79-4047

APPENDIX E

Stream Flow Measurements at Selected Sites in Haiku Valley, Oahu

APPENDIX E

STREAM FLOW MEASUREMENTS AT SELECTED SITES IN HAIKU VALLEY, OAHU

Discharge in c.f.s.

Date	Site 1	Site 2	Site 2A	Site 3	Site 4	Site 5	Site 6	Remarks
6-17-59				0.43	2.62	0.55		
8-5-60				0.57	2.42	0.59		
8-11-61				0.57	2.28	0.27		
2- 3-81	0.05	1.05		1.56	3.91	0.85	0	
2- 9-81	0.07	1.09		1.54	3.64	0.84	0	
2-17-81	0.03	0.94		1.40	3.40	0.77	0	
2-18-81	Pump started 0930 hr. (1,000 g.p.m.)							
2-18-81	0.03	0.98	2.04	3.10	5.16	-	0	
2-19-81	0.02	0.96	2.09	3.10	4.81	0.70	0	
2-20-81	0.01	0.99		3.16	5.14	0.78	0	Trace of rain, A.M.
2-21-81	0.01	0.97		3.20	4.93	0.81	0	0.1" rain before 0800 hr.
2-22-81	< 0.01	0.98		3.28	5.26	0.77	0	Trace of rain, A.M.
	< 0.01	1.05	1.98	3.26	5.38	0.73	0	
2-23-81	< 0.01	1.03		3.20	5.17	0.70	0	
	Pump stopped 0930 hr.							
	< 0.01	0.97		1.55	3.87	0.65	0	
	< 0.01	0.98		1.54	3.71	0.68	0	
2-24-81	< 0.01	0.97		1.49	3.57	0.69	0	
	< 0.01	0.96		1.44	3.52	0.67	0	
2-27-81	< 0.01	0.93		1.37	3.42	0.64	0	

Note: 1. See Figure 9 for location of sites.

2. Site 2A is at the pump outlet.

APPENDIX F

Comments and Responses to the
Draft Environmental Impact Statement

P-2005/81

IN REPLY REFER TO:
002A:amn
Ser 1329

14 JUL 1981

P/E

The Honorable Eileen Anderson
Mayor of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Draft Environmental Impact Statement
Installation of a Deep Well Pump and
Construction of Control Building for Haiku Well

The Draft Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, forwarded by the Environmental Quality Commission, has been reviewed and the Navy has no comments to offer.

By copy of this letter, per the Commission's request, the EIS is being returned to the Commission.

The opportunity to review and comment on the subject EIS is appreciated.

Sincerely,

R. D. EBER
CAPTAIN, CEC, U.S. NAVY
FACILITIES ENGINEER
BY DIRECTION OF THE COMMANDER

Copy to:
State EQC (w/EIS)
City BWS

F1

July 23, 1981

Captain R. D. Eber
Facilities Engineer
Naval Base Pearl Harbor
U. S. Navy
Box 110
Pearl Harbor, Hawaii 96860

Dear Captain Eber:

Subject: Your Letter of July 14, 1981 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1105
81-1950

P-2004|81

RECEIVED
BD OF WATER SUPPLY
JUL 16 2 05 PM '81

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS 15TH AIR BASE WING (PACAF)
HICKAM AIR FORCE BASE, HAWAII 96853

/
P/E

15 JUL 1981

REPLY TO ATTN OF: DEEV

SUBJECT: Environmental Impact Statement (EIS) for Haiku Well, Haiku Valley, Koolaupoku, Oahu

TO: Honorable Eileen Anderson
Mayor, City and County of Honolulu
530 South King Street
Honolulu, HI 96813

1. This office has reviewed the subject EIS and has no comment to render relative to the proposed project.

2. We greatly appreciate your cooperative efforts in keeping the Air Force apprised of your project and thank you for the opportunity to review the document.

WILLIAM T. MORIOKA
Chief, Engrg & Envmtl Plng Div
Directorate of Civil Engineering

√Cy to: City and County of Honolulu
Board of Water Supply
630 South Beretania Street
Honolulu, HI 96843

July 23, 1981

Mr. William T. Morioka
Chief, Engineering and Environmental
Planning Division
Headquarters 15th Air Base Wing (PACAF)
Department of the Air Force
Hickam Air Force Base, Hawaii 96853

Dear Mr. Morioka:

Subject: Your Letter of July 15, 1981 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1104

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858

PODED-PV

17 July 1981

Honorable Eileen R. Anderson
Mayor of the City & County of
Honolulu
Honolulu, HI 96813

Dear Mayor Anderson:

Thank you for the opportunity to review the Environmental Impact Statement (EIS) for the Haiku Well, Haiku Valley, Oahu. Based on our review, the comments of our letter dated 1 May 1980 are still appropriate, and we have no new comments to add. A copy of letter is inclosed for your information.

Sincerely,

ALFRED J. THIEDE
Colonel, Corps of Engineers
Commander and District Engineer

1 Incl
Ltr, 1 May 80

Copy Furn: (wo incl)
Board of Water Supply
City and County of Honolulu
650 South Beretania Street
Honolulu, HI 96843

81-1974

BD OF WATER SUPPLY

MAY 9 2 15 PM '80

DEPARTMENT OF THE ARMY

U. S. ARMY ENGINEER DISTRICT, HONOLULU

BUILDING 230

FT. SHAFTER, HAWAII 96858

PODED-PV

1 May 1980

Honorable Frank F. Fasi
Mayor of Honolulu
Honolulu, HI 96813

Dear Mayor Fasi:

We have reviewed your Environmental Impact Statement for the "Deep Well Pump and Control Building for Haiku Well, Haiku Valley, Koolaupoko, Oahu," forwarded to us by the State Environmental Quality Commission on 21 April 1980. We have prepared the following comments for your consideration.

The proposed project does not affect any US Army Corps of Engineers civil works program. There are no Corps regulatory requirements that are applicable to the well construction in Haiku. The proposed project site is not situated within any known flood hazard area and is located within an area designated Zone D, or area of undetermined but possible flood hazards, according to the federal flood insurance study for the island of Oahu.

Thank you for the opportunity to comment on your Environmental Impact Statement.

Sincerely,

B. R. SCHLAPAK
Colonel, Corps of Engineers
District Engineer

Copy Furnished:
Board of Water Supply
City & County of Honolulu
630 South Beretania Street
Honolulu, HI 96813

Environmental Quality Commission
Office of the Governor
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, HI 96813 (w/EIS)

C13

Incl. 1

F6

July 29, 1981

Col. Alfred J. Thiede
Commander and District Engineer
Corps of Engineers
Department of the Army
Fort Shafter, Hawaii 96858

Dear Col. Thiede:

Subject: Your Letter of July 17, 1981 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu, Hawaii

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ch
cc: K. Hayashida
L. Whang

81-1974

United States Department of the Interior

FISH AND WILDLIFE SERVICE
300 ALA MOANA BOULEVARD
P.O. BOX 50167
HONOLULU, HAWAII 96850

IN REPLY REFER TO:
ES
Room 6307

JUL 9 1981

Mayor Eileen Anderson
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Re: EIS, Haiku Well
Koolaupoko, Oahu, HI

Dear Mayor Anderson:

We have reviewed the subject Environmental Impact Statement (EIS) and offer the following comments.

We are concerned with the project's possible long-range impact on the aquatic organisms in Heeia Stream. This is one of the few streams on Oahu containing native stream fauna. A minimum flow regime which will allow survival of stream biota should be established for stream reaches above and below the well. When flow has diminished to the established minimum, pumping of the well should cease, until the water supply has returned to a level which will support both the well and the stream biota.

We appreciate this opportunity to comment.

Sincerely yours,

Lucian Kramer

Lucian Kramer
Acting Project Leader
Office of Environmental Services

cc: NMFS
HDF&G
EPA, San Francisco
Board of Water Supply

CONSERVE AMERICA'S ENERGY

Save Energy and You Serve America!

81 JUL 13 AM 11:29

F8

July 28, 1981

Mr. Lucian Kramer
Office of Environmental Services
U. S. Fish and Wildlife Service
P. O. Box 50167
Honolulu, Hawaii 96850

Dear Mr. Kramer:

Subject: EIS, Haiku Well, Koolaupoko, Oahu, Hawaii

Thank you for your letter of July 9, 1981 regarding your concern on the possible long-range impact that the proposed Haiku Well will have on aquatic organisms in Hecia Stream.

Both the U. S. Geological Survey and the Board of Water Supply have monitored the stream before, during, and after the exploratory pump tests. No discernible effects on streamflow were detected. They will continue to monitor the stream to determine any long-term effects of the proposed production well.

If the flow diminishes substantially, pumping will be reduced and the well capacity re-evaluated.

Sincerely,

S/Andrew Chang
for EILEEN R. ANDERSON

ERA:am

(F. Ifuku, Board of Water Supply)

cc: K. Hayashida, L. Whang
81-1852, 81-1951

P-1085/81

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY SUPPORT COMMAND, HAWAII
FORT SHAFTER, HAWAII 96858

RECEIVED
BD OF WATER SUPPLY
JUL 15 1 30 PM '81

APZV-EHE-E

13 JUL 1981

AM KYR
P/E

Honorable Eileen Anderson
Mayor of City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

The draft Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of Control Building for Haiku Well at Haiku Valley, Koolaupoko, Oahu has been reviewed and we have no comments to offer. No Army installations or activities will be affected by the change to the project scope (i.e., increase water provided from 0.5 to 1.0 million gallons per day).

Thank you for the opportunity to comment on the EIS.

Sincerely,

Original signed by
ADOLPH A. HIGHT
COL, EN
Director of Engineering and Housing

Copy Furnished:
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

F10

July 23, 1981

Colonel Adolph A. Hight
Director of Engineering and Housing
Headquarters U. S. Army Support
Command, Hawaii
Department of the Army
Fort Shafter, Hawaii 96858

Dear Colonel Hight:

Subject: Your Letter of July 13, 1961 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1085

F11

cc: Board of Water Supply

RECEIVED
BD OF WATER SUPPLY
'81 JUL 20 1 52 PM

P. 1132/81

United States Department of Agriculture

Soil Conservation Service

P. O. Box 50004
Honolulu, Hawaii
96850

July 16, 1981

AM
P/E

Honorable Eileen Anderson
Mayor, City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Draft Environmental Impact Statement for Haiku Well
Haiku Valley, Koolaupoko, Oahu

We reviewed the subject environmental impact statement and have no comments to make.

Thank you for the opportunity to review this document.

Sincerely,

JACK P. KANALZ
State Conservationist

cc:
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

The Soil Conservation Service is an agency of the Department of Agriculture

SCS-AS-1
10-79

cc: Board of Water Supply

RECEIVED
BD OF WATER SUPPLY

P. 1132/81

United States Department of Agriculture

Soil Conservation Service

P. O. Box 50004
Honolulu, Hawaii
96850

JUL 20 1 52 PM '81

July 16, 1981

✓
AM
P/E

Honorable Eileen Anderson
Mayor, City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Draft Environmental Impact Statement for Haiku Well
Haiku Valley, Koolaupoko, Oahu

We reviewed the subject environmental impact statement and have no comments to make.

Thank you for the opportunity to review this document.

Sincerely,

JACK P. KANALZ
State Conservationist

cc:
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Environmental Quality Commission
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

F12

July 29, 1981

Mr. Jack P. Kanalz
State Conservationist
Soil Conservation Service
U.S. Department of Agriculture
Box 50004
Honolulu, Hawaii 96850

Dear Mr. Kanalz:

Subject: Your Letter of July 16, 1981, on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ch
cc: K. Hayashida
L. Whang

P-1132/81

P- 1113/81

RECEIVED
BD. OF WATER SUPPLY
Jun 16 2 00 PM '81

P/E STP 8.7435

The Honorable Eileen Anderson
Mayor
City and County of Honolulu
City Hall
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Environmental Impact Statement
Haiku Well

Thank you for the opportunity to review and comment on the subject EIS.

We have no substantive comments to offer which could improve the document.

Very truly yours,

Ryokichi Higashionna

Ryokichi Higashionna
Director of Transportation

cc: Board of Water Supply

F14

July 23, 1981

Dr. Ryokichi Higashionna, Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

Dr. Higashionna:

Subject: Your Letter on the Environmental Impact Statement (EIS) for Haiku Well

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

Letter out 7/29/81

P-1113

/ 2002/71

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Jul 16 9 46 AM '81

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JUL 14 1981

AM
P/E

Honorable Eileen Anderson
Mayor
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Environmental Impact Statement
Deep Well Pump and Control Building
for Haiku Valley, Haiku Valley,
Koolaupoko, Oahu

Thank you for this opportunity to review and comment on the proposed change to the project from a 0.5 mgd to 1.0 mgd well.

The project will not have any adverse environmental effect on any existing or planned facilities serviced by our department.

Respectfully,

HIDEO MURAKAMI
State Comptroller

ES:jm

cc: Board of Water Supply

F16

July 23, 1981

Mr. Hideo Murakami
State Comptroller
Department of Accounting and
General Services
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Murakami:

Subject: Your Letter of July 14, 1981 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1102

F17

81-1850

GEORGE R. ARIYOSHI
Governor
HIDETO KONO
Director
FRANK SKRIVANEK
Deputy Director

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

STATE ENERGY OFFICE

335 Merchant Street, Rm. 110
Honolulu, Hawaii 96813

RECEIVED
BD OF WATER SUPPLY
JUL 13 2 53 PM '81

Ref No: 81:673

July 10, 1981

AM DWR
P/E

MEMORANDUM

TO: Board of Water Supply, City and County of Honolulu

FROM: Edward. J. Greaney, Jr., Acting Manager

SUBJECT: Environmental Impact Statement for Haiku Well

The State Energy Office has no comment.

EJG:kmg

July 20, 1981

Mr. Hideto Kono, Director
Department of Planning and
Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Attention: Mr. Edward J. Greaney
Acting Manager
State Energy Office

Dear Mr. Kono:

Subject: Your Letter of July 10, 1981 on the Environmental Impact Statement (EIS) for Haiku Well

Thank you for reviewing the EIS on our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

FI:cc
cc: K. Hayashida
L. Whang

81-1850

GEORGE R ARIYOSHI
GOVERNOR

RECEIVED
BD OF WATER SUPPLY
3 35 PM '81

Franklin Y. K. Sunn
DIRECTOR

DEPUTY DIRECTOR

RICHARD PAGLINAWAN
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF SOCIAL SERVICES AND HOUSING

July 21, 1981

The Honorable Eileen Anderson, Mayor
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Haiku Well - Draft Environmental Impact Statement

The Hawaii Housing Authority has reviewed the EIS for the installation of a deep well pump and construction of control building for the Haiku Well and has no specific comments to offer relative to the proposed action. The Authority is, however, highly supportive of this action as it will provide additional water for the Windward Oahu District. This additional source will be helpful in the plans of the Authority for assisted housing developments in the Kaneohe area.

Thank you for the opportunity to comment on this matter.

Sincerely,

FRANKLIN Y. K. SUNN
Director

cc: ✓Board of Water Supply

August 3, 1981

Mr. Franklin Y. K. Sunn
Director
Department of Social Services
and Housing
P. O. Box 339
Honolulu, Hawaii 96809

Dear Mr. Sunn:

Subject: Your Letter of July 21, 1981, On The Environmental Impact Statement (EIS) For The Installation of a Deep Well Pump and Construction of a Control Building at Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ml
cc: K. Hayashida
L. Whang

P-1218

MAYOR'S OFFICE
CITY & COUNTY
HONOLULU

DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

GEORGE R. ARIYOSHI
Governor

HIDETO KONO
Director

FRANK SKRIVANEK
Deputy Director

Kamamalu Building, 250 South King St., Honolulu, Hawaii • Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

BWS
2

July 13, 1981

Ref. No. 3358

The Honorable Eileen R. Anderson
Mayor
City and County of Honolulu
Honolulu, Hawaii 96813

Dear Mayor Anderson:

SUBJECT: Draft Environmental Impact Statement for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu

We have reviewed the above document and find that it has adequately identified the major environmental impacts which can be anticipated to result from the proposed project.

Thank you for the opportunity to review this matter.

Sincerely,

Hideto Kono

cc: Board of Water Supply, C & C of Honolulu
Office of Environmental Quality Control

P-1106

July 23, 1981

Mr. Hideto Kono, Director
Department of Planning and
Economic Development
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804

Dear Mr. Kono:

Subject: Your Letter of July 13, 1981 on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building for Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1106

University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

Office of the Director

August 7, 1981

RE:0037

Mayor Eileen Anderson
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Draft Environmental Impact Statement
Deep Well Pump and Control Building for Haiku Well
Haiku Valley, Koolaupoko, Oahu

The Environmental Center review of the above document was prepared by Jacquelin Miller, Garret Kawamura, and Robert Rowland.

Our comments on the proposed project are limited to the following questions:

What steps will be taken to monitor the impact of Haiku Well on stream and spring flows in the area? Have the cumulative impacts of the proposed Haiku and Iolekaa Wells been considered in the impact analysis? Our primary concern is maintenance of minimum streamflow conditions in Haiku stream. If monitoring indicates a substantial reduction in stream or spring flows what mitigative action is the BWS prepared to take?

Is rainfall data for Haiku Valley available for the days during and immediately preceding the test pumping in February?

Sincerely,

Diane C. Drigot, Ph.D.
Acting Director

RKK

cc: Board of Water Supply
OEQC
Jacquelin Miller
Garret Kawamura
Robert Rowland

August 26, 1981

Dr. Diane C. Drigot
Acting Director
Environmental Center
University of Hawaii at Manoa
Crawford 317
2550 Campus Road
Honolulu, Hawaii 96822

Dear Dr. Drigot:

Subject: Your Letter of August 7, 1981 on the Revised Draft Environmental Impact Statement (EIS) for Deep Well Pump and Control Building at Haiku Well Koolaupoko, Oahu

Thank you for reviewing the revised draft EIS for the proposed project. The Board of Water Supply (Board) will append your letter to the revised EIS.

In response to your letter, the Board has the following comments:

1. *What steps will be taken to monitor the impact of Haiku Well on stream and spring flows in the area?*

   The Board is presently coordinating with the U. S. Geological Survey to re-establish a gaging station downstream of the well site. The water levels at Baskerville Springs will also be monitored.

2. *Have the cumulative impacts of the proposed Haiku and Iolekaa Wells been considered in the impact analysis?*

   The cumulative impacts of both wells have not been evaluated. However, the Board's five-day sustained pump test of Haiku Well at a rate of 1.5 million

gallons per day showed minimal impacts to streamflow. When pump tests are conducted for the Iolekaa Well, the Board will evaluate the cumulative impact of both wells at that time.

3. *Our primary concern is maintenance of minimum streamflow conditions in Haiku Stream. If monitoring indicates a substantial reduction in stream or spring flows what mitigative action is the BWS prepared to take?*

   If a substantial reduction of streamflow occurs, the Board will reduce or cease pumpage. They will also be in contact with the U. S. Fish and Wildlife Service if any streamflow reduction is detected and have committed themselves to assure that sufficient flows will remain in the stream to satisfy existing users.

4. *Is rainfall data for Haiku Valley available for the days during and immediately preceding the test pumping in February?*

   Daily rainfall data is not available. However, the Board collects weekly data. For the month of February the data showed:

February 2	0.00 inches
February 9	0.14 inches
February 17	0.12 inches
February 23	0.05 inches
February 28	0.02 inches

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

ERA:lm
(M Shigetani, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

cc: K. Hayashida
G. Hiu
L. Whang

F26

University of Hawaii at Manoa

Water Resources Research Center
Holmes Hall 283 • 2540 Dole Street
Honolulu, Hawaii 96822

3 August 1981

Mayor Eileen Anderson
City & County of Honolulu
530 South King Street
Honolulu, HI 96813

Dear Mayor Anderson:

Subject: Draft EIS Haiku Wells
Koolaupoko, Oahu, TMK: 4-06-15-01
Board of Water Supply, June 17, 1981

We have reviewed the subject Draft EIS and offer the following comments:

1. P. 16 para 6. "Ground Water Quantity and Quality," and p. B10 "Impact on Evapotranspiration." Both citations essentially say that evapotranspiration will be reduced due to lowering of the ground water level near the well-site. Considering the high rainfall of the upper Haiku Valley (approximately 100 in/yr), it is doubtful there will be any reduction in evapotranspiration attributable to lowering of the water table. There would be sufficient rainfall throughout the year, such that lowering of the water table will have little or no effect on evapotranspiration.

2. P. B5 "...and the groundwater body recharges 75 per cent of total flow (based on 11 years of data for upper Haiku Valley, from Takasaki, Hirashima, and Lubke, 1969, p. 24)..." Such a development cannot be seen in the source cited.

3. Under "Mitigative Measures" there is no mention of what measures will be taken to mitigate any adverse effects the Haiku Well may have on Baskerville Springs or Heeia Stream. It is during dry weather periods that pumping rates will be highest, which also coincides with lowest stream (spring) flow. The pump test was done in February, a high rainfall month, so it may not be indicative of what will happen during dry summer periods.

   This is a serious possible environmental impact which the EIS does not adequately address. What mitigative measures will be taken if the spring or stream dries up or is otherwise adversely affected?

This material was reviewed by WRRC personnel. Thank you for the opportunity to comment.

Sincerely,

Edwin T. Murabayashi/jm

Edwin T. Murabayashi
EIS Coordinator, WRRC

ETM:jm

cc: Y.S. Fok
H. Gee
P. Ekern
BWS
Env. Center

August 26, 1981

Dr. L. Stephen Lau, Director
University of Hawaii at Manoa
Water Resources Research Center
Holmes Hall 283
2540 Dole Street
Honolulu, Hawaii 96822

Dear Dr. Lau:

Subject: Your Letter of August 3, 1981 on the Revised Draft Environmental Impact Statement for Deep Well and Control Building at Haiku Well, Koolaupoko

Thank you for your comments on the proposed Board of Water Supply (Board) project. Your letter will be appended to the revised environmental document.

In response to your letter, the Board has the following comments:

1. P. 16 para 6. "Ground Water Quantity and Quality," and p. B10 "Impact on Evapotranspiration." Both citations essentially say that evapotranspiration will be reduced due to lowering of the ground water level near the well-site. Considering the high rainfall of the upper Haiku Valley (approximately 100 in/yr), it is doubtful there will be any reduction in evapotranspiration attributable to lowering of the water table. There would be sufficient rainfall throughout the year, such that lowering of the water table will have little or no effect on evapotranspiration.

   The Board concurs with your comment and will revise the environmental document to indicate lowering of the water table would have little or no effect to evapotranspiration because of the high rainfall in the area.

2. *P. B5 "...and the groundwater body recharges 75 per cent of total flow (based on 11 years of data for upper Haiku Valley, from Takasaki, Hirashima, and Lubke, 1969, p. 24)..." Such a development cannot be seen in the source cited.*

According to the literature cited, the groundwater body recharges about 58 per cent of the total base flow for the basin. A note will be added to page B5 to indicate the discrepancy mentioned.

3. *Under "Mitigative Measures" there is no mention of what measures will be taken to mitigate any adverse effects the Haiku Well may have on Baskerville Springs or Heeia Stream. It is during dry weather periods that pumping rates will be highest, which also coincides with lowest stream (spring) flow. The pump test was done in February, a high rainfall month, so it may not be indicative of what will happen during dry summer periods.*

This is a serious possible environmental impact which the EIS does not adequately address. What mitigative measures will be taken if the spring or stream dries up or is otherwise adversely affected?

The Board will be monitoring streamflow and Baskerville Springs. If there are any indications that adverse effects to streamflow or Baskerville Springs could occur, the Board will decrease or cease pumpage as the situation dictates.

Furthermore, the water level in the well is 120 feet below the stream surface. The well is developed in the Koolau basalt whereas Baskerville Springs is in Haiku basalt of the Honolulu Series and is expected to be minimally affected by pumpage.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

F30

ERA:lm (M. Shigetani, Board of Water Supply)
cc: Mr. Andrew I. T. Chang
cc: K. Hayashida
L. Whang
81-2152:81-2199

81-2189

RECEIVED
BD OF WATER SUPPLY
AUG 12 11 16 AM '81

GEORGE R. ARIYOSHI
GOVERNOR

Melvin Koizumi
Deputy Director
TELEPHONE NO.
548-6915

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
550 HALEKAUWILA ST.
ROOM 301
HONOLULU, HAWAII 96813

MGR WN
AM
P/E

August 5, 1981

Mayor Eileen Anderson
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Environmental Impact Statement for Haiku Well

We have reviewed the subject statement and offer the following comments for your consideration:

In the listing of necessary approvals (P. 25), the permits required by the listed agencies should be included along with their present status.

We recommend that stream fauna be monitored during operation of the pump and compared with a baseline measurement. We note that the pump testing occurred during the winter months. Pump testing during the dry summer months would give a closer estimation of low flow conditions and potential impacts.

The response to our previous comment (P. C38) regarding the need for safety precautions of the construction workers and maintenance workers due to the Omega station appears incorrect. We note that the proposed project is within the electrical ground-system area of the Omega station.

We have enclosed a figure from the Final Supplement to the Interstate Route H-3 EIS (Vol. VI, appendix M) which shows the ground system area. That appendix also concluded that, "special procedures will be required during construction (of H-3) to reduce the hazard of personnel shock and the possibility of accidental ignition of detonators or explosive mixtures to safe levels." We believe that the same holds true for the proposed well project.

Thank you for allowing us to comment on the subject statement.

Sincerely,

Melvin Kozumi
Deputy Director

Enclosure
cc: Board of Water Supply (with enclosure)

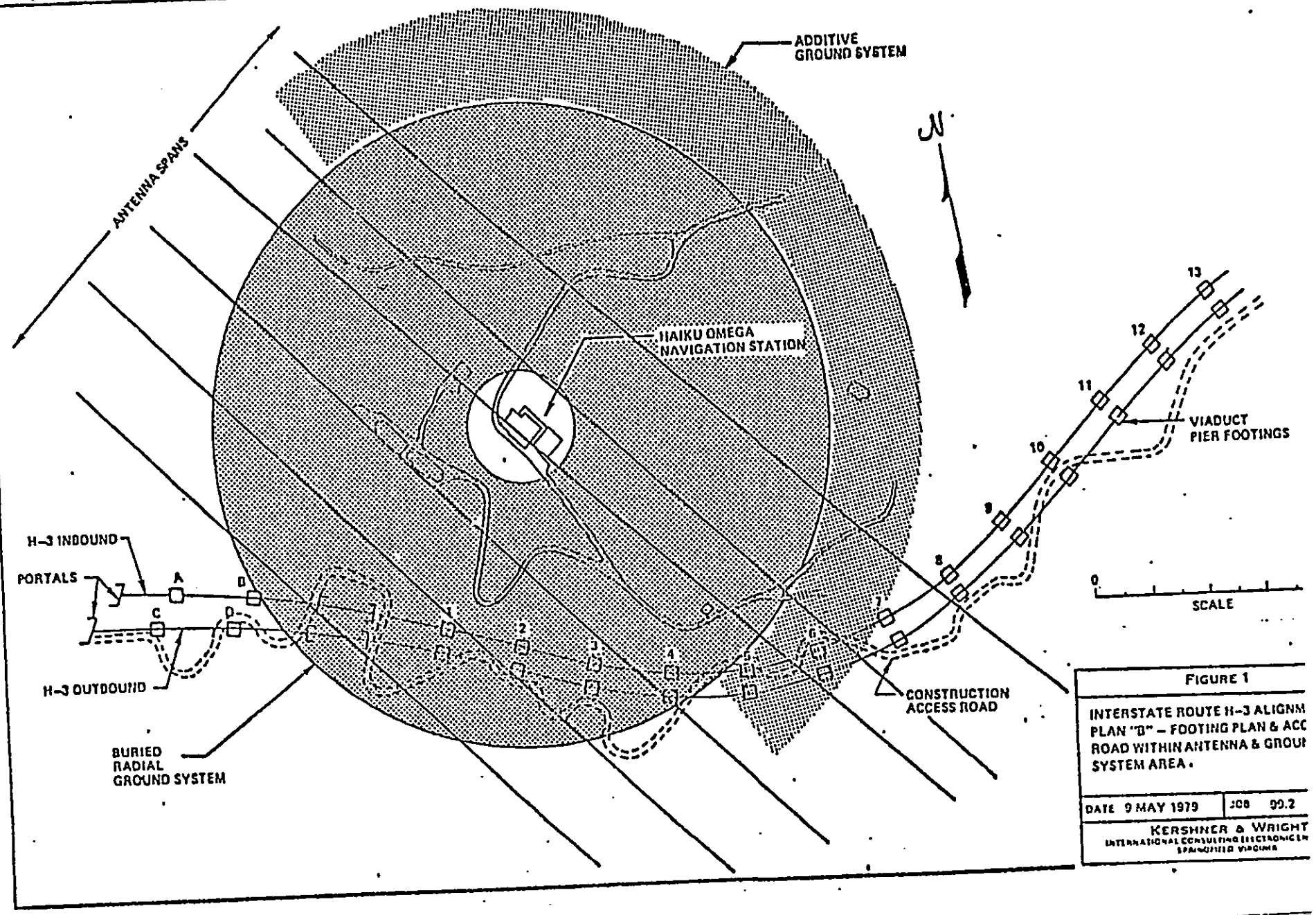


FIGURE 1

INTERSTATE ROUTE H-3 ALIGNM
PLAN "B" – FOOTING PLAN & ACC
ROAD WITHIN ANTENNA & GROU
SYSTEM AREA.

DATE 9 MAY 1979 | JOB 99.2

KERSHNER & WRIGHT
INTERNATIONAL CONSULTING ELECTRONICS EN
SPRINGFIELD VIRGINIA

Appen. M H-3 and Omega Station Location

August 26, 1981

Mr. George A. L. Yuen, Director
Department of Health
State of Hawaii
P. O. Box 3378
Honolulu, Hawaii 96801

Attention: Mr. Melvin K. Koizumi

Dear Mr. Yuen:

Subject: Your Letter of August 5, 1981, on the Revised Draft Environmental Impact Statement for Deep Well Pump and Control Building at Kaiku Well, Koolaupoko, Oahu

Thank you for your comments on the proposed Board of Water Supply (Board) project. Your letter will be appended to the revised environmental document.

In response to your letter, the Board has the-following comments:

1. *In the listing of necessary approvals (P. 25), the permits required by the listed agencies should be included along with their present status.*

   The Board will include the type of permits required from each governmental agency. However, the approval of the permits is contingent upon acceptance of the revised environmental impact statement and, therefore, no actions have yet been taken on them.

2. *We recommend that stream fauna be monitored during operation of the pump and compared with a baseline measurement. We note that the pump testing occurred during the winter months. Pump testing during the dry summer months would give a closer estimation of low flow conditions and potential impacts.*

The Board will be coordinating its efforts with the U. S. Fish and Wildlife Service if any decrease in streamflow attributable to pumpage occurs.

3. *The response to our previous comment (P. C38) regarding the need for safety precautions of the construction workers and maintenance workers due to the Omega station appears incorrect. We note that the proposed project is within the electrical ground-system area of the Omega station.*

The proposed station is within the grounding system for the overhead antenna wires and, therefore, no electrical hazard is involved. The construction shall be coordinated with the Coast Guard which operates the station.

4. *We have enclosed a figure from the Final Supplement to the Interstate Route H-3 EIS (Vol. VI, appendix M) which shows the ground system area. That appendix also concluded that "special procedures will be required during construction (of H-3) to reduce the hazard of personnel shock and the possibility of accidental ignition of detonators or explosive mixtures to safe levels." We believe that the same holds true for the proposed well project.*

The Board will not use detonators or explosives in its construction work. Special precaution measures will be implemented to avoid damage or interference to the Coast Guard's antenna system.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

ERA:bw
(M. Shigetani, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

F35

K. Hayashida
L. Whang

81-2189

GE R. ARIYOSHI
RNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801

July 22, 1981

RECEIVED
BD OF WATER SUPPLY
Jul 24 3 24 PM '81

GEORGE A. L. YUEN
DIRECTOR OF HEALTH

JOHN F. CHALMERS, M.D.
DEPUTY DIRECTOR OF HEALTH

HENRY N. THOMPSON, M.A.
DEPUTY DIRECTOR OF HEALTH

MELVIN K. KOIZUMI
DEPUTY DIRECTOR OF HEALTH

ABELINA MADRID SHAW, M.A., J.D.
DEPUTY DIRECTOR OF HEALTH

In reply, please refer to:
File: EPHS-SS

MEMORANDUM

To: The Honorable Eileen Anderson, Mayor
City & County of Honolulu

From: Deputy Director for Environmental Health

Subject: Environmental Impact Statement (EIS) for Haiku Well, Haiku Valley, Koolaupoko, Oahu

Thank you for allowing us to review and comment on the subject EIS. On the basis that the project will comply with all applicable Public Health Regulations, please be informed that we do not have any objections to this project.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on the project at the time final plans are submitted to this office for review.

For MELVIN K. KOIZUMI

cc: OEQC
Board of Water Supply

1981

July 31, 1981

Mr. George A.L. Yuen
Director
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, Hawaii 96801

Attention: Mr. Melvin K. Koizumi

Dear Mr. Yuen:

Subject: Your Letter of July 22, 1981, on the Environmental Impact Statement (EIS) for the Installation of a Deep Well Pump and Construction of a Control Building at Haiku Well, Koolauloa

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, contact Lawrence Whang at 548-5221.

Very truly yours,

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ch
cc: K. Hayashida
L. Whang

81-2153

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRMAN, BOARD OF AGRICULTURE

RECEIVED
WATER SUPPLY
AUG 7 3 21 PM '81

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

MGR
AM
P/E

August 5, 1981

MEMORANDUM

To: Mayor Eileen Anderson
City and County of Honolulu

Subject: Haiku Well Environmental Impact Statement

The Department of Agriculture has reviewed the subject draft EIS which has been resubmitted and offers the following comment.

We note that potential impacts on agricultural activities downstream have been addressed in Appendix C as responses to comments from agencies and concerned citizens. It might have been desirable for the topic to be addressed in the body of the EIS since the question was brought up several times.

Thank you for the opportunity to comment.

JACK K. SUWA
Chairman, Board of Agriculture

cc: Board of Water Supply

August 20, 1981

Mr. Jack K. Suwa, Chairman
Board of Agriculture
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Subject: Your Letter of August 5, 1981
Commenting on the Haiku Well
Environmental Impact Statement (EIS)

Thank you for your comments.

The potential impact on agricultural activities downstream of the proposed Haiku Well project will be addressed in the body of the revised EIS.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

For KAZU HAYASHIDA
Manager and Chief Engineer

FI:am
cc: K. Hayashida
L. Whang
81-2153

GEORGE R. ARIYOSHI
GOVERNOR

JACK K. SUWA
CHAIRMAN,BOARD OF AGRICULTURE

STATE OF HAWAII
DEPARTMENT OF AGRICULTURE
1428 SO. KING STREET
HONOLULU, HAWAII 96814

August 5, 1981

MEMORANDUM

To: Mayor Eileen Anderson
City and County of Honolulu

Subject: Haiku Well Environmental Impact Statement

The Department of Agriculture has reviewed the subject draft EIS which has been resubmitted and offers the following comment.

We note that potential impacts on agricultural activities downstream have been addressed in Appendix C as responses to comments from agencies and concerned citizens. It might have been desirable for the topic to be addressed in the body of the EIS since the question was brought up several times.

Thank you for the opportunity to comment.

Jack K. Suwa

JACK K. SUWA, Chairman
Board of Agriculture

cc: Board of Water Supply

August 26, 1981

Mr. Jack K. Suwa, Chairman
Board of Agriculture
State of Hawaii
1428 South King Street
Honolulu, Hawaii 96814

Dear Mr. Suwa:

Subject: Your Letter of August 5, 1981
Commenting on the Haiku Well
Environmental Impact Statement (EIS)

Thank you for your letter commenting on the Haiku Well Environmental Impact Statement.

You will be pleased to know that the Board of Water Supply will address the potential impacts on agricultural activities downstream of the proposed project in the body of the revised EIS.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

ERA:bw

(L. Whang, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

K. Hayashida
L. Whang

F41

81-2153, 81-2198

F-1452/81

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

RECEIVED
BD OF WATER SUPPLY
SEP 1 3 57 PM '81

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

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES
EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

August 25, 1981

AM
P/E

Honorable Eileen Anderson
Mayor
City and County of Honolulu
530 S. King Street
Honolulu, HI 96813

Subject: Haiku Well Draft EIS 7/7/81

Dear Mayor Anderson:

Thank you for the opportunity to review the subject document. There are no State Parks interests.

Very truly yours,

/S/ SUSUMU ONO

SUSUMU ONO
Chairman of the Board

cc Board of Water Supply
Environmental Quality Commission

September 18, 1981

Mr. Susumu Ono, Chairman
Board of Land and Natural
Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Your Letter of August 25, 1981, on the Revised Draft Environmental Impact Statement for Haiku Well

Thank you for reviewing the revised draft environmental impact statement for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:am
cc: K. Hayashida
L. Whang
P-1452

GEORGE R. ARIYOSHI
GOVERNOR OF HAWAII

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FISH AND GAME
FORESTRY
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

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

August 20, 1981

Honorable Eileen Anderson
Mayor of Honolulu
Honolulu Hale
Honolulu, Hawaii 96813

Dear Mayor Anderson:

We have reviewed the draft environmental impact Statement (DEIS) for Haiku Well.

We note that the Heeia-Haiku Stream flow was monitored at six different sites before, during, and after pump tests - for the five-day period of February 18-23, 1981. According to the EIS, "The results are encouraging because no decrease in stream flow occurred during the period of observation." However, these test results were obtained during a very wet period, and as such, the negative impact on stream flow should have been an expected rather than "encouraging" result.

We have examined USGS stream gaging station records for the subject stream published in "Water Resource Data for Hawaii and Other Pacific Areas, Water Year 1977." The Heeia-Haiku Stream sustained an average discharge of 2.15 cubic feet per second (cfs) from 1944 to 1977, and a minimum flow during the same period of record of 0.20 cfs. Appendix E of the EIS shows that stream discharges during the test at Site 3 and Site 4 (the sites closest to the USGS stream gaging station) ranged from 50% to more than 100% greater than the cited average 2.15 cfs.

On page B 9 of the EIS, the following statement appears: ". . . pumping from the proposed Haiku Valley well will reduce flow in Haiku and Heeia streams, especially during period of low flow." We feel that such tests should be conducted before the well is converted to production.

We conclude that the impact of this project upon the Heeia-Haiku stream flow, and upon the aquatic biota found therein, has not been satisfactorily addressed by the EIS.

We would be happy to work with appropriate members of your Administration to further pursue this matter.

Sincerely,

SUSUMU ONO, Chairman
Board of Land and Natural Resources

xc: Board of Water Supply

September 10, 1981

Mr. Susumu Ono, Chairman
Board of Land and Natural
Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ono:

Subject: Your Letter of August 20, 1981, on the Revised Draft Environmental Impact Statement for Haiku Well

Thank you for reviewing the revised draft environmental impact statement (DEIS) for the Board of Water Supply's (BWS) proposed Haiku Well project. Your letter will be appended to the revised DEIS.

BWS has the following comments in regard to your letter:

1. *We note that the Keeia-Haiku Stream flow was monitored at six different sites before, during, and after pump tests - for the five-day period of February 18-23, 1981. According to the EIS, "The results are encouraging because no decrease in stream flow occurred during the period of observation." However, these test results were obtained during a very wet period, and as such, the negative impact on stream flow should have been an expected rather than "encouraging" result.*

   We have examined USGS stream gaging station records for the subject stream published in "Water Resource Data for Hawaii and Other Pacific Areas, Water Year 1977." The Keeia-Haiku Stream sustained an average discharge of 2.15 cubic feet per second (cfs) from 1944 to 1977, and a minimum flow during the same period of record of 0.20 cfs. Appendix E of the EIS shows that stream discharges <u>during</u> the test at Site 3 and Site 4 (the sites closest to the USGS stream gaging station) ranged from 50% to more than 100% greater than the cited average 2.15 cfs.

BWS indicates that the streamflow-monitoring data obtained during the pumping tests are valid. There was no discernible reduction to streamflow. Although February is considered a "wet" month, rainfall during the test period was minimal. Rainfall records show precipitation was far below normal. The five-month moving rainfall average was 97% below the 30-year average and the monthly average was 56% below normal. Because of the low rainfall, most of the streamflows apparently were the result of flows from springs. Their pump tests indicated no reduction in streamflows originating from the springs.

2. *On page B 9 of the EIS, the following statement appears: ". . . pumping from the proposed Haiku Valley well will reduce flow in Haiku and Hesia streams, especially during period of low flow." We feel that such tests should be conducted before the well is converted to production.*

The statement on Page B-9 mentioning reduction of streamflow during periods of low flow was made before the exploratory well was test pumped. However, the streamflow-monitoring data and rainfall records show that their pumpage tests had minimal effects to streamflow.

To assure that minimal streamflow is maintained, the BWS has commissioned the U. S. Geological Survey to establish permanent gaging stations along Haiku, Iolekaa, and Hesia streams. Should any adverse reduction in streamflow be observed, BWS is committed to reduce or cease pumpage. They have also agreed to contact the U. S. Fish and Wildlife Service for an assessment on stream aquafauna.

3. *We conclude that the impact of this project upon the Hesia-Haiku stream flow, and upon the aquatic biota found therein, has not been satisfactorily addressed by the EIS.*

BWS contends that the pump tests support their findings. However, to assure that long-term pumping will have minimal effects on the stream, BWS will be installing stream gages to correlate pumpage with streamflow. Should there be any effects, BWS is committed to reduce pumpage to maintain existing streamflow.

If you have any questions, please contact Kazu Hayashida of the Board of Water Supply at 548-6180.

Very truly yours,

S/Eileen R. Anderson

EILEEN R. ANDERSON

ERA:bw (M. Shigetani, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

K. Hayashida
L. Whang

81-2304
81-2304A

81-2086

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

RECEIVED
BD OF WATER SUPPLY
JUL 31 3 18 PM '81

WILLARD T. CHOW
CHIEF PLANNING OFFICER

DGP7/81-2306

July 31, 1981

AM V6402
P/E

Office of Environmental Quality Control
State of Hawaii
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Gentlemen:

Environmental Impact Statement for
Deep Well Pump and Control Building for Haiku Well

We have reviewed the environmental impact statement and have no comments.

Thank you for affording us the opportunity of reviewing the impact statement.

Sincerely,

Ralph Kawamoto

RALPH KAWAMOTO
Planner

APPROVED:

Willard T. Chow

WILLARD T. CHOW

cc: BWS

August 10, 1981

TO : DR. WILLARD T. CHOW
CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 31, 1981, ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR A DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ml
cc: K. Hayashida
L. Whang

81-2086

Mgr. WS
AM
P/E

PB 81-622

July 21, 1981

TO: HONORABLE EILEEN R. ANDERSON, MAYOR

VIA: MR. ANDREW I.T. CHANG, MANAGING DIRECTOR

FROM: ROY H. TANJI
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: HAIKU WELL
HAIKU VALLEY, KOOLAUPOKO, OAHU

We have reviewed the Environmental Impact Statement and have no comments to offer.

ROY H. TANJI
Director and Building Superintendent

AF:vk
cc: J. Harada
Board of Water Supply

JUL 24 1981

August 5, 1981

TO : MR. ROY H. TANJI
DIRECTOR AND BUILDING SUPERINTENDENT
BUILDING DEPARTMENT

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 21, 1981, ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE INSTALLATION OF A DEEP WELL PUMP AND CONSTRUCTION OF A CENTRAL BUILDING AT HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

F- 2001/81

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

MICHAEL J. CHUN, PH.D.
DIRECTOR AND CHIEF ENGINEER

RECEIVED
BD OF WATER SUPPLY
JUL 15 2 52 PM '81
ENV 81-247

AM
P/E

July 13, 1981

MEMORANDUM

TO: HONORABLE EILEEN R. ANDERSON, MAYOR

FROM: MICHAEL J. CHUN, DIRECTOR AND CHIEF ENGINEER

SUBJECT: EIS FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU WELL, HAIKU, OAHU

We do not have any additional comments to offer.

MICHAEL J. CHUN
Director and Chief Engineer

cc: Board of Water Supply

F53

July 23, 1981

TO : DR. MICHAEL J. CHUN
DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF PUBLIC WORKS

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 13, 1981 ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE INSTALLATION OF A DEEP WELL PUMP AND CONSTRUCTION OF A CONTROL BUILDING FOR HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-2001

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

ROY A. PARKER
DIRECTOR

RECEIVED
BD OF WATER SUPPLY
JUN 27 10 27 AM '81

TE7/81-2047

June 23, 1981

AM
PE

MEMORANDUM

TO: HONORABLE EILEEN R. ANDERSON, MAYOR

VIA: ANDREW I. T. CHANG, MANAGING DIRECTOR

FROM: ROY A. PARKER, DIRECTOR

SUBJECT: HAIKU WELL DRAFT ENVIRONMENTAL IMPACT STATEMENT

We have no comments on this draft EIS.

ROY A. PARKER

cc: BWS

1981

F55

W-5

July 30, 1981

TO : MR. ROY A. PARKER
DIRECTOR
DEPARTMENT OF TRANSPORTATION SERVICES

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JUNE 23, 1981, ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE INSTALLATION OF A DEEP WELL PUMP AND CONSTRUCTION OF A CONTROL BUILDING AT HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ch
cc: K. Hayashida
L. Whang

F56

81-2107

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4411

RECEIVED
BOARD OF WATER SUPPLY
AUG 4 3 01 PM '81

EILEEN R. ANDERSON
MAYOR

MICHAEL M. McELROY
DIRECTOR

LU4/80-1791(SM)
LU7/81-3782
80/EC-4

August 4, 1981

AM
P/E

MEMORANDUM

TO : KAZU HAYASHIDA, MANAGER & CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM : MICHAEL M. McELROY, DIRECTOR

SUBJECT : REVISED EIS FOR HAIKU WELL
HAIKU VALLEY, KOOLAUPOKO, OAHU
TAX MAP KEY: 4-6-15: 01

We have reviewed the above and feel that all environmental concerns are adequately addressed in this document. We have no further comments to offer.

If there are any questions, please contact Sampson Mar of our staff at extension 4077.

MICHAEL M. McELROY
Director of Land Utilization

MMM:sl

F57

August 10, 1981

TO : MR. MICHAEL M. McELROY
DIRECTOR OF LAND UTILIZATION
DEPARTMENT OF LAND UTILIZATION

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF AUGUST 4, 1981, ON THE REVISED DRAFT ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR A DEEP WELL PUMP AND CONTROL BUILDING AT HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for reviewing the Revised Draft EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ml
cc: K. Hayashida
L. Whang

81-2107

F58

81-2093

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

EILEEN R. ANDERSON
MAYOR

RECEIVED
BD OF WATER SUPPLY
AUG 3 3 12 PM '81

ROBERT K. MASUDA
DIRECTOR

July 28, 1981

AM
P/E

Mr. Richard O'Connell, Director
Office of Environmental Quality Control
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

Dear Mr. O'Connell:

SUBJECT: REVIEW OF ENVIRONMENTAL IMPACT STATEMENT FOR DEEP WELL PUMP AND CONTROL BUILDING FOR HAIKU VALLEY WELL (TMK: 4-6-15: 1)

We have reviewed the subject EIS and have no comments regarding effects on Department of Parks and Recreation facilities or activities.

Sincerely yours,

ROBERT K. MASUDA, Director

RKM:vc

cc: Board of Water Supply

August 10, 1981

TO : MR. ROBERT K. MASUDA
DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 28, 1981, ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR A DEEP WELL PUMP AND CONTROL BUILDING AT HAIKU WELL, TMK: 4-6-15: 1

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:ml
cc: K. Hayashida
L. Whang

81-2093

MAYOR'S OFFICE
'81 JUL 29 AM 11:50
CITY & COUNTY

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 523-4161

EILEEN R. ANDERSON
MAYOR

JOSEPH K. CONANT
DIRECTOR

BWS LD DY

July 27, 1981

Honorable Eileen Anderson, Mayor
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Dear Mayor Anderson:

Subject: Haiku Well
Environmental Impact Statement

We have reviewed the environmental impact statement for the subject project and have no comment.

We are retaining the copy of the statement for our files.

Sincerely,

Joseph K. Conant

cc: Board of Water Supply
Environmental Quality Commission

July 31, 1981

TO : MR. JOSEPH K. CONANT
DIRECTOR
DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT

FROM : KAZU HAYASHIDA
BOARD OF WATER SUPPLY

SUBJECT: YOUR LETTER OF JULY 27, 1981, ON THE ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE INSTALLATION OF A DEEP WELL PUMP AND CONSTRUCTION OF A CONTROL BUILDING AT HAIKU WELL, KOOLAUPOKO, OAHU

Thank you for reviewing the EIS for our proposed project. Your letter will be appended to the revised environmental document.

If you have any questions, please contact Lawrence Whang at 548-5221.

Kazu Hayashida

KAZU HAYASHIDA
Manager and Chief Engineer

MHS:lm
cc: K. Hayashida
L. Whang

P-1205

P-12310/81

KANEOHE NEIGHBORHOOD BOARD NO. 30
c/o KANEOHE SATELLITE CITY HALL
46-024 KAM HIGHWAY
KANEOHE, HAWAII 96744

August 11, 1981

The Honorable Eileen R. Anderson
Mayor
City and County of Honolulu
Honolulu Hale
Honolulu, Hawaii 96813

Subject: Revised draft EIS--Haiku test well.

Dear Mayor Anderson:

Because of the time, the Kaneohe Neighborhood Board No. 30 has not been able to have a full report on this draft, but the following comments were made by the reviewing Board member, Lionel Low:

"It is known that the Kaneohe area has tight geological formations. This accounts for the fact that about 6,000 m.g.d. of ground water leaks into Kaneohe Bay, as compared with about 500 m.g.d. into Hilo Bay on the Big Island.

The EIS makes statements that the level of Heeia Stream will not be affected, yet nowhere in the EIS, even though pumping tests were mentioned, is the coefficient of permeability of the site near Heeia Stream given. On what basis was the statement that the Heeia Stream level was unaffected made?"

Thank you for letting us participate in this matter.

Sincerely,

Nancy Clingan s.c.

Nancy Clingan
Chairman

cc: Councilman Andrew Poepoe
Board of Water Supply
State Department of Land
and Natural Resources
Kahaluu Neighborhood Board No. 29
Lionel Low

F63

P-1310/E1

KANEOHE NEIGHBORHOOD BOARD NO. 30
c/o KANEOHE SATELLITE CITY HALL
46-024 KAM HIGHWAY
KANEOHE, HAWAII 96744

August 11, 1981

The Honorable Eileen R. Anderson
Mayor
City and County of Honolulu
Honolulu Hale
Honolulu, Hawaii 96813

Subject: Revised draft EIS--Haiku test well.

Dear Mayor Anderson:

Because of the time, the Kaneohe Neighborhood Board No. 30 has not been able to have a full report on this draft, but the following comments were made by the reviewing Board member, Lionel Low:

> "It is known that the Kaneohe area has tight geological formations. This accounts for the fact that about 6,000 m.g.d. of ground water leaks into Kaneohe Bay, as compared with about 500 m.g.d. into Hilo Bay on the Big Island.
>
> The EIS makes statements that the level of Heeia Stream will not be affected, yet nowhere in the EIS, even though pumping tests were mentioned, is the coefficient of permeability of the site near Heeia Stream given. On what basis was the statement that the Heeia Stream level was unaffected made?"

Thank you for letting us participate in this matter.

Sincerely,

Nancy Clingan s.c.

Nancy Clingan
Chairman

cc: Councilman Andrew Poepoe
Board of Water Supply
State Department of Land
and Natural Resources
Kahaluu Neighborhood Board No. 29
Lionel Low

F63

August 26, 1981

Ms. Nancy Clingan, Chairman
Kaneohe Neighborhood Board No. 30
c/o Kaneohe Satellite City Hall
46-024 Kam Highway
Kaneohe, Hawaii 96744

Dear Ms. Clingan:

Subject: Your Letter of August 11, 1981 on the Revised Draft Environmental Impact Statement (EIS) for Haiku Well, Kcolaupoko, Oahu

Thank you for reviewing the revised draft EIS for the proposed water development project. The Board of Water Supply will append your letter to its revised environmental document.

The Board has the following reply to your letter:

1. In answer to your first comment, the groundwater base flow discharged into Kaneohe Bay is 30 mgd, not 6,000 mgd.

2. The coefficient of permeability was not mentioned since it is only one of several factors used for determining flow through soil. According to the Soil Survey by the U. S. Soil Conservation Service, the permeability (rate of flow) for Lolekaa silty clay ranges from 2.0 to 6.3 inches per hour.

3. The streamflow was monitored by the U. S. Geological Survey (USGS) before, during, and after the test pumping of the well (Refer to Appendix E of the EIS). A map showing the location of the sites is attached

and will be added to the revised EIS. The streamflow monitoring data did not indicate any adverse impacts to Haiku Stream. To detect any unforeseen, long-term effects to Haiku Stream, the Board is working with USGS to re-establish a permanent gaging station below the well site.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

Attach.

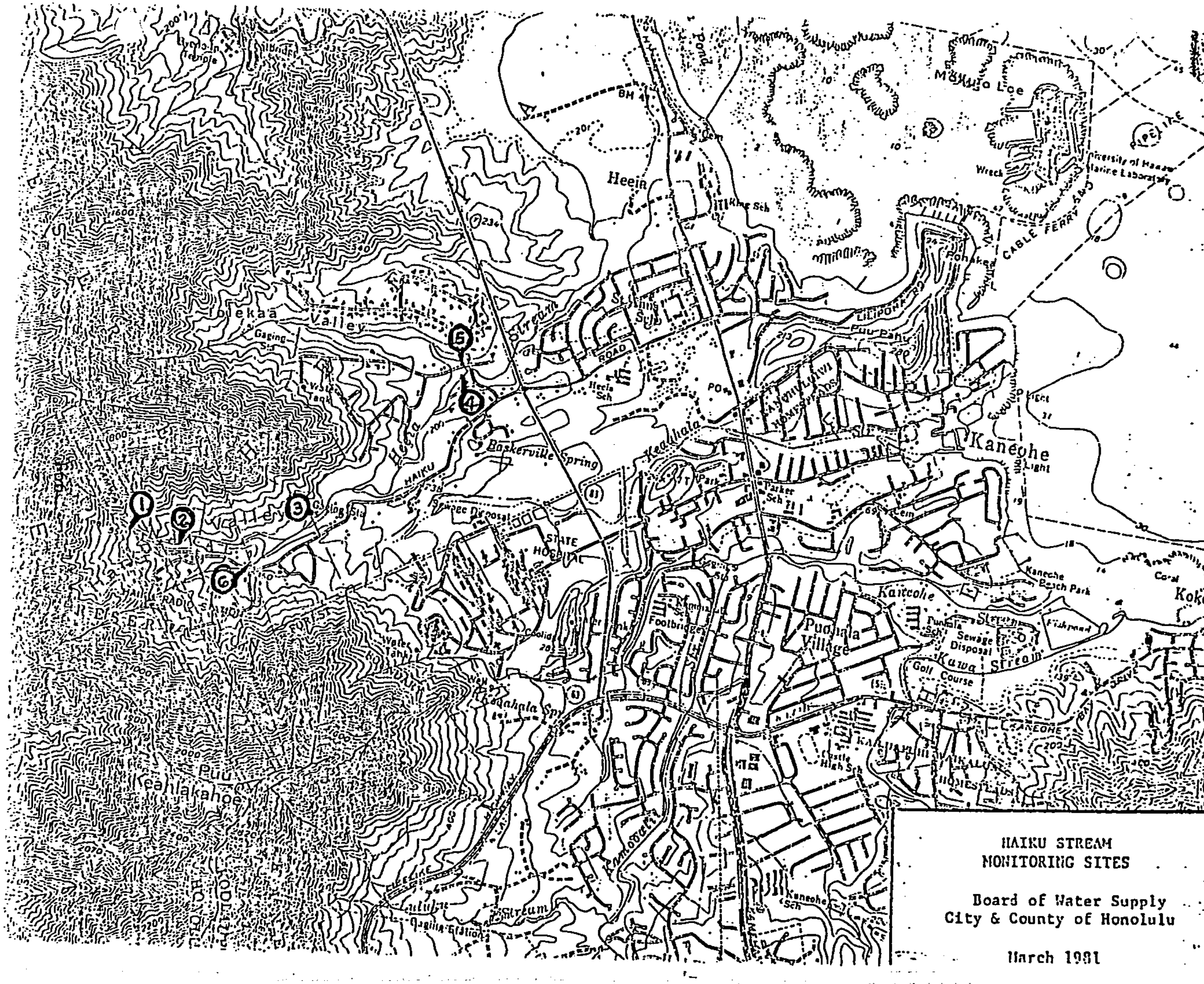
ERA:bw

(M. Shigetani, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

K. Hayashida
C. Lao
L. Whang

P-1310
81-2202



HAIKU STREAM
MONITORING SITES

Board of Water Supply
City & County of Honolulu

March 1991

P-1299/81

August 7, 1981

The Honorable Mayor
Eileen Anderson
City and County of Honolulu
530 South King Street
Honolulu, Hawaii 96813

Re: Comments On Haiku Well EIS

Dear Mayor Anderson:

I am very much concerned about the increase of this project from 0.5 mgd to 1.0 mgd. Last May 1980, I expressed my concern being that we are farmers and depend on the produce that we grow for our sustenance and sale. We do not want to see an increased depletion of our natural water supply.

Last Monday, Mr. Mike Shigetani and Mr. Won from the Board of Water Supply came to investigate the area.

Please give due consideration to this resource issue.

Sincerely,

Josephine Patacsil

cc: Board of Water Supply

J. Patacsil
P. O. Box 478
Kaneohe, Hawaii 96744

August 27, 1981

Mrs. J. Patacsil
P. O. Box 478
Kaneohe, Hawaii 96744

Dear Mrs. Patacsil:

Subject: Your Letter of August 7, 1981 on the Revised Draft Environmental Impact Statement (EIS) for Haiku Well, Koolaupoko, Oahu

Thank you for reviewing the EIS for the proposed Haiku Well project. Your letter will be appended to the revised EIS.

A survey of the site by the Board of Water Supply confirms your reliance on the saturated soil conditions of your property to sustain your crops. However, your farm is situated in a low-lying area of the dike complex where saturation of the ground results primarily from rainfall with a minimal contribution from stream discharge. No adverse impact on your farming operations is therefore anticipated by the Board.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

ERA:bW (M. Shigetani, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

K. Hayashida, C. Lao, L. Whang

81-2197, P-1299

MAYOR'S OFFICE
CITY & COUNTY

The Sierra Club, Hawaii Chapter

Post Office Box 22897, Honolulu, HI 96822
Telephone: (808) 946-8494

81 AUG 7 PM 12:26

August 6, 1981

Nuuanu Pali, by Fisquet, 1837

Mayor Eileen Anderson
City & County of Honolulu
Honolulu, Hawaii 96813

Dear Mayor Anderson,

In regard to the Draft Environmental Impact Statement for the Haiku well expansion at Haiku Valley, the Hawaii Chapter of the Sierra Club wishes to make the following observations:

1. We are concerned with the increase from 0.5 mgd to 1.0 mgd to be drawn from this well. We feel that a State Water Policy should be established with standards for minimum stream flow and a determination of agricultural water needs on the Windward side before further development of water resources. Need tends to swell to meet the ready supply, since water available acts as a generator of growth. Water is our number one resource and should be treated as such with great consideration for future generations. We should avoid developing in this generation every last water resource.

2. Conservation has been addressed as an alternative. We would like to express agreement with this principle. We appreciate that efforts are being made in this direction, but we do not agree that the emphasis has been sufficient. The efforts in public education have not been of the dramatic and persistent nature that will get the public attention. We have noted a great waste of water in public facilities and recreational areas. Much more can be done in the way of conservation.

3. It is alarming that the pumping must go forward before information can be obtained as to the effect on the whole ground water system and on stream flow.

4. We would like to suggest that clearing, grading and paving be kept to a minimum in this area of heavy rainfall. It is important to keep such an area well planted. In the planting and landscaping, we would hope that native vegetation is chosen in an effort to begin to return a disturbed area to a more natural state, particularly since it is conservation land.

cc. Board of Water Supply

Aloha
F69 Lela N. Mench
Legis. Chair

August 26, 1981

Mrs. Lola N. Mench
The Sierra Club, Hawaii Chapter
P. O. Box 22897
Honolulu, Hawaii 96822

Dear Mrs. Mench:

Subject: Your Letter of August 6, 1981 on the Revised Draft Environmental Impact Statement (EIS) for Deep Well Pump and Control Building at Haiku Well, Koolaupoko, Oahu

Thank you for your comments on the revised EIS for the proposed Haiku Well project. The Board of Water Supply (Board) will append your letter to the revised environmental document.

Until minimum streamflow standards are adopted by the State, the Board plans to proceed with its well development projects in the Windward area, including Haiku. The Board has been taking streamflow tests before, during and after each project and has commissioned the U. S. Geological Survey to install permanent stream gages, such as on Haiku Stream, to monitor the long-term effects of the wells. The Board will have the flexibility to reduce pumpage should the wells affect streamflow. Therefore, the Board will be able to comply with any minimum streamflow standards that are adopted by the State.

The water development program of the Board is based upon the population projection of the State Department of Planning and Economic Development and the City's Development Plans. Therefore, the water development program is to ensure the availability of water for future needs.

In conjunction with the Board's water development program, the agency has pursued a vigorous water conservation program. This program, in part, consisted of making presentations at schools, distribution of pamphlets, making appeals to restaurants to serve water only when requested, and working with both the State Highway Division and the City Parks and Recreation Department to substitute alternative sources of water for irrigation. The Board has been able to achieve as much as a 10 percent reduction in water use since 1978 despite the addition of more than 6,000 new consumers.

The Board indicated that the clearing and grading will be kept to the minimum and the station will be landscaped to maintain the natural environment of the area.

If you have any questions, please contact Lawrence Whang of the Board of Water Supply at 548-5221.

Very truly yours,

Eileen R. Anderson

EILEEN R. ANDERSON

ERA:lm (H. Minakami, Board of Water Supply)

cc: Mr. Andrew I. T. Chang
Managing Director

K. Hayashida
L. Whang

81-2154
81-2200