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# Brownfields

## Targeted Site Assessment Program \*

\* USE ONLY FOR SITES WITHIN ARIZONA, CALIFORNIA, HAWAII, NEVADA, OR ON TRIBAL LANDS IN REGION 9

Please attach this application to the front of your typed narrative (no more than 10 pages), and repeat the following information at the top of the first page. For immediate consideration, send this form and all supporting documents to the EPA address at the bottom of this page.

**Applicant Organization:** University of Hawaii at Hilo

**Contact Person and Title:** Sharon Ziegler-Chong, UH Hawaii Sea Grant Extension Service Agent

**Address:** 200 W. Kawili St.  
Hilo, Hawaii 96270

**Phone:** 808-974-7601      **Fax:** 808-974-7693      **E-mail:** ziegler@hawaii.edu

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### INFORMATION YOU SHOULD PROVIDE ON YOUR APPLICATION:

1. Provide a description of the site, including the assessor's parcel number, the address of the site (street address, city, state, zip code), and the current owner's name, business address, and phone number. What is the current zoning and total acreage of the site? Attach appropriate regional and site location maps, and photographs, if available.
2. Provide a chronological history of the site (type of manufacturing, nature of processing facilities, etc.), and describe its anticipated/planned future use (residential, recreational, commercial/retail, industrial, mixed). Include a proposed reuse plan/timetable.
3. If the property is owned by the applicant, how was the property acquired? If the property is not owned by the applicant, does the applicant anticipate problems in obtaining legal permission to enter the property to conduct site assessment activities?
4. List delinquent property taxes owed on the property, if any, as well as the assessed value of the property.
5. Is the applicant or any other party under order from EPA or a state agency to conduct a site assessment and/or cleanup? Also, briefly describe any involvement by a state environmental agency in enforcement and/or oversight of the assessment or cleanup of the candidate site.
6. Describe buildings on the property, including square footage and physical condition of the facilities (e.g., useable, partially razed, fire-damaged, foundation only).
7. Describe financial incentives available to the applicant to spur development (tax incentives, etc.). Also, detail proposed funding sources and dollar amounts for the site cleanup. (*The EPA program is for site assessment work only; no cleanup funds are offered as part of this program.*) How does the applicant plan to finance the redevelopment?
8. Briefly describe public interest and/or community involvement in site reuse planning activities to date.

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Submit your application to: **Jim Hanson, Brownfields Coordinator, Superfund Division**  
**U.S. Environmental Protection Agency, Region 9**  
**75 Hawthorne Street, SFD-1-1**  
**San Francisco, California 94105**  
**Phone: 415-744-2237**

RECEIVED  
DEPARTMENT OF HEALTH

1999 OCT 21 A 11: 08

HEER OFFICE

**Brownfields Targetted Site Assessment Program**  
**University of Hawai'i at Hilo Application**

**1. Description of the site**

**TMK:** 3-2-1-09-1, 3-2-1-09-41, and 3-2-01-011-004  
**Address:** Kalaniani'ole St. , Hilo, HI  
**Current owner:** State of Hawai'i, DLNR  
Contact: Harry Yada, Land Agent  
75 Aupuni St, Room 204  
Hilo, HI 96720  
Phone: 808-974-6203

**Current zoning:** MG-1A - General Industrial  
**Total acreage:** Approximately 10 acres

**See attached maps:**

**Attachment A:** Regional map  
**Attachment B:** Site Location map

**2. Chronological history of the site (type or nature) and anticipated/planned future use.**

This area includes two pieces of State of Hawai'i property. The first (TMKs 3-2-1-09-1 and 3-2-1-09-41) have historically been used for residential and military administration purposes. According to 1921 maps from the Honolulu U.S. Engineer Office of Army Corps of Engineers, this area was a U.S. Engineer Reservation and a U.S. Naval Reservation. Located on this site is a U.S. Lighthouse Reservation Twin Light. As far as we can tell it has been used for mainly administrative uses by the military. (See Attachment C: UHH Background Investigations for Keaukaha Adjacent Parcel 6.4 Acres) It is adjacent to a Texaco Oil tank farm and the Port of Hawai'i . No buildings are located on the premises, although there are some old foundations of former buildings that were demolished in the 1946 Hilo tsunami. Currently, there are numerous squatters in tents on the property. It also has been used for many years as a public recreational area.

The second property (TMK 3-2-01-011-004) is the site of the former Hilo Wastewater Treatment Site. This site was decommissioned in the early 1990's and a Phase I ESA and an environmental assessment have been completed. (See Attachments D: Environmental Site Assessment Phase I, and E: Final Environmental Assessment) These documents provide additional information regarding this site.

The Pacific Aquaculture and Coastal Resources Center is being developed on these two adjacent coastal sites and an inland site (Panaewa) just 6 miles away. Phase 1 of the PACRC development will include the decommissioning and conversion of the wastewater treatment plant into the physical core of the Center, followed by the construction of wells and small demonstration facilities on the adjacent parcel. The demonstration facilities will be an integral part of an extension program geared toward the development of a sustainable aquaculture industry in east Hawaii. Aquaculture activities at this Keaukaha site will include: ornamental fish demonstration and research, a research and training facility for pearl production; a saltwater hatchery and other facilities which could be used to support open-ocean cage culture and stock enhancement projects by UH and other institutions; and a saltwater teaching and research facility in support of UH undergraduate and graduate aquaculture programs. We hope to complete the first phase of this project by the end of

2001. See attached informational brochure which includes diagrams for more details on the proposed Center (Attachment F).

**3. If property owned by applicant, how was it acquired, If not owned, anticipation of problems in obtaining legal permission to enter property to conduct site assessment activities?**

The first lot is unencumbered State Land under management by State of Hawai'i Department of Lands and Natural Resources. It is in the process of being transferred to UH-Hilo via Governor's Executive Order. UHH has applied to the State of Hawai'i for a Right of Entry permit. Conversations 10/15/99 indicated that this will be ready within 2 weeks.

The second site is also unencumbered State Land. The Executive Order has been passed by the Governor and is awaiting final approval by the State legislature. We have a right-of-entry permit for his site and work closely with the County to gain access through the gated entry-way.

**4. Assessed value of property**

This is all state-owned land and therefore not for sale. Its worth is several million dollars if it were available on the real estate market.

**5. Site assessment being required by EPA or state? Will state environmental agency be involved with assessment or cleanup?**

An environmental assessment is required by state and EDA because of the proposed use of state and federal funds in site development. No state environmental agency will be involved with the assessment or cleanup other than to review the EA.

**6. Describe buildings on the property, including square footage, physical condition of facilities**

Currently, there are no functional buildings or structures on the first property (TMKs 3-2-1-09-1 and 3-2-1-09-41)). The site does contain some foundations of old military administration buildings that were demolished in the 1946 Hilo Tsunami. In 1993 a deepwater ocean well was drilled by the University of Hawaii Institute of Geophysics (Bore Hole KP-1, 1056 meter deep, 4" bore) for research purposes (see Attachment G for Environmental Assessment done for purposes of that project). Additionally, the several squatter tents have been erected on the site in the last 10 years.

As described in the attached environmental site assessment and environmental assessment (Attachments D and E), the former wastewater treatment site (3-2-01-011-004) contains several buildings and describes the conditions of these facilities. Some sampling has been done when the former USTs on the site were excavated. See Attachment H for that report.

**7. Describe plan for financing the redevelopment of site, including proposed funding sources and dollar amounts for site cleanup if necessary, and financial incentives available.**

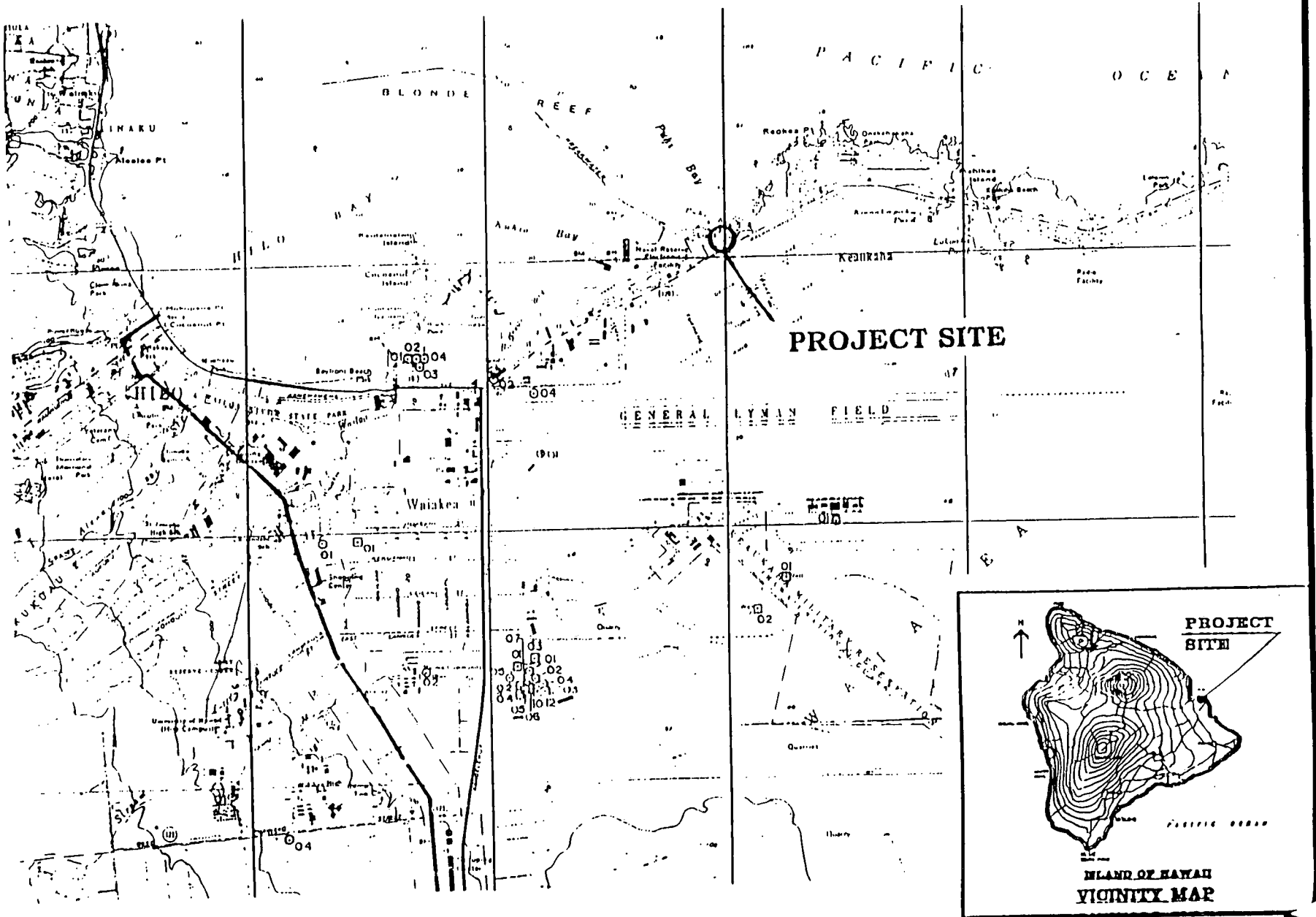
See Attachment F which include a budget and breakdown of funding sources for the redevelopment of the site.

**8. Describe public interest and/or community involvement in site reuse planning activities to date.**

This is a joint project involving the University of Hawai'i at Hilo, the County of Hawai'i, the UH Sea Grant College Program, the State of Hawai'i's Aquaculture Development Program, the Hawai'i Island Economic Development Board, and the local community in the Keaukaha area. The focus of the center will be to serve as a demonstration and training site for East Hawaii as well as communities in the Pacific islands. UHH and Sea Grant has met individually and in groups with representative of the local community and they are very supportive of the creation of this center. Letters supporting the project can be provided if necessary.

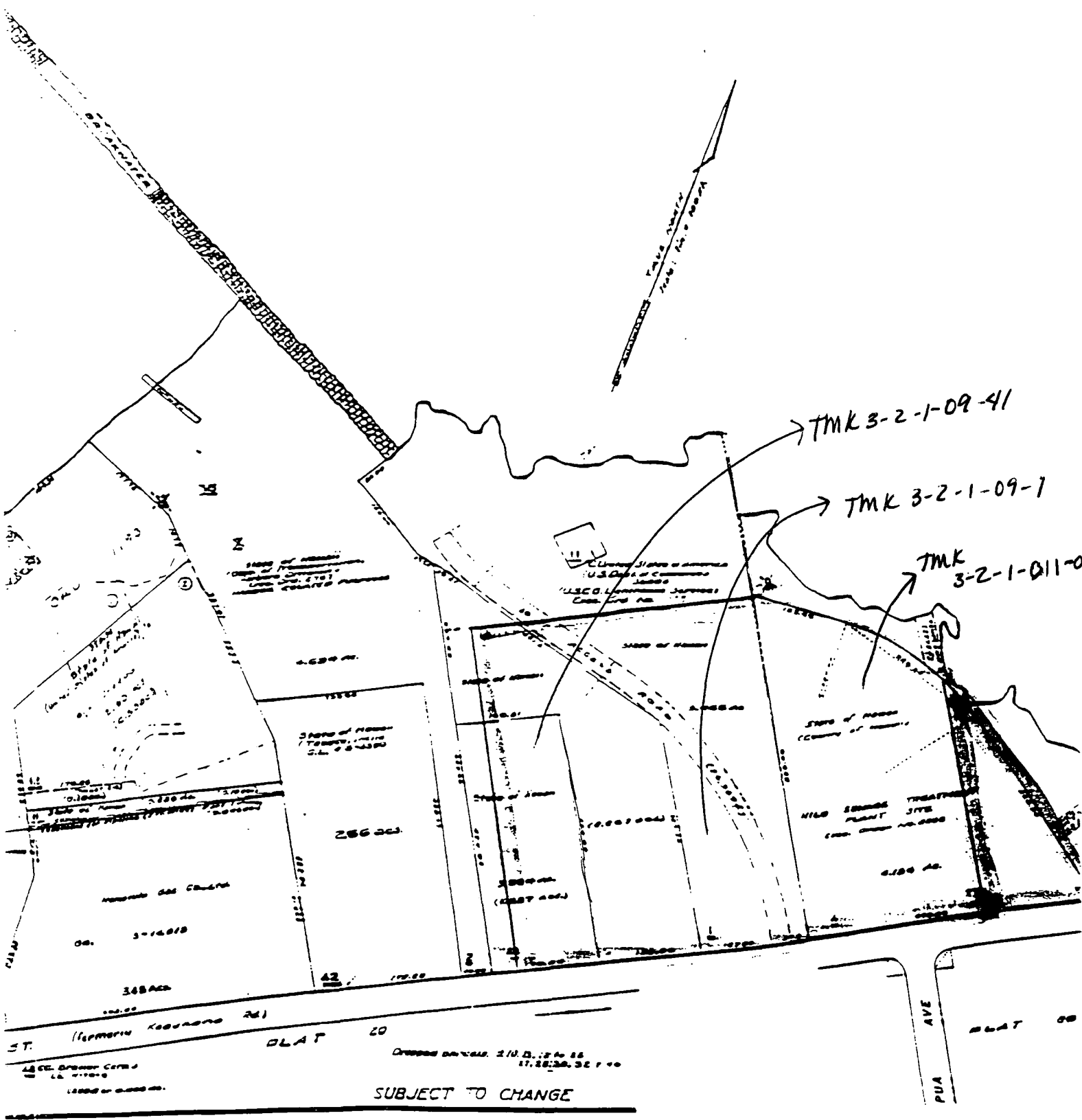
**List of Attachments:**

- A. Regional Map**
- B. Site Location Map**
- C. UHH Background Investigations for Keaukaha Adjacent Parcel 6.4 Acres**
- D. Environmental Site Assessment of Old Hilo Wastewater Treatment Site**
- E. Final Environmental Assessment of Old Hilo Wastewater Treatment Site**
- F. PACRC Informational Brochure**
- G. Environmental Assessment done for well digging on 6.4 acre site**
- H. UST Closure Report**



ATTACHMENT B: SITE LOCATION MAP

PACRC Keaukaha - Tax Map (site highlighted)



→ TMK 3-2-1-09-41

→ TMK 3-2-1-09-1

→ TMK 3-2-1-011-004

DLAT 20

Dropped parcels: 2/10, 2/12 to 15 17, 20, 20, 22 1 to 6

SUBJECT TO CHANGE

PUA AVE  
MAAT RD

AGCC District Clerk  
LA. HARRIS  
10000 or 00000000

**Attachment C: UHH Background Investigations for Keaukaha Adjacent Parcel 6.4 Acres**  
Prepared by Sharon Ziegler-Chong, UH Sea Grant, October 19, 1999

Documented here are UHH investigations on the 6.4 Acre site adjacent to the Old Hilo Wastewater Treatment Site, TMK 3-2-1-09-1 and TMK 3-2-1-09-41. Little information has been found on this site.

October 6, 1999:

1. Ian Bernie, Harbormaster, State of Hawaii, on lands adjacent to property and local historian: Railroad track ran through there - but that was destroyed by the 1946 tsunami. Radio Bay potentially received its name from the communications center operated by the military, but that remains unconfirmed.
2. Steve Todd, State Department of Economic Development and Tourism: had no information, suggested contacting Navy. Said that an environmental study was probably required for the land transfer in 1972 back to the state and that Navy should have a copy of it.
3. Harry Yada, Land Agent for State Department of Land and Natural Resources: no information in their files other than that that already faxed to EDA Seattle on 10/6/99 (newspaper article and paper of transfer). Suggested we talk with Army Corps of Engineers and property management for military.
4. Ray Takamia, Army Corps of Engineers: had no information, referred us to the Navy Engineers office.
5. Ed Taksako, Navy Facilities and Engineering Commission: Said that they do not have files that old, as they are sent to Archives, which probably has destroyed anything that old. We can make a request in writing to his office for the exact property, but his feeling was that they will not find anything due to the military pulling out 27 years ago from that site.
6. Darrin Arai, County Planning Office: Nothing on file and no knowledge of site.
7. Alan Iwasaki, Curator, Lyman Museum, Hilo: Nothing on file except possibly some pictures which don't really show much.
8. Eleanor Ahuna, local historian of Keaukaha who grew up next to site: said that it was a naval communications center with a few buildings which served as offices and a few housing quarters. Said that no military munitions activity occurred, as it was a communications site.
9. Robert Chow, former Chief of Police, Hawai'i County during the 1960s: Knew only of quonset huts and various communication buildings that had been on the site.

October 7, 1999

1. Received attached communication via email from Naval Reserve Force Public Affairs Office. Referred us to Army Corps of Engineers – see above, Line 4.

October 8, 1999

1. Received copy of attached Environmental Assessment conducted in 1992 as part of study needed for the resultant Special Management Area Permit #344 for the County for experimental drilling on the site.
2. Spoke with Steven Dong with the Real Property Management of the Pacific Division of Naval Facilities Engineering Command. He passed the property tax map key and coordinates to the environmental assessment person in his office, Mel Kaku for investigation.

October 13, 1999

Discussions with Mr. Kaku and Dennis Pack indicated that the Navy has no record of them using this site. They said this lack of record is probably due to the length of time that has passed since its return to the state.

Conclusion - it does not appear that any major activities occurred at this 6.4 acre site that would have contaminated the site.



ATTACHMENT  
E

**FINAL  
ENVIRONMENTAL ASSESSMENT**

**Old Hilo Wastewater Treatment Plant  
Conversion  
Kalaniana'ole Avenue and Pua Avenue  
Hilo, Hawaii**

**TMK: 3-2-01-011:004**

**Prepared for**

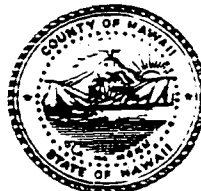
**County of Hawaii  
Department of Public Works  
Division of Wastewater Management**

**by**

**M&E Pacific, Inc.  
Honolulu, Hawaii**

**September, 1998**

Stephen K. Yamashiro  
Mayor



Donna Fay K.  
Chief Eng.

Jiro A. Su  
Deputy Chief

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

August 18, 1998

Mr. Gary Gill, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Room 702  
Honolulu, HI 96813

Subject: Notice of Determination: Finding of No Significant Impact (FONSI)  
Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii  
TMK: 3-2-1-11: parcel 4

The County of Hawaii Department of Public Works (DPW) is the proposing and accepting agency for the above referenced project. The DPW reviewed and responded to comments related to the conversion of the Old Hilo Wastewater Treatment Plant. The 30-day review period began June 23, 1998 and ended July 23, 1998. The Department determined that the implementation of this project will not have any significant environmental effects as defined by HAR 11-200-12. Therefore, the agency is issuing a Finding of No Significant Impact (FONSI). Please publish this notice in the September 8, 1998 issue of *The Environmental Notice*. We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final EA.

**Identification of the Proposing Agency:**

The County of Hawaii, Department of Public Works

**Identification of the Accepting Agency:**

The County of Hawaii, Department of Public Works

**Brief Description of Proposed Action:**

A recently constructed wastewater treatment facility, located near the General Lyman Airport in Hilo replaced the prior facility located at Puhi Bay in Keaukaha. The prior facility known as Old Hilo Wastewater Treatment Plant (WWTP) is now idle and underutilized with the exception of a new and functioning pump station located on site. It is proposed to convert Old Hilo WWTP into an aquacultural center. The conversion will involve the demolition and removal of most of

107.  
Mr. Gary Gill, OEQC  
August 18, 1998  
Page Two

the mechanical and electrical equipment on site along with the retention and renovation of most of the existing structures. As part of the conversion, the parcel will be divided into two sections with the largest portion going to the aquacultural center while the remaining portion will be retained by the County of Hawaii to continue their pumping operations. This Environmental Assessment is principally concerned with the demolition and removal portions of the conversion process.

**Determination:**

Finding of No Significant Impact (FONSI)

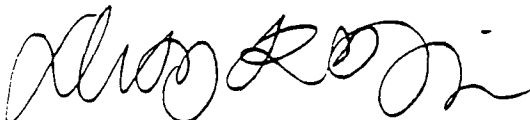
**Reasons Supporting Determination:**

This determination is based on the significance criteria listed in HAR 11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed in Section 10.0 DETERMINATION of the EA.

**Contact Persons for Further Information:**

Proposing Agency: Mr. Peter Boucher, Chief Division of Wastewater  
County of Hawaii, Department of Public Works  
108 Railroad Avenue  
Hilo, Hawaii 96720  
(808) 961-8338

Consultant: Mr. Bruce D. Wade  
M&E Pacific, Inc.  
1001 Bishop Street  
Suite 500, Pauahi Tower  
Honolulu, HI 96813  
(808) 521-3051



PB Donna Fay K. Kiyosaki, P.E.  
Chief Engineer

Enclosures

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

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**APPENDIX**

**Draft EA Public Comments and Responses**

**LIST OF FIGURES**

- Figure 1 Regional Location Map
- Figure 2 Tax Map Key Location Map
- Figure 3 Old Hilo WWTP Site Map
- Figure 4 Center Location & Plan Map
- Figure 5 Flood Insurance Rate Map

## 1.0 APPLICANT

The applicant for the proposed modifications to the Old Hilo Wastewater Treatment Plant (WWTP) is the County of Hawaii, Department of Public Works. The abandoned sewage treatment plant site is owned by the State of Hawaii. According to §343-5 of the Hawaii Revised Statutes (HRS), the preparation of an environmental assessment (EA) is required due to the use of state lands and county funds [§343-5(1)]

## 2.0 APPROVING AGENCY

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

## 3.0 CONSULTATION LIST

The following parties have been either contacted or their guidelines consulted for the preparation of this environmental assessment:

### Federal Government:

US Army Corps of Engineers

### State of Hawaii:

Department of Lands and Natural Resources  
Historic Preservation Division  
Forestry and Wildlife Division  
Aquaculture Development Program  
Land Division  
University of Hawaii at Hilo  
College of Agriculture  
Sea Grant College Program

### County of Hawaii:

Department of Public Works

### Community:

Keaukaha Hawaiian Homelands Community Association

## 4.0 PROJECT OBJECTIVE AND NEED

The County of Hawaii, Department of Public Works constructed a new wastewater treatment facility for Hilo, located approximately one mile east of the Hilo airport. The new facility replaces the prior facility located at Puhi Bay in Keaukaha (Figures 1 and 2). The prior facility, the Old Hilo WWTP, is proposed for conversion into an aquaculture center, Pacific Aquaculture and Coastal Resources Center (PACRC). This conversion will involve the demolition and removal of most of the old mechanical and electrical equipment on site, and the retention and renovation of most of the existing structures. This EA is principally concerned with the demolition and removal components of the total effort required.

The conversion of the Old Hilo WWTP and the development of PACRC are proposed by the University of Hawaii at Hilo (UHH) and the University of Hawaii Sea Grant College Program (UHSGCP) in cooperation with the County of Hawaii (COH), the Aquaculture Development Program of the Department of Lands and Natural Resources (DLNR), the Department of Public Works and the local Hawaiian community. The primary goal of PACRC is to provide a focus for the sustainable development of entire Keaukaha coastline. The Keaukaha coastal area is located on the eastern side of island of Hawaii, stretching about eight (8) miles from Hilo Bay to Kings Landing. Since the closure of the last sugar plantation in 1996, economic activity in this area has been severely depressed with high unemployment rate. Although the area is rich of natural, human, cultural and educational resources, and various infrastructure, many of these resources are currently under utilized. One opportunity for the community to revitalize itself is provided by the decommissioning the Old Hilo WWTP and the development of PACRC. Joined with the abundant resources available in Keaukaha and its adjacent areas, PACRC will benefit the local communities. Furthermore, the technologies developed and tested at the PACRC can be applied to enhance the vitality of other coastal areas and communities.

The development of PACRC will be accomplished through several phases with an approximate duration of seven (7) years. The conversion with basic renovation of the Old Hilo WWTP is the Phase 1. Most buildings and facilities at site will be converted with basic renovation into classrooms, laboratories, offices, hatchery facilities and aquaculture tanks. The subject property will become the physical core of the PACRC, and serve as a teaching, research and demonstration facility for aquaculture and marine science programs of the University of Hawaii at Hilo (UHH) and the University of Hawaii Sea Grant extension program. In the remaining phases, the Center is expected to be expanded onto adjacent vacant land, and the Center's facilities and activities increased as funds become available.

## 5.0 GENERAL DESCRIPTION OF THE PROPOSED ACTION

### 5.1 Technical Characteristics

Details of the existing site layout are shown in Figure 3. The County of Hawaii will retain the land on which the new Pua Street pumping station is located, while the abandoned treatment plant site to the west of the pumping station will be relinquished for transfer to the University of

Hawaii. A small parcel on the east side of the property was offered to the Department of Hawaiian Home Lands (DHHL) for expansion of the beach park. The DHHL respectfully declined the offer due to concerns over parcel size and maintenance. (Refer to DHHL letter in the Appendix.) The portion of land offered to the DHHL is shown in Figure 3 as the stippled area on the east side of the subject property.

The County will also retain existing easements and establish new easements for their sewer lines, drainage and access to the pumping station, as shown on Figure 4. This figure also shows the planned layout of the PACRC facilities on the abandoned treatment plant site.

The proposed project will focus on equipment demolition and removal in preparation for converting the decommissioned wastewater treatment plant into a teaching and research facility for aquaculture and marine science. Buildings and treatment facilities at the site will be stripped of the old plant equipment and renovated for the Center's use. Unwanted structures will be demolished and removed, as described below. Future connections are planned to a HIG deep-seawater well on the adjacent land parcel to the west to provide cold seawater. Two wells with their pumping facilities are also planned to be installed on site to provide cool seawater and freshwater for the Center. The tentative locations of the two wells are shown in Figure 4.

Conversion of this facility will not impact existing public viewplanes or shoreline access. The site is landscaped presently from the street to disguise the nature of the existing facility (that of a wastewater treatment plant). No new structures are intended for the site. In addition, public access to the site will not be hindered by the proposed conversion. The existing treatment plant sits back from the shoreline above the highwater mark. Shoreline access from the beach parcel located directly to the east will remain unchanged.

The structures proposed for removal or conversion as part of this project are:

#### *Administration Building*

The administration building will be kept and renovated. This building consists of a water quality laboratory, a rest room, a chemical storage room, an administration office, and a pump control panel room. The building is in a moderately good condition. Small quantities of lab chemicals were left in the storage room. Asbestos containing materials may exist in the floor tiles of the control-panel room.

Due to its generic nature, basic renovation will be needed for this building, including the removal of asbestos containing materials, chemicals and electrical control equipment, refurbishment of the administration office, the laboratory and the control-panel room for the Center's use. The restroom and storage room inside the building may accommodate the Center users in its present form, or with moderate modifications to satisfy the Center's requirements.



### *Screen, grit and distribution chambers, and aerated channel*

The concrete screen, grit, and distribution chambers and the aerated channel were for wastewater preliminary treatment and conveyance to the succeeding treatment facilities (Figure 3). The screen, grit channel and other machinery will be removed. All chambers and the channel will be demolished to a depth of at least 3 feet below ground level. It is planned to construct a greenhouse at this location, with aquaculture demonstration tanks proposed to be put both inside and outside the greenhouse.

### *Clarifiers*

Two clarifiers on-site remain as the most visually identifiable structures of the sewage treatment function. These substantial structures are 80 feet in diameter, and constructed of 12-inch thick concrete with footings and piers up to 24-inch thickness. Although they are more than 10 feet deep, only one-third of the tank bodies are above the ground. Each clarifier has approximate 375,000 gallons of storage capacity. The sludge scrapers inside and the catwalks on the top are corroded and close to collapse.

The two clarifiers are proposed to be converted into two large outdoor aquaculture tanks, one for seawater organisms and the other for freshwater organisms. The scrapers, the catwalks and the clarifier center well will be dismantled and removed, and the tanks cleaned. Some of the inlet and outlet features may be modified in anticipation of the requirements of their new use.

### *Digestion Tanks*

The anaerobic digestion tanks are two 60-foot-diameter concrete cylinder tanks located makai of the primary clarifiers. Approximately two-thirds of the tank structures, which are about 29 feet deep, are above ground. Both tanks have sludge, supernatant and gas piping systems, and floating covers. Each tank was able to contain approximately 300,000 gallons of sludge and supernatant. Significant amounts of sludge still remain inside the digesters. Following sludge removal and tank emptying, demolition will include dismantling and removal of the covers, piping systems, and tank internals. The empty tanks will be thoroughly cleaned in preparation for their modification. Sludge disposal will follow DOH approved practices.

### *Chlorination Building and Chlorine Contact Tank*

The chlorination building is located immediately makai of the administration building. It is primarily an open concrete structure with a chlorinator room attached, and a concrete crane-rail supporting frame crossing the driveway. The enclosed areas of the structure can be adapted to provide storage space and the covered area is to be converted into an outdoor classroom after the walls and roof are refurbished. The machinery inside will be removed except for most of the existing 2-ton rail crane which may be retained for the Center's use. A portion of the rail extending past the building along with its support column will be dismantled and removed as they are on the land to be retained for Pua Street Pump Station (Figure 3).

The open chlorine contact tank outside the chlorination building is a channelized concrete box 50-foot long and 40-foot wide with two concrete sluices inside. The structure is below the ground, and has a capacity of approximately 60,000 gallons. A broken flume is left in the tank and vegetation has grown at the bottom of the tank. The tank is proposed for use as a fish waste treatment unit. The sluices and the flume will be dismantled and removed, and the vegetation cleaned out in preparation for refurbishing the tank for its new function.

#### *Sludge Pump, Sludge Control and Sludge Centrifuge Buildings*

The sludge pump building is located next to the primary clarifiers, and the sludge control building is located next to the digestion tanks. Both buildings are of similar structure, a ground-level platform, and a lower-level pump room with concrete walls and jalousie windows. Four (4) abandoned sludge pumps, motors, piping and a hand crane system are located in the pump room of the sludge pump building. A sludge heater, two (2) heat exchangers, pumps and various piping and a crane system are in the sludge control building. The sludge centrifuge building makai of the chlorine contact tank is a larger structure compared to the sludge pump and control buildings. It has concrete walls with sheet metal roof and sidings. The building is filled with abandoned motors, pipes, and sludge dewatering equipment.

All machines, equipment and pipelines inside the buildings will be dismantled and removed in preparation for the buildings being refurbished, including repair of the damaged walls of the sludge centrifuge building. The sludge pump building and sludge control building are planned to be refurbished as machinery rooms, and also for storage and shop use. A wet lab, approximately twenty feet by eighty-four feet (20' x 84'), is planned to be installed between the sludge pump building and the sludge control building. Another greenhouse for use as a shrimp hatchery approximately thirty-two feet by eighty-four feet (32' x 84'), is planned to be added the makai side of the sludge control building. A fish hatchery will be installed in the sludge centrifuge building.

#### *Pump Station Building and Its Associated Structures*

The abandoned pump station next to the Pua Street Pump Station is a three-floor concrete structure, with two of the three levels below ground. The existing facilities inside include electrical panels, overhead cranes, ventilation fans, three (3) sewer pumps and seven (7) large valves. A wetwell with four (4) hatch covers is outside the building. Other miscellaneous underground structures near the pump station include two (2) emergency pumpout pits, and sewer manholes. The pumping station is on the land which will be retained for the Pua Street Pump station (Figure 4), and will be demolished along with the associated structures. An entry road with a double wide chain-link gate will provide dedicated access from Kalaniana'ole Avenue to the Pua Avenue Pump Station. Another double wide chain-link gate will provide alternate access from the parking lot in front of the Administration building to the Pua Avenue Pump Station. (Figure 4)

### *Underground Storage Tank*

An abandoned underground storage tank (UST) is located near the entrance to the Sludge Control Building, at the mauka corner of the structure. This UST will be sampled to determine contents, emptied, cleaned and removed per DOH guidelines and requirements. If any of the tank contains have leaked into the ground, appropriate spill response actions will be taken.

## **5.2 Economic Characteristics**

The funds initially designated by COH for demolition and landscaping of the subject property will be used primarily for the demolition and removal of the unwanted components and structures, and the cleaning and coating of facilities to be retained for the proposed conversion. Funding in excess of this amount will be provided by the University of Hawaii.

The preliminary project cost for the demolition and conversion is estimated to be in the range of \$700,000 to \$1,500,000, much of which will be spent on local labor and for contracts with local contractors and suppliers.

## **5.3 Social Characteristics**

Aside from Pua Street Pump Station at the site, the community will gain an aquaculture center in the place of the abandoned sewage treatment plant. Benefits resulting from the conversion of the wastewater treatment plant include:

### *Benefits to the Keaukaha Hawaiian Community*

- The community members will be trained in various aspects of aquaculture. The Center will be a resource of information and guidance for the development of small and medium scale aquaculture farms. This can improve both nutrition and income within the community.
- The Center will support the development of the local aquaculture industry by providing juvenile fish for sale at nominal cost to local fish farmers until such time that the local aquaculture industry is developed sufficiently to produce their own juvenile fish. Emphasis will be on local species, particularly those requiring large tanks. Examples include moi, mullet, mahimahi, milkfish, pearl oysters and possibly big-eye tuna. Later, small scale demonstration facilities will be constructed at the Center. The Center is not intended to be a production facility. Only the minimum number of fish needed for training and research will be kept on-site.
- Information related to sustainable development of coastal resources will be available to the local community.
- Jobs will be created in the local community through construction, renovation and operation of the Center, plus any aquaculture farms which start up as the result of the Center's activities.

*Benefits to the University of Hawaii*

- Teaching facilities for the UHH undergraduate programs in aquaculture and marine science will be substantially expanded.
- Research Facilities of the UHH for aquaculture and marine science will be improved. The Center will enable the UHH to conduct laboratory studies on locally-important saltwater fishes and shellfish.
- It will become possible for the University personnel to conduct cold-water aquaculture research in cooperation with researchers at National Environmental Laboratory Hawaii Associates.
- Office facilities for the Sea Grant Pacific Program, which has activities throughout the US-affiliated Pacific islands, will be consolidated and enhanced.

*Benefits to the Surrounding Community*

- Services provided by the Center to the Keaukaha Hawaiian community will also be available to other communities throughout the State.
- The Center's technical services will be available to state and federal agencies involved in fisheries management.
- Five to ten permanent jobs will be created at the Center. Contract research will also result in at least two to four temporary jobs at the Center.
- The local economy will benefit from the creation of temporary jobs for the Center renovation and development.

*Benefits to other Coastal Areas*

- Via training programs, internships and conferences, Sea Grant's Pacific Program will link the cooperative coastal development activities, including aquaculture in the US-affiliated Pacific area, to the Center.
- The Center will conduct aquaculture feasibility studies on potential culture species cooperation with Center for Tropical and Subtropical Aquaculture, the Hawaii Aquaculture Association, the Pacific Aquaculture Association, and other Pacific aquaculture efforts.
- Pacific island students attending UHH will be able to utilize the Center for studies and learning activities focused on sustainable coastal development that will be transferable to their home island situations.

**5.4 Environmental Characteristics**

Conversion of the old wastewater treatment plant to an aquaculture center will positively impact the environment. Most of buildings and facilities on the subject property are in a state of disrepair. Abandoned equipment are rusted and broken, some of them on the verge of collapse. The old plant is, in short, an eyesore with no useful purpose. To convert the treatment plant to the Center, the abandoned equipment will be removed from the site, most buildings and treatment facilities will be renovated and the old pump station building superstructure will be demolished. The ne

PACRC after renovation and development will provide a more attractive view of the Puhi Bay area at that location. In addition, knowledge and technologies provided by the Center will enhance the local community's abilities of rationally utilizing and managing the coastal resources and benefit the coastal and marine environment.

## 6.0 SUMMARY OF THE AFFECTED ENVIRONMENT

### 6.1 Location and Access

Figure 1 shows the regional location of the Old Hilo Wastewater Treatment facility. It is located at 1079 Kalaniana'ole Avenue on Puhi Bay in the Keaukaha section of Hilo on the island of Hawaii. The site is identified on Figure 2 as the 4.194 acre parcel Tax Map Key 3rd division 2-1-11:4. The site is makai of Kalaniana'ole Avenue and can be accessed through a gate facing Kalaniana'ole Avenue.

### 6.2 Topography and Climate

The city of Hilo lies at the base of the lower southeastern slopes of Mauna Loa at elevations ranging from sea level at Hilo bay to 600 feet above mean sea level (MSL) along the urban fringe. The wastewater facility lies along the shoreline of Hilo Bay. Land slopes in this area are nearly flat.

Orographic rainfall predominates in Hilo as wind currents force moisture-laden clouds to condense as they move upward along the mountain slopes. Rainfall averages approximately 130 inches per year along the shore. Average temperatures range between 65 and 80 degrees, and persistent tradewinds average seven miles per hour with diurnal shifts in wind direction.

### 6.3 Infrastructure

Electrical power, telephone communication utilities, sewer and water lines are tied into the subject property.

### 6.4 Land Use Zoning

The project site is classified as Urban, and zoned as Open area. It is a government exempt parcel owned by State of Hawaii, and made available for use by the County of Hawaii by Executive Order. The facilities on the project site are currently out of service, except the new Pua Street Pump Station and associated sewers and outfall pipelines that are located on the site and which will be retained by the County (Figures 3 and 4).

The entire project site is located within the County of Hawaii's Special Management Area (SMA). Any construction within the SMA will require an application and review of an SMA permit prior

to any improvements to the property. Demolition of structures and renovation of the other structures is exempt from the SMA permitting process. The erection of a chain link fence between the two subdivided portions and construction of an dedicated access road to the new Puz Pump Station will cost than \$125,000, therefore, only an SMA minor use permit will be necessary for this project.

The entire Big Island of Hawaii is within the Coastal Zone Management (CZM) Area. Conversion of this property from a sewage treatment plant into an aquacultural research and training facility is consistent with the Department of Business, Economic Development and Tourism Office of Planning's CZM policies. Specific areas of the policy met include: economic uses, public participation and marine resources. Coastal development will permit economic development of new industries such as fish farms, while permitting public participation by disseminating information on coastal management issues and developing skills for an aquaculture industry. The research and training facility will assist in the stewardship and development of marine resources.

Kalaniana'ole Avenue borders the project site to the southeast. The remainder of the property is surrounded by the state owned undeveloped Hawaiian homelands to the southwest, Puhi Bay and beach park to the north and Keaukaha Beach Park to the northeast. The nearest residential area are located across Kalaniana'ole Avenue. The nearest business facility is Texaco Bulk Plant which is next to the west side of the state owned undeveloped Hawaiian homelands.

## 6.5 Soil

The soil at the project site is classified as a Keaukaha series, extremely rocky muck (USDA 1973). It is a well drained, thin organic soil that overlies pahoehoe lava bedrock. This soil generally follows the topography of the underlying pahoehoe lava. The topsoil is a layer of dark brown mulch that is highly permeable and strongly acidic. Due to high permeability, runoff from the soil is medium and the erosion hazard is slight. Average annual soil temperature ranges from seventy two (72) °F to seventy four (74) °F.

## 6.6 Water Bodies

Groundwater beneath the project site is identified as the Hilo aquifer system within the Northeast Mauna Loa aquifer sector (Mink, 1993). The aquifer system is a voluminous basal lens that extends at least four miles inland from the shoreline. The aquifer is noted for having an enormous groundwater flux. The flux from fresh water springs has been measured at 150 mgd. The hydraulic gradient has been measured at 5 feet per mile, or 1 per mil.

The Hilo aquifer system is classified as an irreplaceable source of fresh drinking water. The aquifer system is currently used as a drinking water source, and the vulnerability to contamination is high (Mink, 1993). The groundwater flow direction in the area is towards the ocean. The fresh groundwater discharge along the coast is many times larger than surface flow.

The subject property lies on the shoreline of Puhi Bay. The area has vast ocean water resources. The average temperature of surface seawater 75 °F. The seawater at a hundred feet below the ground is 68 °F, and at 3400 feet deep is about 40 °F.

**6.7 Natural Hazards**

The Old Hilo WWTP facility is susceptible to various types of hazards including coastal flooding, tsunami inundation, volcanic activity and earthquakes.

The site lies in a special flood hazard area inundated by floods from 100 year storm events. The site is designated by FEMA to be Zone "VE" (Figure 5). This means that the property is subject to coastal flooding combined with wave action. Base flood elevations range from 18 to 20 feet on the property.

Hilo, with its exposure to a crescent shaped bay and orientation towards the Pacific seismic belt is very susceptible to tsunamis. Forty-three destructive tsunamis have reached Hilo since 1819. Frequency analysis by the US Army Corps of Engineers led to development of a frequency analysis curve and tsunami inundation zones. Figure 5 reveals that while inundation of 25 feet at the shoreline may only happen once or twice every hundred years, waves of two feet may occur 20 times in a hundred year time span. The abandoned treatment facility lies on the shoreline within the inundation zone.

The most common volcanic hazard in Hawaii comes from lava flows. Generally, there is very little direct risk to human life, but risk to property can be great. The greatest danger from volcanic activity for the Hilo area is from the northeast rift zone of Mauna Loa. Since 1880, most lava flows from Mauna Loa stopped prior to reaching the urban areas of Hilo. However, the danger of future lava flows reaching and destroying any part of Hilo is present at all times.

The entire island of Hawaii lies in seismic zone 3. The risk of damage from earthquakes is considerable for all areas of the island. Earthquakes may be expected in the Hilo area in the future.

**6.8 Archaeological and Historic Sites**

The existing wastewater facilities are not significant historic structures. Due to the development of the subject parcel, it is unlikely that any significant historic sites would be present on the parcel.

**6.9 Flora and Fauna**

The 1980 "Wastewater Facilities Plan, Hilo District" issued by the Department of Public Works listed all the birds and mammals found in the Hilo area. This report noted that endangered species of birds are found in either forested uplands or near ponds such as the Waiakea, Kionakapuha or Lokoaka. These endangered birds included Dark-Rumped Petrel (*Pterodroma phaeopygia*

*sandwichensis*), Hawaiian Hawk (*Buteo solitarius*), Hawaiian Gallinule (*Gallinula chloropus sandwichensis*) or the Hawaiian Coot (*Fulica americana alai*). The only endangered mammal is the Hawaiian Bat (*Lasiurus cinereus semotus*) is generally found throughout the Hilo area. Based on this report and a visual observation, no endangered animal species are expected to be found at the site.

## 7.0 MAJOR IMPACTS AND MITIGATION MEASURES

### 7.1 Short-term Renovation Related Impacts

All proposed demolition and renovation activities will be conducted within the project proper boundaries. Most of the abandoned machines and equipment will be removed from the property. There are no major earth moving operations associated with this project.

The dust, noise and traffic are expected to be the main conversion related impacts, since conversion activities will be in the vicinity of residents. However, these nuisances are temporary and abatement measures will be undertaken during renovation. Dewatering is not anticipated for renovation.

Routine operations at the Center are not expected to materially effect the existing level of traffic and noise in the area. The Center's operations will take place 24 hours per day, just as was the case for the Old Hilo WWTP and the new Pua Street Pumping Station.

A Phase I environmental site assessment (ASTM practice E1527) of the subject property has been performed which determined that no hazardous substance contamination exists that may affect the demolition, renovation and conversion. Possible underground contamination from the abandoned UST will be investigated, as a part of the UST removal activity. If the UST has leaked, the appropriate spill response activities will be undertaken, per DOH guidelines and requirements.

### 7.2 Freshwater and Seawater Management

The Center will approximately need total of 1.5 mgd freshwater and seawater pumped from the wells installed at site and the deep seawater well of the adjacent Institute of Geology. It will also discharge approximately 1.5 mgd of used freshwater and seawater effluent from its aquaculture and marine science facilities. The discharges will contain mainly organic waste products and high salinity.

Despite the organic discharges, the proposed facility will not be a concentrated aquatic animal production facility as defined by 40 CFR 122(C). Fish production will be less than 100,000 pounds per year thereby exempting the proposed facility from NPDES discharge requirements. In an attempt to encourage fish farmers to utilize modern water treatment technologies, the Center proposes to use both sedimentation and microscreen filtration (approximately 50 to 100 microns) to reduce solids discharge by 80%. The former chlorine contact tank will be major component



the fish waste treatment unit processing holding tank effluents containing fish fecal matter and excess feed.

The groundwater beneath the project site is the Hilo aquifer system which has an enormous groundwater flow. The site is in the shoreline of Puhi Bay, and is rich with seawater resources. The intakes of 1.5 mgd groundwater and seawater will not have substantial impact on either the groundwater or the seawater resources.

The Center is proposed to have less than 23,000 pounds of fish on site at any one time. Rotary microscreens are proposed for removing solid fish wastes from the used freshwater and seawater discharged from the Center. It is estimated that the Center will produce a total wastewater volume of 1.5 mgd. On-site treatment will be provided by the Center. All applicable permitting requirements and procedures will be followed for this wastewater discharge. Fish production will be less than 100,000 pounds per year thereby exempting the proposed facility from NPDES discharge requirements.

### 7.3 Economic

Approximately five million dollars (\$5,000,000) will be brought into the local economy through the renovation and development of the PACRC. This is a one-time infusion of funds. The recurring PACRC operations and maintenance, including research and training, will bring six hundred and fifty thousand dollars (\$650,000) per year into the economy.

## 8.0 ALTERNATIVES TO THE PROPOSED ACTION

### 8.1 No Action

The project property is no longer in service, except Pua Street Pump Station at the site. If no action is taken, the buildings and facilities will continue to decompose and rust away. The land where the plant is located will be left idle.

As expressed in the Environmental Impact Statement for the new Hilo Wastewater Treatment Plant, the structures in the old treatment plant were to be demolished and the site to be converted into a community park.

### 8.2 Alternate Sites and Actions

The proposed Center is an alternative to the initial plan of demolishing certain structures at the project property. Selection of an alternative site will have negative economic consequences. There are no extra funds budgeted for building such a Center. The funds originally designated for demolition of the plant are an important financial source for building the Center at the project property.

Aside from the original plan of demolishing the treatment plant and converting to a park, there were a number of other options of improving the site. These options include:

- Demolition of all structures except the administration building with operation and maintenance by the Department of Parks and Recreation;
- Demolishing all structures except the administration building, which would be turned over to the Department of Hawaiian Home Lands;
- Offer remaining portion of site not used for wastewater management purposes to the Department of Hawaiian Home Lands.

The proposed plan of developing an aquaculture center at the project site is deemed as the best option based on the following factors:

- The funds originally designated for demolition will be used as well to prepare the site for conversion and renovation to the Center. In addition, funding from other sources such as UHH is also available for the Center development.
- The Center will be used by UHH. The operation, maintenance and related funds will be provided by UHH.
- Joined with the resources available at the area, the Center will benefit the local Hawaiian community, the University of Hawaii, the surrounding community and other coastal areas.

## 9.0 LIST OF PERMITS

This planning effort recognizes the eventual need of project proposals to obtain proper permits before construction. These will include:

### State of Hawaii:

- Well Construction Permit (Commission on Water Resource Management)
- Pump Installation Permit (Commission on Water Resource Management)
- Water Use Permit (Commission on Water Resource Management)
- NPDES Permit to Discharge into Ocean (DOH Clean Water Branch, if necessary)
- NPDES Permit Construction Dewatering Permit (DOH Clean Water Branch, if necessary)

### County of Hawaii:

- Building Permit (Department of Public Works, Building Division)
- Demolition Permit (Department of Public Works, Building Division)
- Sewer Discharge Permit (Department of Public Works, Wastewater Management Division, if necessary)
- SMA Minor Use Permit (County of Hawaii Planning Department)

## 10.0 DETERMINATION

In accordance with Chapter 343, Hawaii Revised Statutes, this Environmental Assessment has characterized the technical and environmental nature of the project, identified potential impacts, and evaluated the potential significance of these impacts.

It is anticipated that the proposed project will not significantly impact the environment. Therefore, a Negative Declaration is anticipated, and an Environmental Impact Statement will not be required for this project. This determination is based on the significance criteria listed in §11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed below:

1. The site is already developed to serve its previous function of wastewater treatment and now sits idle due to the decommissioning of the plant. The conversion of the site to an aquaculture research and educational facility will expand natural and cultural resources by enhancing the University of Hawaii - Hilo's marine science program and providing employment opportunities.
2. Rather than curtail the range of beneficial uses, the conversion will expand the use of the site to provide educational and employment opportunities. No additional structures will be erected on the site and in fact several will be demolished.
3. The proposed conversion is consistent with the Environmental Policies established in Chapter 344, HRS.
4. The project actually increases the economic and social welfare of the community by providing economic and educational facilities for the sustainable development of coastal resources in historic and traditional areas such as aquaculture.
5. As an educational and research facility, public health will not be adversely affected. The small quantity of discharges will be exempt from NPDES requirements.
6. Conversion of the wastewater treatment plant will not create substantial secondary impacts such as population growth. Five to ten permanent jobs are expected to be created along with two to four temporary positions. These new employment opportunities along with the creation of new industries such as fish farming and indirect service related industries will generate new sources of revenue.
7. There will not be a substantial degradation of the environmental quality. There will be no air or noise pollution and liquid discharges from the plant are not large enough to fall under NPDES requirements.
8. The discharges from the proposed facility will not have considerable cumulative environmental effects and will be much less than surrounding non-point sources such as urban runoff.

9. The site is already developed and will not be modified. Therefore destruction habitats is not a relevant concern. For the same reason, no significant adverse effects to flora or fauna are expected.
10. The proposed conversion mainly will consist of holding tanks for fish and water. These will not affect air quality or noise levels. Any pumping equipment used for these purposes will be either low noise or submersible. The waste treatment unit will settle and filter organic solids. These solids will be removed for compost on regular basis and will not accumulate on site and be allowed to degrade air quality.
11. The project is located in flood areas subject to wave action and tsunamis. It is subject to threats by volcanic activity and earthquakes. However, the proposed project converts existing facilities already on site. The entire island of Hawaii lies in seismic zone 3 and is subject to the same threat of earthquakes. Hilo itself is subject to lava flows from rift zones on Mauna Loa.
12. The proposed project will have minimal impact on public viewplanes. The site is already landscaped on the street side to disguise the previous nature of the site (that of a wastewater treatment plant).
13. When compared to the site's prior use as a sewage treatment plant, establishment of an education and research facility will consume much less energy due to the fact that fewer and smaller pieces of equipment will be utilized.

## 12.0 REFERENCES

Documents reviewed during preparation of this Environmental Assessment:

Department of Public Works, 1980. *Wastewater Facilities Plan, Hilo District.*

Federal Emergency Management Agency, 1988, *Flood Insurance Rate Map, Hawaii County, Hawaii*, Community-Panel Number 885 of 1900.

Federal Register. July 1, 1988. *Secondary Treatment Regulation.* 40 CFR Part 133.

Foote, D.E., Hill, E.L., Nakamura, S., Stephens, F., 1973, *Soil Survey of island of Hawaii, State of Hawaii*: US Dept. of Agriculture, Soil Conservation Service.

Mink, J.F., Lau, L.S., 1993, *Aquifer Identification and Classification for the Island of Hawai'i: Groundwater Protection Strategy for Hawai'i.*

**APPENDIX**

**Draft EA Public Comments and Responses**



# SIERRA CLUB, HAWAII CHAPTER

P.O. Box 2577,  
Honolulu, Hawaii 96803  
(808) 538-6616

July 6, 1998

Peter Boucher  
Department of Public Works, Wastewater Division  
108 Railroad Avenue  
Hilo, HI 96720

Dear Mr. Boucher,

We have reviewed the draft Environmental Assessment to convert the old Hilo Wastewater Treatment Plant into an aquacultural center. At first glance, it appears to be a creative use of an existing idled facility.

The Sierra Club, Hawaii Chapter, requests that the Environmental Assessment for the Old Hilo Wastewater Treatment Plant address the following issues

1) Aquaculture facilities tend to discharge nutrient rich effluent into coastal waters. What impact will such discharges have on nearby swimming areas and fisheries? This issue must be addressed in the environmental assessment rather than waiting for the facility to be built and then considering the issue when applying for an NPDES permit from DOH.

2) Will public access along the shoreline be provided to extend lateral access for people who want to fish or walk along the coastline?

3) Will views be opened up from the road to the ocean?

All three issues will need to be addressed in processing the ~~special management area permit and shoreline setback variance~~ that this facility will need. The DEA neglects to address any of the issues it is required to under HRS chapter 205A.

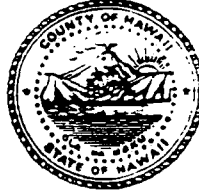
Sincerely,

David Kimo Frankel  
Director

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Stephen K. Yamashiro  
Mayor



Donna Fay K. K  
Chief Engineer

Jiro A. Sum  
Deputy Chief Engineer

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

August 18, 1998

Mr. David Kimo Frankel, Director  
Sierra Club, Hawaii Chapter  
PO Box 2577  
Honolulu, HI 96803

Dear Mr. Frankel:

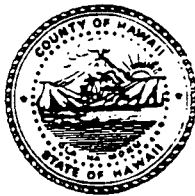
Subject: Response to the Sierra Club's comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 6, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. NUTRIENT RICH EFFLUENT DISCHARGES: The facility will not be a concentrated aquatic animal production facility as defined by 40 CFR Part 122-C. Fish production will be less than 100,000 pounds per year thereby exempting the proposed facility from NPDES discharge requirements. However, in an attempt to encourage fish farmers to utilize modern water treatment technologies, the Center has advised the County that they will utilize both sedimentation and microscreen filtration to reduce solids discharge by 80%. The former chlorine contact tank will be a major component of the fish waste treatment unit processing tank effluents containing fish fecal matter and excess feed.
2. SHORELINE ACCESS: Public access to the shoreline fronting the facility is not hindered as the present facility sits back from the shoreline well above the highwater mark. Shoreline access is from the DHHL park located to the east of the decommissioned treatment plant.
3. PUBLIC VIEWPLANES: Conversion of the facility will not alter public viewplanes. The site is landscaped presently from the street side to disguise the prior nature of the site (that of a wastewater treatment facility). No new structures are planned for the existing site.



Stephen K. Yamashiro  
Mayor



Donna Fay K. Kiyosaki  
Chief Engineer

Jiro A. Sumada  
Deputy Chief Engineer

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

August 18, 1998

Mr. Galen M. Kuba, Division Chief  
Engineering Division  
Department of Public Works  
25 Aupuni Street, Room 202  
Hilo, HI 96720-8630

Subject: Response to DPW comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii  
TMK: 3-2-1-11; parcel 4

The Department received your letter dated July 8, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. **FLOOD ZONE "VE"**: The Department notes that the subject property is located within the Flood Zone "VE" and that flood studies or variances may be required to allow any new construction. Plans for the erection of new structures is deleted and the final EA and its Figures will be revised to reflect this.
2. **ROAD-WIDENING SETBACK**: The road widening setback for Kalamianaole Avenue is on the mauka side of the road and not the makai side. Any improvements to the subject parcel will be beyond all easements and setbacks.
3. **APPLICATION**: An SMA minor use permit will be filed with the County of Hawaii Planning Department.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

pp Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific



STATE OF HAWAII  
OFFICE OF HAWAIIAN AFFAIRS  
711 KAPI'OLANI BOULEVARD, SUITE 500  
HONOLULU, HAWAII 96813-5249  
PHONE (808) 594-1888  
FAX (808) 594-1865

July 16, 1998

Mr. Bruce LD. Wade  
Project Engineer  
M&E Pacific, Inc.  
1001 Bishop Street, Suite 500 Pauahi Tower  
Honolulu, Hawaii 96813

EIS Doc.No.

Re: Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment  
Conversion, Plant, TMK (3) 2-1-11:4, Hilo, Hawaii

Dear Mr. Wade:

Thank you for the opportunity to review the Draft Environmental Assessment for the Old Hilo  
Wastewater Treatment Plant Conversion. The Office of Hawaiian Affairs has no concerns with  
the proposed project or the Draft Environmental Assessment at this time.

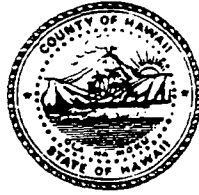
If you wish to contact OHA concerning this project, please contact Colin Kippen, Land and  
Natural Resources Division Officer or Lynn Lee EIS Planner at 594-1936.

Sincerely

Randall Ogata  
Administrator

Collin Kippen  
Land and Natural Resources Division

Stephen K. Yamashiro  
Mayor



Donna Fay K. Kiyosaki  
Chief Engineer

Jiro A. Sumada  
Deputy Chief Engineer

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

August 18, 1998

Mr. Randall Ogata, Administrator  
Office of Hawaiian Affairs  
711 Kapiolani Boulevard, Suite 500  
Honolulu, HI 96813

Dear Mr. Ogata:

Subject: Response to OHA comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 16, 1998 on the above subject. We note that you have no comments and thank you for your time spent considering this project.

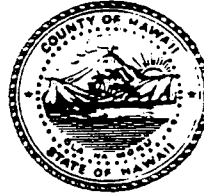
We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

Sincerely,

Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

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Stephen K. Yamashiro  
Mayor



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## County of Hawaii

### PLANNING DEPARTMENT

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

July 17, 1998

Mr. Bruce D. Wade  
Project Engineer  
M&E Pacific, Inc.  
Suite 500 Pauahi Tower  
1001 Bishop Street  
Honolulu, HI 96813

Dear Mr. Wade:

Draft Environmental Assessment for the Old Hilo Wastewater Treatment Plant  
Conversion to the Pacific Aquaculture and Coastal Resource Center  
TMK: 2-1-11: 4: Waiakea, South Hilo, Hawaii

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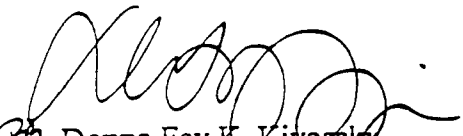
Thank you for your letter dated July 2, 1998, transmitting a copy of the above-described draft environmental assessment for our review and comment. We have completed our review and have the following comments to offer:

1. Section 6.4 - Land Use Zoning. Should make some reference within this section that the project site is situated within the County's Special Management Area (SMA). Proposed improvements must be reviewed against the County's SMA regulations.
2. Section 9.0 - List of Permits. Due to its location within the SMA, the proposed project will require, at the very least, a detailed review of the proposed improvements by this office. A determination must then be made whether a Special Management Area Use Permit will be required.

Prior to the construction or renovation of any facilities, the applicant must secure Final Plan Approval from this office. The purpose of this review is to ensure that all aspects of the proposed project is in compliance with the requirements of the Zoning Code.

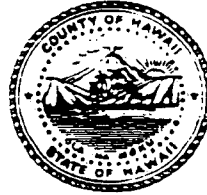
Mr. David Kimo Frankel  
August 18, 1998  
Page Two

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

  
PB Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

144.  
Stephen K. Yamashiro  
Mayor



Donna Fay K.  
Chief Engr.

Jiro A. Sui  
Deputy Chief E

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

July 8, 1998


MR BRUCE D WADE  
M&E PACIFIC INC  
1001 BISHOP STREET  
HONOLULU HAWAII 96813

**SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT  
OLD HILO WASTEWATER TREATMENT PLANT CONVERSION  
Keaukaha, Waiakea, South Hilo, Hawaii  
TMK: 3 / 2-1-11: 04**

We acknowledge receipt of your letter concerning the subject matter, and provide you with our comments as follows:

1. The subject property is found within Flood Zone "VE", according to the Flood Insurance Rate Map dated September 16, 1988. Any new construction or substantial improvements within Parcel 04 will be subject to the requirements of Chapter 27 - Flood Control, of the Hawaii County Code. A flood study or variance maybe necessary to allow any type of construction.
2. Improvements shall be located beyond the future road widening setback established by the Planning Department.
3. The application should be submitted to the Planning Department for their review and comments.

Should there be any questions concerning this matter, please feel free to contact Mr. Casey Yanagihara in our Engineering Division at (808)961-8327.

  
Galen M. Kuba, Division Chief  
Engineering Division

CKY

RECEIVED

1998

Mr Bruce D. Wade, Project Engineer  
M&E Pacific, Inc.  
Page 2  
July 17, 1998

Thank you for the opportunity to comment. Please contact Daryn Arai of this office at 961-8288 should you have any questions.

Sincerely,

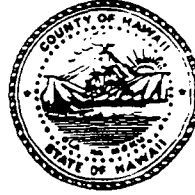
  
VIRGINIA GOLDSTEIN  
Planning Director

DSA:jc  
f:\wp60\czm\Ch343\LHiloSTP.dal

c: Mrs. Donna Fay Kiyosaki, DPW  
Office of Environmental Quality Control

146.

Stephen K. Yamashiro  
Mayor



Donna Fay K.  
Chief Eng

Jiro A. Sr.  
Deputy Chief

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

August 18, 1998

Ms. Virginia Goldstein, Planning Director  
Planning Department  
25 Aupuni Street, Room 109  
Hilo, HI 96720-4252

Subject: Response to Planning Department comments regarding Draft  
Environmental Assessment (EA) for Old Hilo Wastewater Treatment  
Plant Conversion, Hilo, Hawaii TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 17, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. LAND USE ZONING: Section 6-4 will be modified and expanded to show that the project site is within the County's Special Management Area (SMA) and that the application and review of permits are necessary before any improvements are made in the SMA.
2. LIST OF PERMITS: An SMA permit will be added to the list of permits in this section. Final plan approval will be obtained from the Planning Department prior to any construction or renovation of the subject property.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

DB

Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific





**DEPARTMENT OF BUSINESS,  
ECONOMIC DEVELOPMENT & TOURISM**

**BENJAMIN J. CAYETANO**  
GOVERNOR  
**SEIJI F. NAYA**  
DIRECTOR  
**BRADLEY J. MOSSMAN**  
DEPUTY DIRECTOR  
**RICK EGGED**  
DIRECTOR, OFFICE OF PLANNING

**OFFICE OF PLANNING**

235 South Beretania Street, 6th Flr., Honolulu, Hawaii 96813  
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Tel.: (808) 587-2846  
Fax: (808) 587-2824

Ref. No. P-7584

July 20, 1998

Mr. Bruce D. Wade  
Project Engineer  
M&E Pacific, Inc.  
Suite 500 Pauahi Tower  
1001 Bishop Street  
Honolulu, Hawaii 96813

Dear Mr. Wade:

Subject: Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, TMK (3)-2-1-11: Parcel 4, Hilo, Hawaii

We offer the following comments on the draft environmental assessment.

The document should provide additional information on the project's location relative to the County's Special Management Area (SMA). From the general map provided, given the project's proximity to the shoreline, it appears that it may be situated in the SMA. If this is so, the list of permits on page 12 should include the SMA permit.

In accordance with the Office of Environmental Quality Control's administrative rule, the document needs to incorporate an assessment of the project's consistency and compliance with the Coastal Zone Management (CZM) objectives and policies. Chapter 205A, Hawaii Revised Statutes. This is important since all lands and waters of the State are in the CZM area, and uses and activities in the CZM area are required to comply with the CZM objectives and policies.

If there are any questions, please contact Steve Olive of our CZM Program at 587-2877.

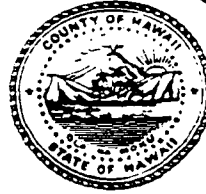
Sincerely,

Rick Egged  
Director  
Office of Planning

cc: Seiji F. Naya

145.

Stephen K. Yamashiro  
Mayor



Donna Fay K.  
Chief Eng.

Jiro A. Su  
Deputy Chief

## County of Hawaii

### DEPARTMENT OF PUBLIC WORKS

25 Aupuni Street, Room 202 • Hilo, Hawaii 96720-4252  
(808) 961-8321 • Fax (808) 961-8630

August 18, 1998

Mr. Rick Egged, Director  
Office of Planning  
Department of Business, Economic Development & Tourism  
PO Box 2359  
Honolulu, HI 96804

Dear Mr. Egged:

Subject: Response to DBEDT's Office of Planning comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 20, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. **SMA:** The Department acknowledges that the subject property is located within the County of Hawaii's Special Management Area (SMA). Section 6-4 of the final EA will be expanded to explain this. The list of permits in Section 9.0 of the final EA will be amended to include the requirement of an SMA minor use permit.
2. **CZM:** An assessment of the proposed project's compliance with the Coastal Zone Management's (CZM) objectives and policies will be developed in the final EA. Specific discussion will center around the following objectives: economic uses, public participation and marine resources.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

  
Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

BENJAMIN J. CAYETANO  
GOVERNOR



GARY GILL  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET  
SUITE 702  
HONOLULU, HAWAII 96813  
TELEPHONE (808) 586-4186  
FACSIMILE (808) 586-4186

July 23, 1998

Mr. Peter Boucher  
County of Hawai'i, Department of Public Works, Wastewater Division  
108 Railroad Avenue  
Hilo, Hawai'i 96720

Dear Mr. Boucher:

We submit for your response the following comments on a draft environmental assessment (DEA) entitled "Old Hilo Wastewater Treatment Plant Conversion, Kalaniana'ole Avenue and Pua Avenue, Hilo, Hawai'i, TMK: 3-2-01-011-004."

1. **ECONOMIC IMPACTS:** Page 6 of the DEA notes that the Center will provide juvenile fish for sale at nominal cost to local fish farmers. Please discuss whether other aquaculture operations of this project will be for profit (i.e., will the facility set up a fee schedule for its various services to help support its operations?).
2. **INTAKE PIPE:** Page 3 of the DEA mentions that a future connections are planned to a "HIG" deep seawater well on the adjacent parcel to the west to provide cold seawater. Please indicate what the acronym "HIG" means. Also, please discuss what if any means of providing seawater to the facility will be made in the interim. Please indicate where the intake pipe will be and discuss the quality of the water being used.
3. **PUBLIC VIEWPLANES/SHORELINE ACCESS:** Please provide current photographs of the site, along with renderings of what the project will look like from various directions. Analyze any impacts this project will have on public views from various public areas. Please discuss the provision of public access to the shoreline fronting the facility.
4. **FISH WASTE TREATMENT UNIT:** Page 4 of the DEA notes that the chlorine contact tank is proposed to be used as a "fish waste treatment unit." Please clarify as to the nature of this unit (i.e., will the unit contain fecal matter from fishes, or, will the unit hold dead fish or fish parts?) along with its related direct, indirect and cumulative impacts on the environment.
5. **DESCRIPTION OF CULTURED SPECIES:** Please disclose the various species of aquatic organisms to be cultured at the facility.
6. **DETAILED DISCUSSION OF THE THIRTEEN SIGNIFICANCE CRITERIA IN RELATION TO THE PROJECT:** Please discuss each of the thirteen significance criteria (see Section 11-200-12, Hawai'i Administrative Rules) as they relate to the project. A sample discussion is enclosed for your information.

150.

Mr. Peter Boucher  
County of Hawai'i Department of Public Works  
Wastewater Division  
July 23, 1998  
Page 2 of 2

Please include copies of this letter, your response to it and other comment letters/responses in the final environmental assessment and notice of determination for this project. If there are any questions, please call Les Segundo of my staff at 586-4185.

Sincerely,

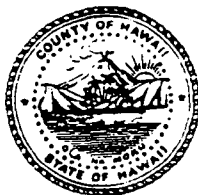


GARY GILL  
Director

Enclosure

c: Mr. Bruce D. Wade, M&E Pacific

Stephen K. Yamashiro  
Mayor



Donna Fay K. Kiyosaki  
Chief Engineer

Jiro A. Sumada  
Deputy Chief Engineer

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

August 18, 1998

Mr. Gary Gill, Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, HI 96813

Dear Mr. Gill:

Subject: Response to OEQC's comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii  
TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 23, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

- 1. **ECONOMIC IMPACTS:** The economic impact of the proposed facility will consist of the direct contributions to the economy from construction and facility operations and the indirect benefits resulting from increased enrollment at the University, the encouragement of fish farm development, public education and tourism potential.

The estimated capital costs for conversion of the Old Hilo wastewater treatment plant into the core of the Pacific Aquaculture and Coastal Resources Center is approximately \$1.9 million (exclusive of the value of the land and existing structures). Total operating costs are expected to be approximately \$650,000 per year when the Center is in full operation. Approximately 75% of these operational expenses will come from out-of-state sources with the remainder from state general funds. Occasional sales of fish, etc. produced as a by-product of the education, research and training programs will provide a small amount of additional funds.

Approximately \$2 million will be brought into the local economy by the initial renovation and development of the Center. This will be a one-time infusion of funds. Recurring Center operations, including research and training, will bring \$650,000 per year into the economy. Indirect returns are much more difficult to quantify but preliminary estimates are that Center

Mr. Gary Gill  
 August 18, 1998  
 Page 2 of 4

activities would lead to approximately \$1.5 million of additional income to the local economy.

2. **INTAKE PIPE:** The acronym "HIG" stands for Hawaii Institute of Geophysics. Their well will be used to provide cold seawater (40°F) to the Center. There is no alternate provision for supply of deep well cold seawater to the Center and therefore no interim supply. On-site well locations for both freshwater and cool seawater (each about 68°F) are indicated in Figure 4 of the EA.
3. **PUBLIC VIEWPLANES/SHORELINE ACCESS:** Figure 4 of the EA provides the best idea of what the project site will resemble. No new structures other than two new wells are anticipated for the site. Conversion of the facility will not block public viewplanes. The site is landscaped presently from the street side to disguise the prior nature of the site (that of a wastewater treatment facility). Public access to the site is not hindered as the present facility sits back from the shoreline well above the highwater mark. Access to the shoreline fronting the facility is from the DHHL park located to the east of the decommissioned treatment plant.
4. **FISH WASTE TREATMENT UNIT:** According to The University of Hawaii, the facility will not be a concentrated aquatic animal production facility as defined by 40 CFR Part 122-C. Fish production will be less than 100,000 pounds per year thereby exempting the proposed facility from NPDES discharge requirements. However, in an attempt to encourage fish farmers to utilize modern water treatment technologies, the Center intends to utilize both sedimentation and microscreen filtration to reduce solids discharge by 80%. The former chlorine contact tank will be a major component of the fish waste treatment unit processing tank effluents containing fish fecal matter and excess feed.
5. **DESCRIPTION OF CULTURED SPECIES:** Emphasis will be on local species, particularly those species requiring large tanks. Examples include: moi, mahimahi, mullet, milkfish, pearl oysters and possibly big-eye tuna. In addition, small scale demonstration facilities for freshwater ornamental fish will be constructed at the Center. The Center is not intended to be a production facility, therefore only the minimum number of fish needed for training and research will be kept on-site.
6. **DISCUSSION OF 13 SIGNIFICANT CRITERIA:** The discussion of the 13 significant criteria included in the draft EA will be expanded for the final EA.

(1) **Adverse commitment, loss or destruction of natural or cultural resources.**

The site is already developed to serve its previous function of wastewater treatment and now sits idle due to the decommissioning of the plant. The conversion of the site to an aquaculture research and educational facility will expand natural and cultural resources by enhancing the University of Hawaii - Hilo's marine science program and providing employment opportunities.

Mr. Gary Gill  
August 18, 1998  
Page 3 of 4

**(2) Curtail the range of beneficial uses.**

Rather than curtail the range of beneficial uses, the conversion will expand the use of the site to provide educational and employment opportunities. No additional structures will be erected on the site and in fact several will be demolished.

**(3) Conflicts with State's long-term environmental policies in HRS §344.**

The proposed conversion is consistent with the Environmental Policies established in Chapter 344, HRS.

**(4) Substantially and adversely affects economic or social welfare.**

The project actually increases the economic and social welfare of the community by providing economic and educational facilities for the sustainable development of coastal resources in historic and traditional areas such as aquaculture.

**(5) Substantially and adversely affects public health.**

As an educational and research facility, public health will not be adversely affected. The small quantity of discharges will be exempt from NPDES requirements.

**(6) Involves substantial secondary impacts.**

Conversion of the wastewater treatment plant will not create substantial secondary impacts such as population growth. Five to ten permanent jobs are expected to be created along with two to four temporary positions. These new employment opportunities along with the creation of new industries such as fish farming and indirect service related industries will generate new sources of revenue.

**(7) Involves a substantial degradation of environmental quality.**

There will not be a substantial degradation of the environmental quality. There will be no air or noise pollution and liquid discharges from the plant are not large enough to fall under NPDES requirements.

**(8) Individually limited but cumulatively considerable environmental effects.**

The discharges from the proposed facility will not have considerable cumulative environmental effects and will be much less than surrounding non-point sources such as urban runoff.

**(9) Substantially affects a rare or endangered species or its habitat.**

The site is already developed and will not be modified. Therefore destruction of habitats is not a relevant concern. For the same reason, no significant adverse effects to flora or fauna are expected.

**(10) Detrimentially affects air or water quality or noise levels.**

154.

Mr. Gary Gill  
August 18, 1998  
Page 4 of 4

The proposed conversion mainly will consist of holding tanks for fish and water. These will not affect air quality or noise levels. Any pumping equipment used for these purposes will be either low noise or submersible. The waste treatment unit will settle and filter organic solids. These solids will be removed for compost on a regular basis and will not accumulate on site and be allowed to degrade air quality.

**(11) Affects or is likely to suffer damage by being in an environmentally sensitive area.**

The project is located in flood areas subject to wave action and tsunamis. It is subject to threats by volcanic activity and earthquakes. However, the proposed project converts existing facilities already on site. The entire island of Hawaii lies in seismic zone 3 and is subject to the same threat of earthquakes. Hilo itself is subject to lava flows from rift zones on Mauna Loa.

**(12) Substantially affects scenic vistas or viewplanes.**

The proposed project will have minimal impact on public viewplanes. The site is already landscaped on the street side to disguise the previous nature of the site (that of a wastewater treatment plant).

**(13) Requires substantial energy consumption.**

When compared to the site's prior use as a sewage treatment plant, establishment of an education and research facility will consume much less energy due to the fact that fewer and smaller pieces of equipment will be utilized.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

Sincerely,



Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific





KALI WATSON  
CHAIRMAN  
HAWAIIAN HOMES COMMISSION

JOBIE M. K. M. YAMAGUCHI  
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII  
DEPARTMENT OF HAWAIIAN HOME LANDS

P. O. BOX 1879  
HONOLULU, HAWAII 96805

July 23, 1998

Mr. Bruce D. Wade, Project Engineer  
M&E Pacific, Inc.  
Suite 500 Pauahi Tower  
1001 Bishop Street  
Honolulu, HI 96813

Dear Mr. Wade:

Following are Department of Hawaiian Home Lands (DHHL) comments concerning the Draft Environmental Assessment (EA) for the Old Hilo Wastewater Treatment Plant Conversion, TMK (3)-2-1-11:04, Hilo, Hawaii:

1. The DHHL supports conversion of the property into an aquaculture center to provide a focus for the sustainable development of the entire Keaukaha coastline. [4.0 Project Objective and Need, Page 2]
2. The DHHL owns the adjacent Puhi Beach Park parcel (TMK 2-1-11: 5) located toward the East. A field inspection on the east side of the pumping station revealed that part of an existing building intrudes into the small area proposed to be relinquished to the DHHL, and the area is now overgrown with fairly large trees and weeds. After considering the small size (about 5,000 s.f.), the benefits of maintaining the existing fenced and vegetated boundary, and the cost to adjust for park use, the DHHL finds that it would be better to retain the area as a vegetated buffer within the Pua St. Pump Station boundary fence. The DHHL therefore declines the offer of the area as an addition for park use. [5.1 Technical Characteristics, Page 3]
3. With 438 homestead households in our Keaukaha Residential neighborhood across Kalaniana'ole Avenue, the DHHL is concerned about any degradation of environmental quality. Night-time noise and stench from the old treatment plant was a nuisance in the area for many years. Please assure that "the project will not detrimentally affect air or water quality or ambient noise levels." [10.0 Determination, Page 13] Please include the DHHL as a consulted party when preparing plans and environmental assessments for subsequent phases leading to the actual development of the Pacific Aquaculture and Coastal Resources Center.

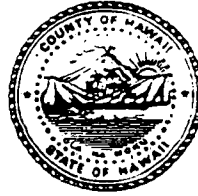
Thank you for the opportunity to review and comment. If you have any questions, call Land Agent Linda Chinn at 587-6432.

Aloha,

KALI WATSON, Chairman  
Hawaiian Homes Commission

156.

Stephen K. Yamashiro  
Mayor



Donna Fay K  
Chief Eng

Jiro A. S  
Deputy Chief

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

August 18, 1998

Mr. Kali Watson, Chairman  
Hawaiian Homes Commission  
Department of Hawaiian Home Lands  
P.O. Box 1879  
Honolulu, HI 96805

Subject: Response to DHHL comments regarding Draft Environmental Assessment  
(EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii  
TMK: 3-2-1-11: parcel 4

The Department received your comments dated July 23, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. DHHL SUPPORTS CONVERSION: Noted. The Department thanks you for your support of the conversion.
2. DHHL DECLINES OFFER OF LAND: Noted. The final EA and its Figures will be modified to reflect your wishes.
3. ENVIRONMENTAL QUALITY: With the exception of the construction period, the proposed project will not detrimentally affect air or water quality or ambient noise levels. Odors in particular should be reduced as the existing large microbial reactors (digesters) will be converted to water reservoirs. The University has been made aware of your concerns over noise and stench and has been advised to consult the DHHL during subsequent phases of the Center's development.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

*PK* Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific



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

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

JUL 28 1998

Ref.:LD-PEM

LD Ref.:HILOWWTP.COM

Mr. Bruce D. Wade  
Project Engineer  
M & E Pacific, Inc.  
Suite 500 Pauahi Tower  
1001 Bishop Street  
Honolulu, Hawaii 96813

Dear Mr. Wade:

Subject: Request for Comments - Draft Environmental Assessment. Old Hilo Wastewater Treatment Plant Conversion. Hilo, Hawaii, Tax Map Key: 2-1-11:4

We have reviewed the subject Draft Environment Assessment for the above project and would like to offer the following comments:

Land Division - Hawaii District Land Office

1. The proper reference on the Consultation List in Section 3.0. should be "Land Division" instead of "Land Use Division" under the Department of Land and Natural Resources.
2. Various references are made to the expansion of the project into the adjacent parcel. The adjacent parcel to the west is currently unencumbered and any set-aside of this area would be subject to the approval of the Board of Land and Natural Resources. The University of Hawaii would be responsible for any further Chapter 343, HRS compliance requirements for the expansion. The University of Hawaii would also be responsible for all necessary permits and approvals in connection with the use of the drilling of the any new wells as well as the use of the existing well on the adjacent parcel.
3. Based on the project description and subject to the approval of the Board of Land and Natural Resources, there would need to be a request by the County of Hawaii to cancel the existing Governor's Executive Order No. 2382 for the Hilo Sewage Treatment Plant Site. There would also need to be a concurrent request from the County of Hawaii, the University of Hawaii and the Department of Hawaiian Home Lands for the set-aside of the various areas as described in the Draft Environmental Assessment. This request should also include the establishment of the various easements associated with the Pua Street Pump Station Site referenced in the DEA.

Mr. Bruce D. Wade  
Page 2

4. Between the three agencies, the property would have to be subdivided in accordance with the requirements of the County of Hawaii. All engineering, surveying and other costs associated with the subdivision as well as various easements referenced in the DEA would be the responsibility of the applying agencies.
5. Prior to the cancellation of the existing Governor's Executive Order No. 2382, it is recommended that the County of Hawaii provide a hazardous waste assessment of the property and complete the appropriate abatement as necessary.

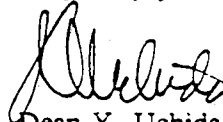
Land Division - Engineering Branch

We recommend that mitigative measures be implemented to prevent groundwater contamination

We confirm that the proposed project site is located in Zone VE. This is an area within the 100-year flood plain subject to coastal flooding with velocity hazard (wave action), and base floor elevations of 18 to 20 feet.

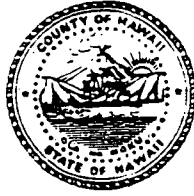
Thank you for the opportunity to review the Draft Environmental Assessment for the subject project. we have no further comments to offer at this time. Should you have any questions, please contact Patti Miyashiro of our Land Division at 587-0430.

Very truly yours,

  
Dean Y. Uchida  
Administrator

c: Hawaii Land Board Member  
Hawaii District Land Office  
LD-Engineering Branch

Stephen K. Yamashiro  
Mayor



Donna Fay K. Kiyosaki  
Chief Engineer

Jiro A. Sumada  
Deputy Chief Engineer

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

August 18, 1998

Mr. Dean Uchida, Administrator  
Land Division  
Department of Land and Natural Resources  
PO Box 621  
Honolulu, HI 96809

Dear Mr. Uchida:

Subject: Response to DLNR's comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii  
TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 28, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

Land Division - Hawaii District Land Office

1. PROPER REFERENCE: The proper reference on the Consultation List in Section 3.0 will be changed to "Land Division" from "Land Use Division" under the Department of Land and Natural Resources.
2. EXPANSION INTO ADJACENT PARCEL: The Department appreciates that the adjacent parcel is unencumbered and any set-asides are subject to the Board of Land and Natural Resources. The University of Hawaii will be responsible for all permits and approvals.
3. CANCELING EXISTING EXECUTIVE ORDER: The Department is currently working on a request to cancel Executive Order No. 2382 for the Hilo Sewage Treatment Plant. Concurrently, the Department is working with the University of Hawaii to request a set-aside as described in the draft EA. Please note that the Department of Hawaiian Home Lands declined the offer of the eastern portion of the parcel and as such are not included in the new set-aside request.

Mr. Dean Uchida, DLNR  
August 18, 1998  
Page Two

4. PROPER SUBDIVISION OF PARCEL: The property will be subdivided in accordance with the requirements of the County of Hawaii. All costs associated with the subdivision and granting of various easements will be borne by the responsible agencies.
5. HAZARDOUS WASTE ASSESSMENT: The Department currently is in the process of developing an Environmental Site Assessment (ESA) for the property. Any appropriate abatements will be completed as necessary.

Land Division - Engineering Branch

1. PREVENT GROUNDWATER CONTAMINATION: The two wells planned for the parcel will withdraw fresh groundwater and seawater. These are not injection wells and groundwater contamination is not expected.
2. FLOOD ZONE "VE": The Department notes that the subject property is located in the flood zone designated "VE". This is described in Section 6.7 of the draft EA.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

Sincerely,



PB Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

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

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

July 29, 1998

LD-NAV  
Ref.: HILOWWTP.2RC

Mr. Bruce D. Wade  
Project Engineer  
M & E Pacific, Inc.  
Suite 500 Pauahi Tower  
1001 Bishop Street  
Honolulu, Hawaii 96813

Dear Mr. Wade:

SUBJECT: Review : Draft Environmental Assessment  
Project : Old Hilo Wastewater Treatment Plant  
Conversion  
Location : Kalaniana'ole Avenue and Pua Avenue  
Hilo, Island of Hawaii, Hawaii  
TMK : 3rd/ 3-2-01: 011-004

This is a follow-up to our correspondence to you dated July 28, 1998 (Ref: HILOWWTP.COM), regarding our review of the subject matter.

Attached herewith is a copy of our Commission on Water Resource Management's comments related to water resources for the proposed project.

Should you have any questions, please feel free to contact Mr. Ryan Imata of the Commission on Water Resource Management at 587-0255 or Nick Vaccaro of the Land Division Support Services Branch at 587-0438.

Very truly yours,

*Dean Y. Uchida*  
DEAN Y. UCHIDA  
Administrator

c: Hawaii Land Board Member  
Hawaii District Land Office

RECEIVED JUL 31 1998

162.

BENJAMIN J. CAYETANO  
GOVERNOR OF HAWAII



MICHAEL D. W.  
DAVID A. NOI  
LAWRENCE F.  
RICHARD M.  
HERBERT M. RIC  
TIMOTHY E.  
DEPUTY DIRECTOR

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P.O. BOX 621  
HONOLULU, HAWAII 96809

July 24, 1998

TO: Mr. Dean Uchida, Administrator  
Land Division

FROM: Timothy E. Johns, Deputy Director *Timothy E. Johns*  
Commission on Water Resource Management (CWRM)

SUBJECT: Draft EA - Old Hilo Wastewater Treatment Plant Conversion

FILE NO.: HILOWWTP.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.

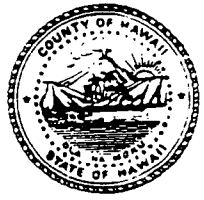
- We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
- We are concerned about the potential for ground or surface water degradation/contamination and recommend approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
- A Well Construction Permit and/or a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.
- The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
- Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
- If the proposed project diverts additional water from streams or if new or modified stream diversions are planned the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
- If the proposed project performs any work within the bed and banks of a stream channel, the project may need to obtain a stream channel alteration permit and a petition to amend the interim instream flow standard for the affected stream(s).
- We recommend that no development take place affecting highly erodible slopes which drain into streams with adjacent to the project.
- OTHER:

If there are any questions, please contact Mr. Ryan Imata at 587-0255.

162  
162



Stephen K. Yamashiro  
Mayor



Donna Fay K. Kiyosaki  
Chief Engineer

Jiro A. Sumada  
Deputy Chief Engineer

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

August 18, 1998

Mr. Timothy Johns, Deputy Director  
Commission on Water Resource and Management  
Department of Land and Natural Resources  
PO Box 621  
Honolulu, HI 96809

Dear Mr. Johns:

Subject: Response to the Commission's comments regarding Draft Environmental Assessment (EA) for Old Hilo Wastewater Treatment Plant Conversion, Hilo, Hawaii TMK: 3-2-1-11: parcel 4

The Department received your letter dated July 24, 1998 on the above subject and thanks you for your concerns on the proposed project. We will address your concerns point by point.

1. WATER USE AND DEVELOPMENT PLAN: The University will be responsible for the coordination of this project with the County's Water Use and Development Plan.
2. DEGRADATION OF GROUND OR SURFACE WATER: In accordance with 40 CFR 122 Appendix C item (b)(2), the proposed facility is not a concentrated aquatic facility and therefore is exempt from treatment and disposal regulations. However, treatment processes such as sedimentation and filtration are under consideration by the future facility as part of this project to mitigate organic discharges.
3. WELL CONSTRUCTION/PUMP INSTALLATION PERMITS: Well construction permits and the subsequent pump installation permits will be obtained before the development of either well mentioned in the draft EA. The need for these permits is recognized and indicated in Section 9.0 *List of Permits* of the draft EA.
4. INSTREAM FLOW STANDARD AMENDMENT: There are no surface waters flowing through the subject property that will be affected by groundwater withdrawal.
5. STREAM CHANNEL ALTERATION PERMIT: There are no surface waters flowing through the subject property requiring a stream channel alteration permit.

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Mr. Timothy Johns  
August 18, 1998  
Page Two

6. HIGHLY ERODIBLE SLOPES: There are no surface waters flowing through the subject property and the property is flat with no highly erodible slopes.

We anticipate completing this final environmental assessment in time to be included in the September 8, 1998 edition of the OEQC's *The Environmental Notice*.

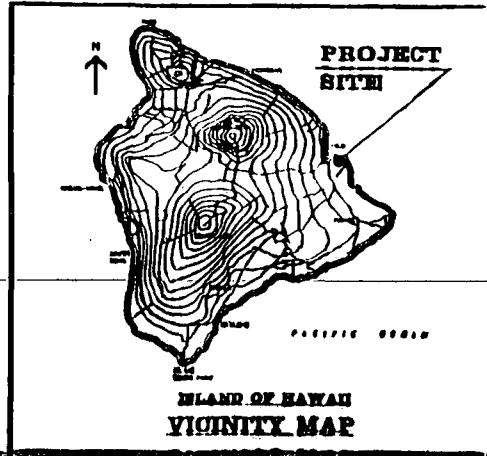
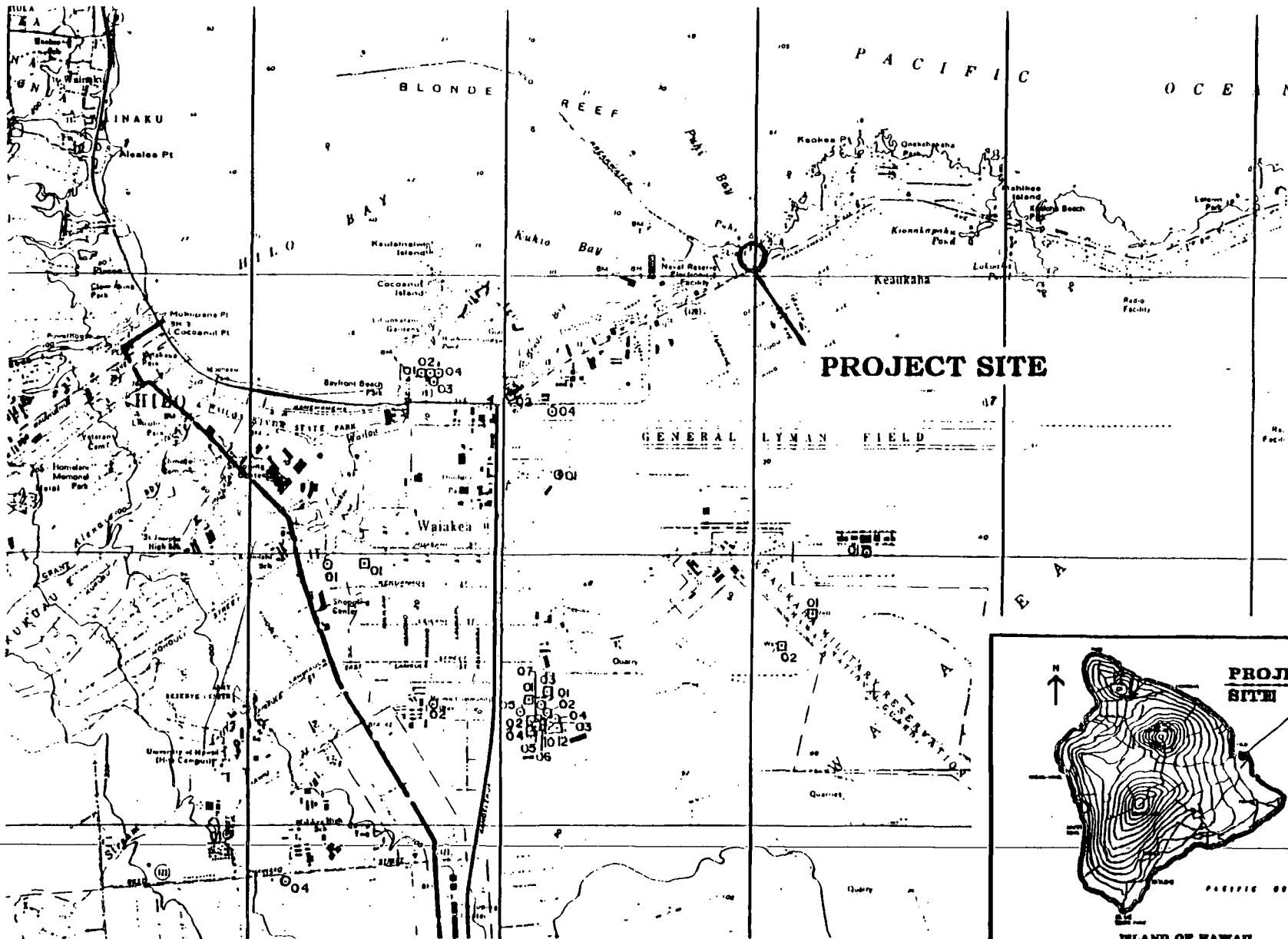
Sincerely,

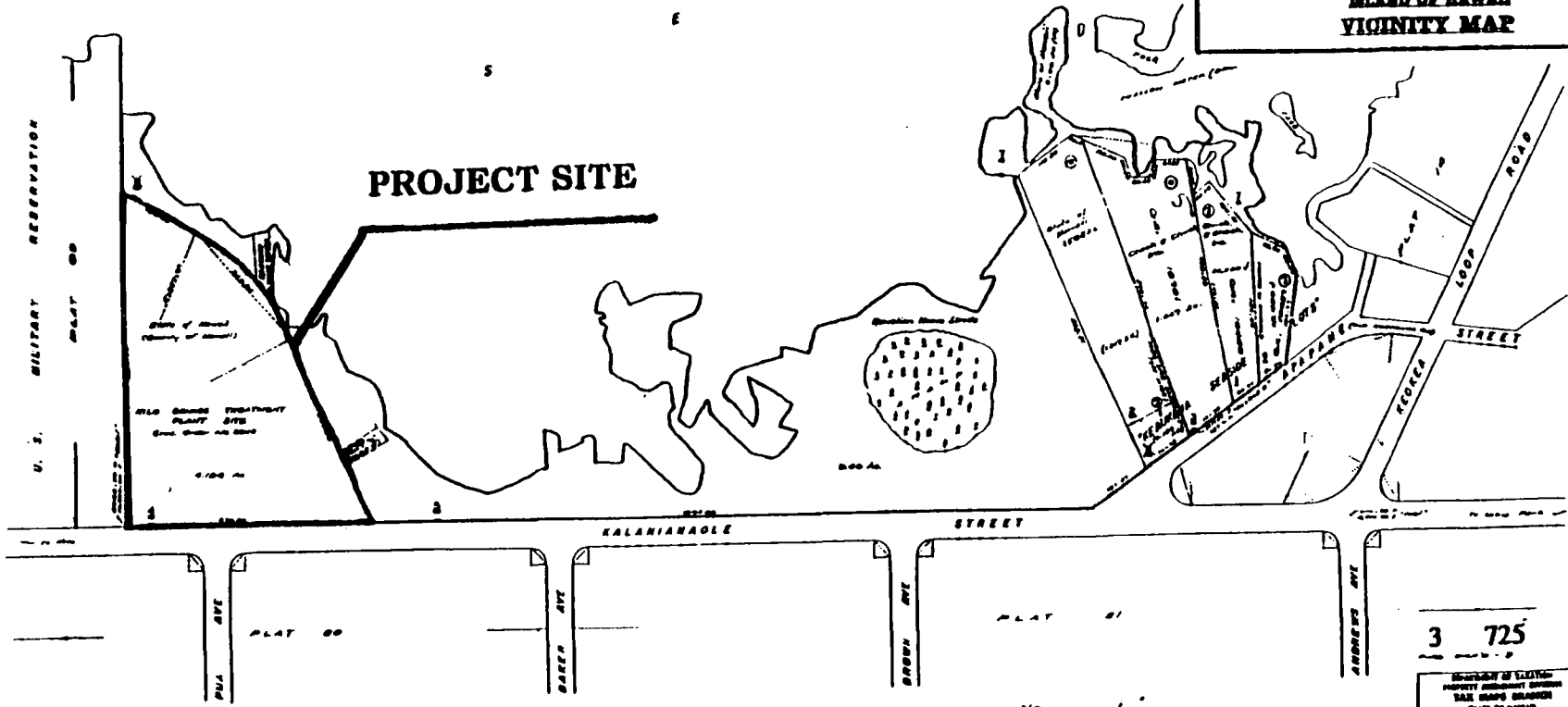
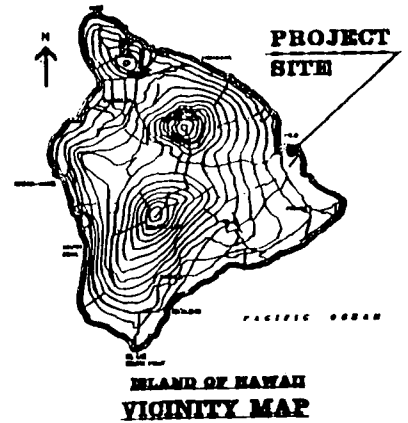


Donna Fay K. Kiyosaki  
Chief Engineer

cc: Peter Boucher, WWD  
Bruce Wade, M&E Pacific

**FIGURES**





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DEPARTMENT OF LAND AND NATURAL RESOURCES	
PROPERTY MANAGEMENT DIVISION	
TAX MAP	
1998	1998
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NOV 1998	

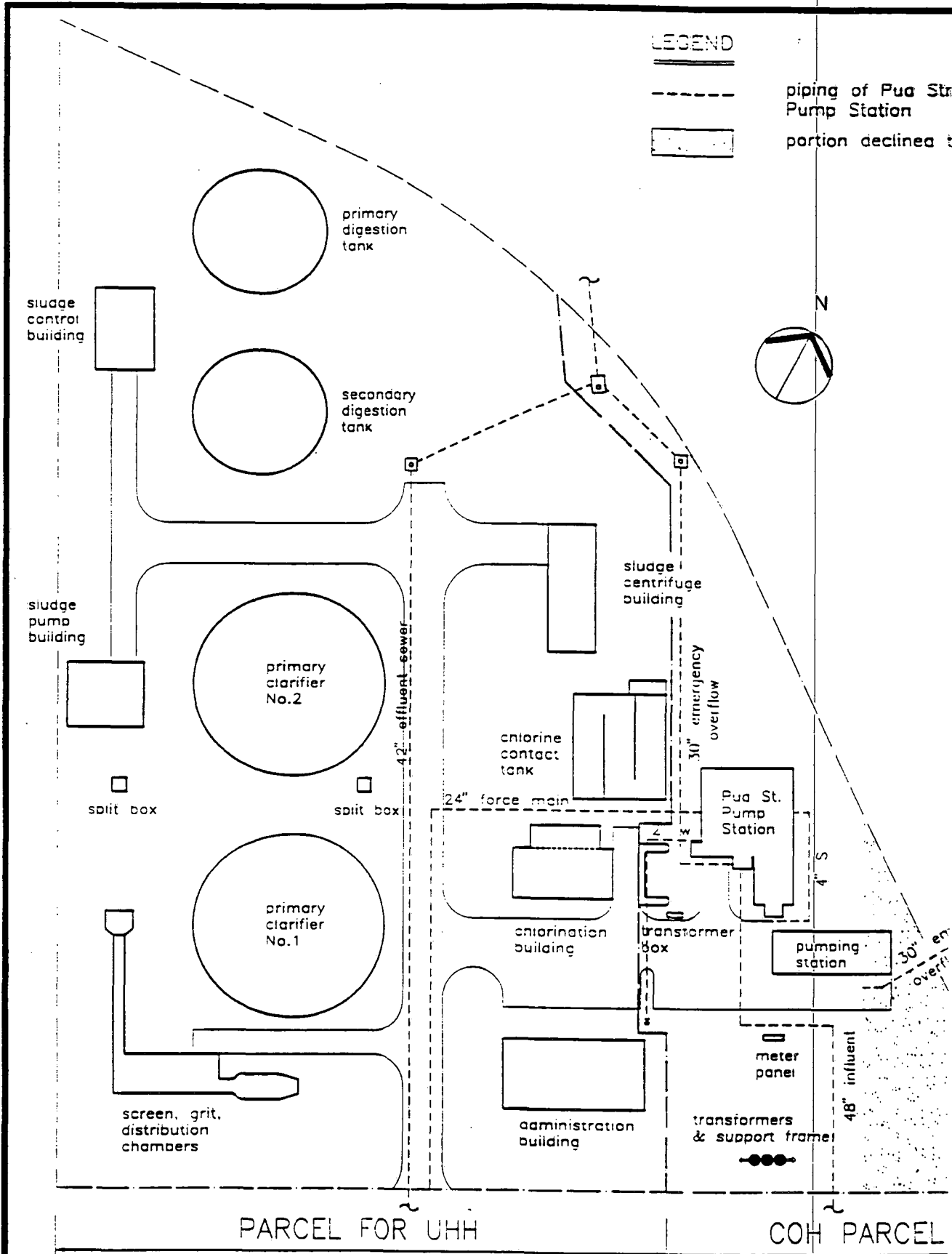
DOT, KEAUKAHA, WAIKAE, S HILO, HAWAII

FOR REAL PROPERTY TAXATION PURPOSES  
SUBJECT TO CHANGE






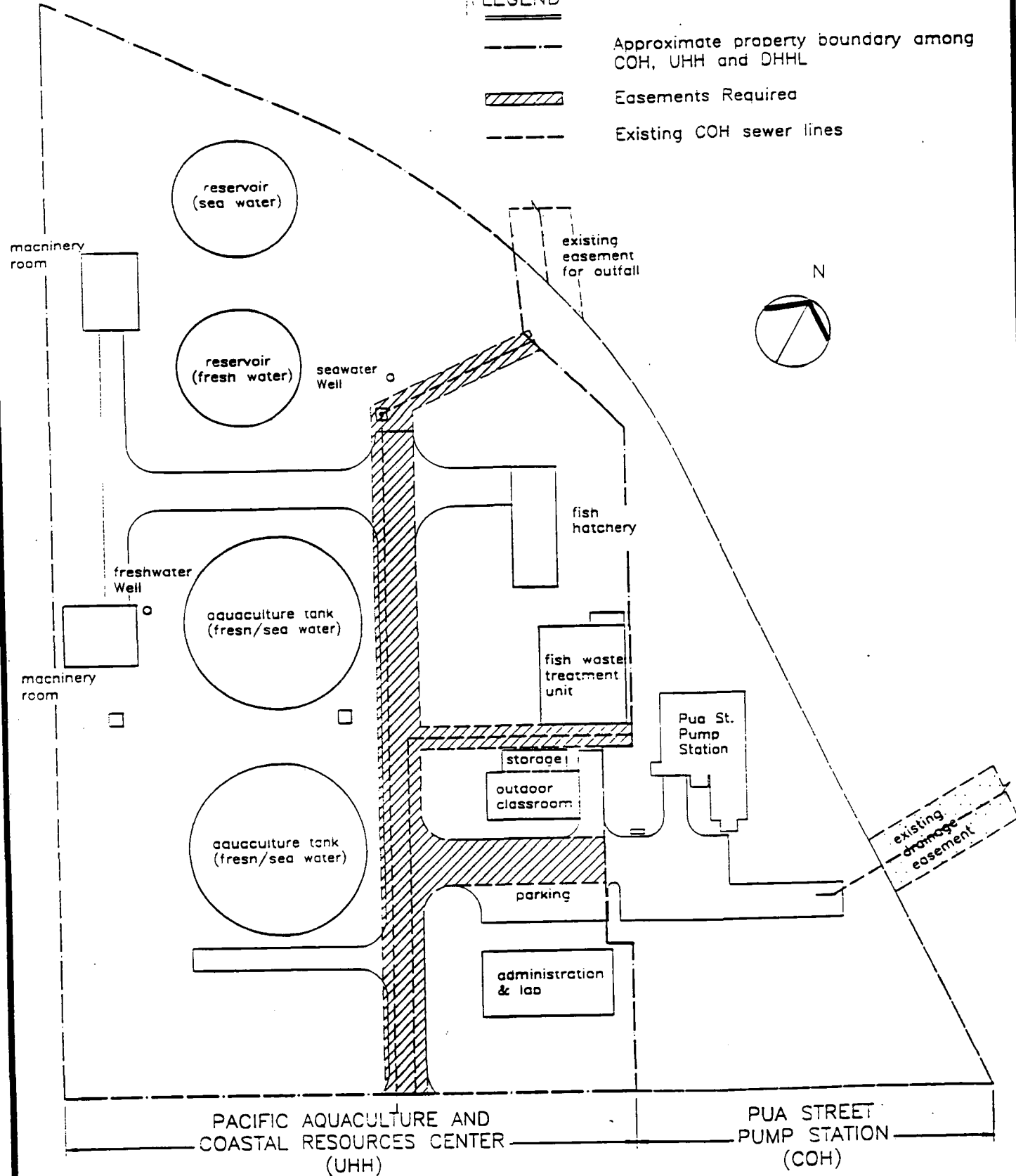
Old Hilo Wastewater Treatment Plant  
Environmental Assessment  
T.M.K.: 3-2-01-011: 004

FIGURE 2  
T.M.K. LOCATION MAP



LEGEND




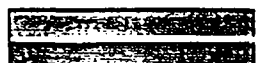
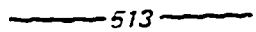
-  Approximate property boundary among COH, UHH and DHHL
-  Easements Required
-  Existing COH sewer lines

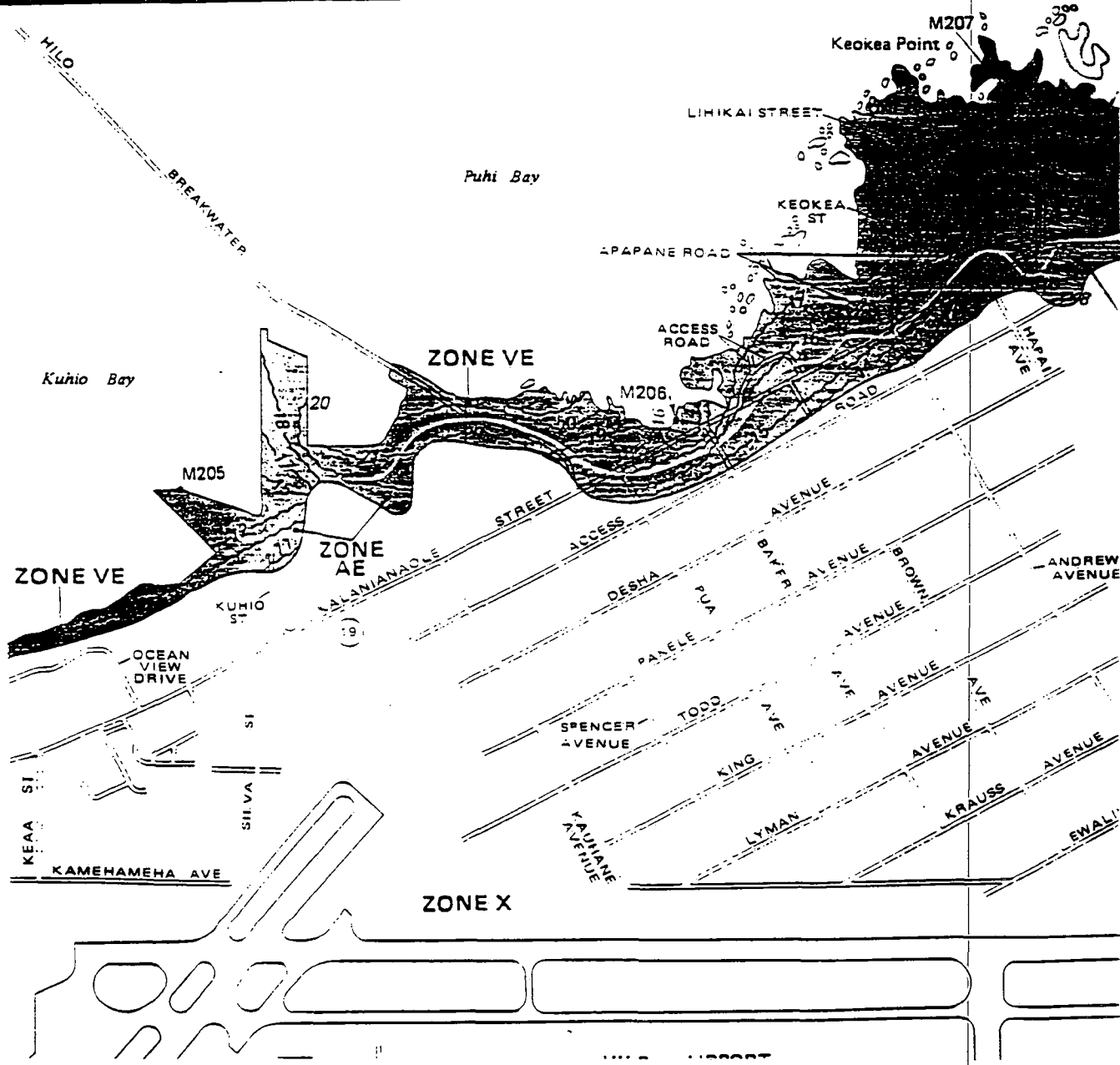


Old Hilo Wastewater Treatment Plant  
 Environmental Assessment  
 T.M.K.: 3-2-01-011: 004

**FIGURE 4**  
 Center Location  
 & Plan Map  
 (not to scale)

### LEGEND

-  SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD
-  ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.
-  Flood Boundary
-  Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.
-  Base Flood Elevation Line: Elevation in Feet



Old Hilo Wastewater Treatment Plant  
 Environmental Assessment  
 T.M.K.: 3-2-01-011: 004

FIGURE  
 FLOOD INSURANCE  
 RATE MAP



ENVIRONMENTAL SITE ASSESSMENT

PHASE I:

Old Hilo Wastewater Treatment Plant  
Kalaniana'ole Avenue and Pua Street  
Hilo, Hawaii  
TMK: 3-2-01-011-004

Prepared for

County of Hawaii  
Department of Public Works  
Division of Wastewater Management

by

M&E Pacific, Inc.  
Honolulu, Hawaii

November, 1997

## EXECUTIVE SUMMARY

M&E Pacific, Inc. was retained to conduct an environmental site assessment of the Old Hilo Wastewater Treatment Plant. The environmental site assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527. The following items summarize the findings of M & E Pacific:

- A review of historical records and aerial photographs revealed minimal development and usage of the subject property, aside from its uses for the Pua Street Pump Station and the now decommissioned sewage treatment plant.
- Two (2) underground storage tanks (USTs), two (2) abandoned aboveground storage tanks (ASTs) and two (2) portable fuel tanks are on the subject property. One of the USTs is of recent construction and will remain in service to the Pua Street Pumping Station. The other UST is out of service and will need to be removed before December, 1998. There is no disposal of petroleum or RCRA-classified hazardous wastes recorded on-site.
- Two (2) leaking UST facilities on record are located within half (0.5) mile, and seven (7) leaking UST facilities within three (3) miles of the subject property. There is no evidence that these sites have impacted the subject property.
- Two (2) CERCLIS facilities are located within one mile of the subject property. There is no evidence nor reason to believe that these sites have impacted the subject property.
- Lead paints, and ACMs may exist at the site. No PCB containing materials, fertilizers, trash, rubbish, junk cars, batteries and tires were found on the subject property.
- Some buildings contain small quantities of old paint and solvent cans, and waste oil. One unlabelled drum was found in the old pump station building. Small quantities of lab chemicals were stored in the administration building.
- Current operations do not include generation, handling or disposal of petroleum or RCRA-classified hazardous wastes.

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Figure 2. Tax Map Key Location Map

Figure 3. Site Plan

## **LIST OF APPENDICES**

Appendix A. Aerial Photographs

## 1.0 INTRODUCTION

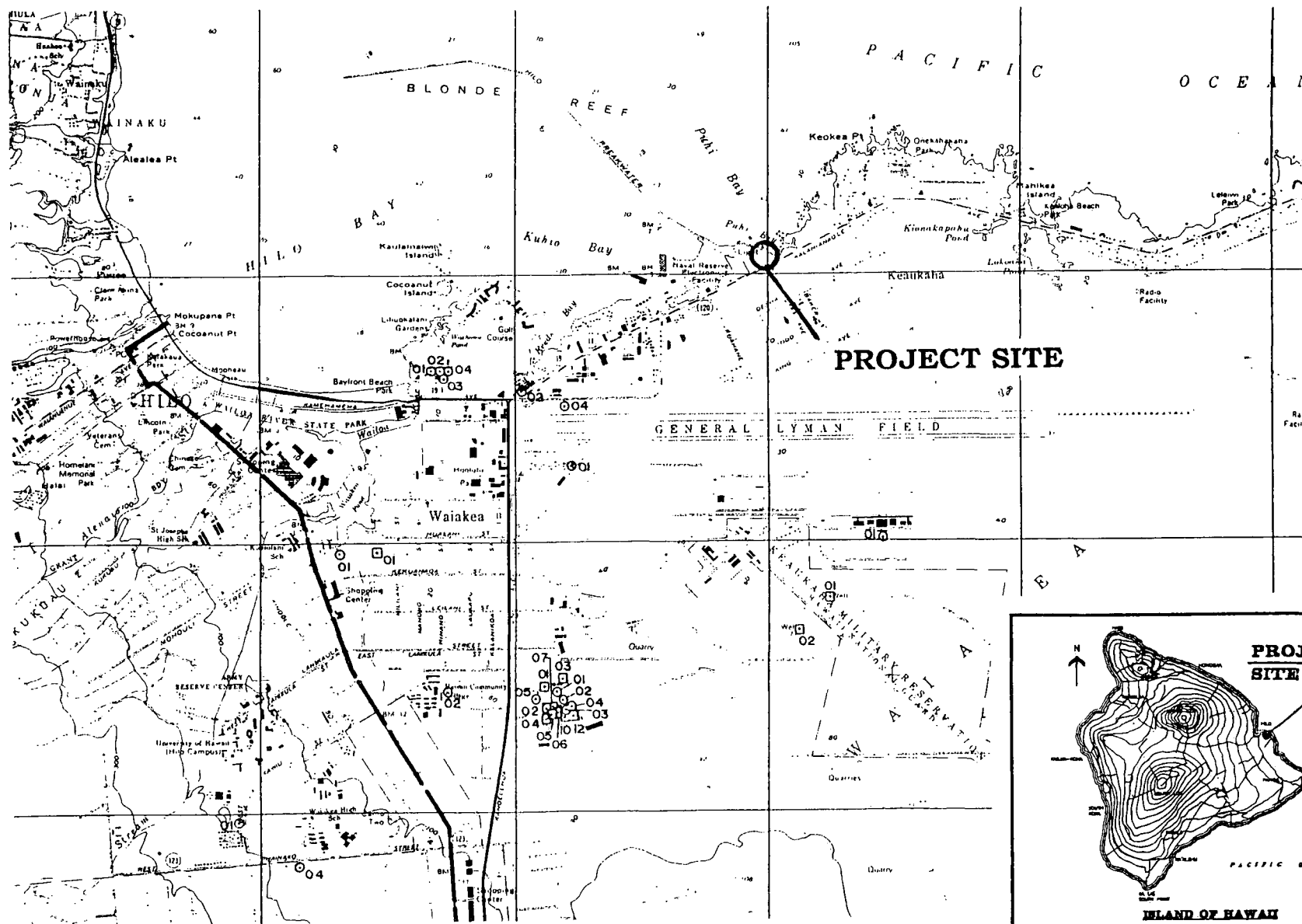
M&E Pacific, Inc. was retained by the Wastewater Division, Department of Public Works, County of Hawaii to conduct a Phase I Environmental Site Assessment (ESA) of the Old Hilo Wastewater Treatment Plant located at Kalaniana'ole Avenue and Pua Street in Hilo. This ESA documents the environmental conditions existing on the subject property.

The purpose of this assessment is to inventory the presence of potential on-site hazardous waste contamination, hazardous substances contamination (such as hydrocarbons), and to detect potential noncompliance in relation to current or past activities conducted on or adjacent to the subject property. This report summarizes the potential for environmental liabilities as obtained from government agency databases, interpretation of historical aerial photographs, interviews with personnel familiar with previous and/or current use of the property, and observations made during a site walk-through inspection.

## 2.0 SCOPE OF WORK

The scope of work for the Phase I Environmental Site Assessment is based on M&E Pacific's experience in the area and normal practices in Hawaii. In addition, this Phase I ESA was performed in conformance with the scope and limitations of the American Society for Testing and Materials Standard E1527, *Standard Practice for Environmental Site Assessments*. Specifically, the extent of services consisted of the following:

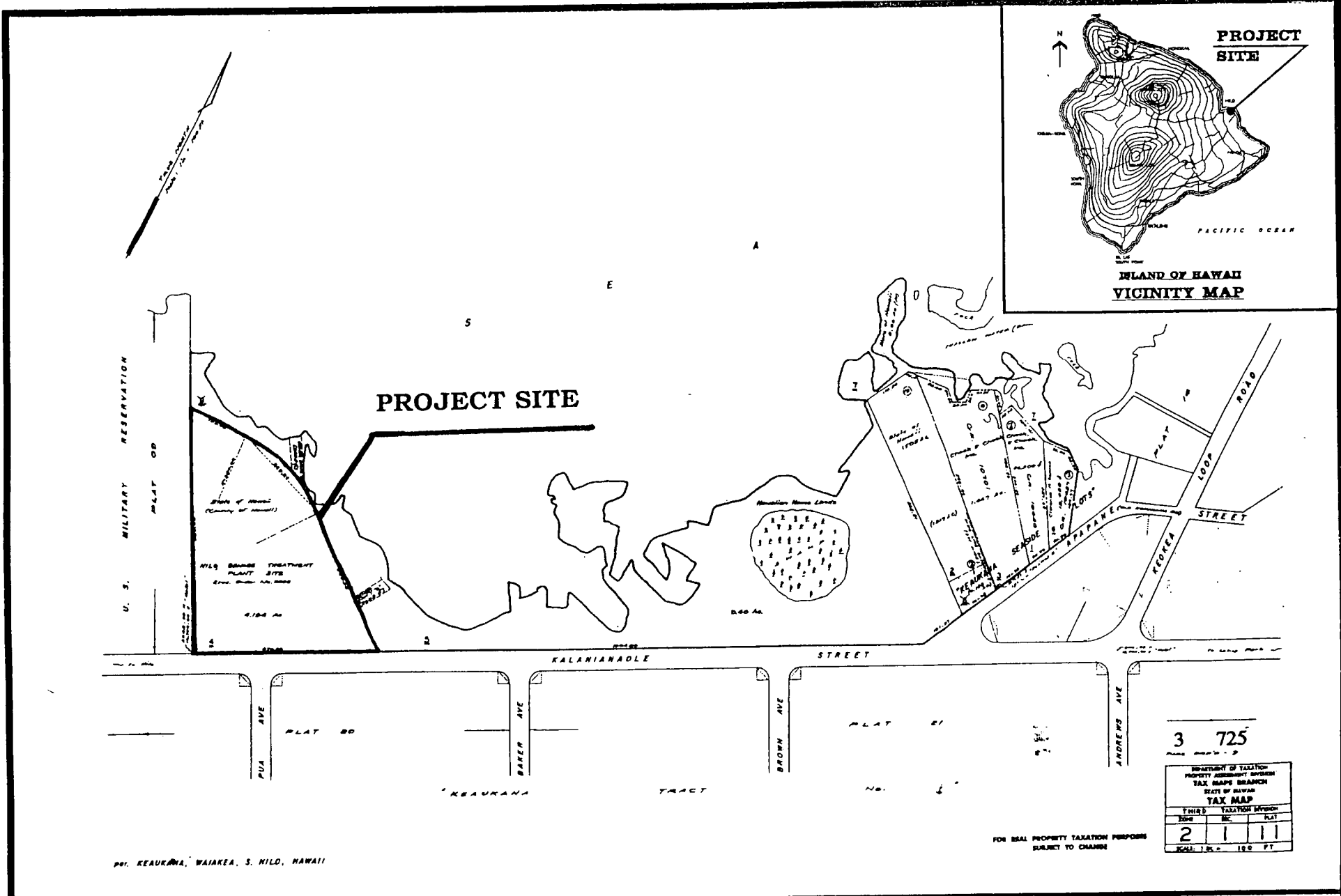
- Title search of previous owners
- Site use history, including review of historical aerial photographs
- Regulatory review (federal, state, and local)
- Site visit to locate potential environmental concerns
- Report of findings



**M&E**  
Pacific, Inc.

Old Hilo Wastewater Treatment Plant  
Environmental Site Assessment  
T.M.K.: 3-2-01-011: 004

FIGURE 1  
REGIONAL LOCATION MAP



Old Hilo Wastewater Treatment Plant  
 Environmental Site Assessment  
 T.M.K.: 3-2-01-011: 004

FIGURE 2  
 T.M.K. LOCATION MAP

### 3.0 SITE DESCRIPTION

#### 3.1 Location

Figure 1 shows the regional location of the Old Hilo Wastewater Treatment facility. It is located at 1079 Kalaniana'ole Avenue on Puhi Bay in the Keaukaha section of Hilo on the island of Hawaii. The site is identified on Figure 2 as the 4.194 acre parcel Tax Map Key third division 2-1-11:4. The site is seaward of Kalaniana'ole Avenue, and access is through a gate facing Kalaniana'ole Avenue.

#### 3.2 Regional Physiographic Conditions

The city of Hilo lies at the base of the lower southeastern slopes of Mauna Loa at elevations ranging from sea level at Hilo bay to 600 feet mean sea level (MSL) along the urban fringe. Almost all of Hilo rests on highly permeable and well-drained interbedded ash and olivine basalt. Lava formations rarely outcrop. Surface rocks consist of the Kau volcanic series of Mauna Loa, an extremely permeable basalt that is too recent to have formed a deep soil layer. Beneath the Kau series, which is approximately 25 feet thick in the Hilo region, lies a discontinuous layer of Pahala Ash. Beneath the ash is the Kahuku series of the Mauna Loa basalt formation. The highly permeable surface and subsurface basalt formations result in a lack of appreciable surface water runoff and the occurrence of high infiltration and subsurface flow rates. The permeability of the basalt may be in excess of 5,000 feet per day (Mink, 1993).

The wastewater facility lies near the shoreline of Hilo bay and Puhi Bay. Land slopes in this area are a gentle gradient towards the ocean. There are no streams or other surface waters on the subject property.

#### 3.3 Soil Conditions

The soil at the project site is classified as a Keaukaha series extremely rocky muck (USDA, 1973). It is a well drained, thin organic soil that overlies pahoehoe lava bedrock. This soil generally follows the topography of the underlying pahoehoe lava. Due to high permeability, runoff from the soil is medium and the erosion hazard is slight.

#### 3.4 Ground Water Conditions

The groundwater beneath the project site is identified as the Hilo aquifer system within the Northeast Mauna Loa aquifer sector (Mink, 1993). The aquifer system is a voluminous basal



lens that extends at least four miles inland from the shoreline. The aquifer is noted for having an enormous groundwater flux. The flux from fresh water springs has been measured at 150 mgd. The hydraulic gradient has been measured at 5 feet per mile.

The Hilo aquifer system is classified as an irreplaceable source of fresh drinking water. The aquifer system is currently used as a drinking water source, and the vulnerability to contamination is high (Mink, 1993). The groundwater flow direction in the area is towards the ocean. The fresh groundwater discharge along the coast is many times larger than surface flow.

According to the State of Hawaii Underground Injection Control maps, there are no groundwater drinking or injection wells known to exist within a one-mile radius of the subject property.

#### **4.0 TITLE HISTORY AND GENERAL LAND USE REVIEW**

The site history has been evaluated by the analysis of historical aerial photographs, tax assessment history, and other information.

##### **4.1 Title Search of Previous Occupants**

The site is identified on Figure 2 as TMK parcel 2-1-11:4. According to the County of Hawaii Tax Assessment records, the title history of the subject property is as follows:

- April 5, 1939. The parcel was granted to Hawaiian Home Lands by Executive Order.
- In 1968, Executive Order #2382 granted use for County of Hawaii to construct a sewage treatment plant.

The Old Hilo Wastewater Treatment Plant was constructed and became operational in 1965.

##### **4.2 Aerial Photograph/General Land Use Review**

Analysis of aerial photographs shows evidence of the site development history. Aerial photographs dated 1978, 1983 and 1992 are included in Appendix A. These photographs are described below:

The aerial photograph dated February 24, 1992 basically shows the site and surroundings as they appeared during the September, 1997 site visit. The sewage treatment facilities, buildings and

property fenceline can be seen on all photographs. Also visible are a lighthouse, and adjacent lands and properties.

The photographs evidence the minimal development at the site through the last twenty years. Only change during this period is the installation of Pua Street Pump Station. This pump station is shown in the photograph dated February 14, 1992, and was not at the site in the photographs dated January 9, 1978 and November 13, 1983.

## 5.0 ADJACENT PROPERTIES

The subject property is bounded by the state owned undeveloped home land to the west, Kalaniana'ole Avenue to the south, Puhi Bay and beach to the north and Keaukah Beach Park to the east. These boundaries are shown in Figure 2.

Nearby developments include Hawaiian Home Land residential area across Kalaniana'ole Avenue, a marine navigation lighthouse in the north corner of the state owned undeveloped home land, and Texaco Bulk Plant next to the west side of the state's land. Pua Street Pump Station is located on the subject property. The pump station is not part of the old wastewater plant and was constructed for pumping wastewater to the new Hilo Wastewater Treatment Plant. The pump station became operational in 1993.

## 6.0 RESULTS OF REGULATORY AGENCY LIST REVIEW

Governmental databases were reviewed in accordance with the requirements of ASTM Standard E1527. A review of the State of Hawaii governmental agency records included the Department of Health (DOH) UST Database, UST Leak Log, and Hazardous Evaluation and Emergency Response (HEER) List. Federal governmental agency lists included the Environmental Protection Agency (EPA) Region IX Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)-Hawaii Listing, and the Resource Conservation and Recovery Act (RCRA) Notifier's List. The purpose of the governmental agency review was to determine whether evidence exists for any USTs or hazardous waste sites ever having been located in the area. Also, the review included an investigation of environmental emergency incidences which could result in an environmental liability with respect to the subject property.

### 6.1 Underground Storage Tanks Registration (property) and Leak Lists(0.5 mile)

The DOH maintains a State of Hawaii UST Database which is intended to be a compilation of all registered USTs in Hawaii that are subject to regulation by Title 40 of the Code of Federal Regulations (CFR) Part 280 and the Hawaii Revised Statutes Chapter 342L. The UST Database dated July, 1997 lists one UST identified at Pua Pump Station. The facility identification number is 9-600351. It is a 1,000 gallon capacity tank which contains diesel fuel. The date of installation is not available. The UST is currently in use for an emergency generator.

The DOH also maintains a UST Leak Log to assist in tracking suspected and confirmed releases from USTs. The listing also contains facilities which are being monitored but which may not be directly regulated by federal or state regulations. The UST Leak Log dated through July, 1997 records leakage from two (2) facilities within a half (0.5)-mile radius of the subject property (Table I). None of the facilities were located on or adjacent to the subject property. They were all located west of the subject property.

**Table I**  
**DOH UST Leak Log Facilities within 0.5 Mile of the Subject Property**

UST Location	Address	Facility ID#	Leak ID#
Texaco Bulk Plant	999 Kalaniana'ole Ave.	9-601623	970028
Young Brothers, Ltd.	Kuhio Wharf Pier 2	9-600716	890017

### 6.2 HEER (property and adjoining properties)

The HEER list contains incidences and locations to which the DOH-HEER Group, US Coast Guard (USCG), Honolulu Fire Department (HFD), Honolulu Police Department (HPD), or other State or local agency were summoned in response to a suspicious or potentially hazardous environmental incident. The HEER list dated through May, 1997 contained no records of responses on or adjacent to the subject property.

### 6.3 RCRA Notifier's List (property and adjoining properties) and TSD facilities list (1.0 mile)

The EPA RCRA Notifier's List is a compilation of facilities that are associated with generation, transportation, disposal or other physical management of hazardous waste. The RCRA Notifier's

List dated July, 1996 contained no entries for the subject property or adjoining properties. The list contained no entries for Treatment, Storage or Disposal (TSD) facilities within a one (1)-mile radius of the subject property.

#### 6.4 CERCLIS (1.0 mile)

The CERCLIS database identifies sites which are used to store, or have been contaminated by, hazardous wastes. Such sites are ranked by the Hazard Ranking System and, if ranked high enough, may be nominated to the National Priorities List (Superfund Sites). No Superfund sites are located in the vicinity of the study area.

The CERCLIS database dated September, 1997 contained no listed located within a half (0.5)-mile radius of the subject property. Two (2) facilities were located within a one (1)-mile radius of the property (Table II). There are seven (7) facilities located within a three (3)-mile radius of the property (Table III).

**TABLE II**  
**EPA CERCLIS Listed Facilities within One Mile of the Subject Property**

FACILITY	ADDRESS	EPA ID NO.
Army Aviation Support Facility #2	General Lyman Field #619	HI2210090039
HPM Building Supply	150 Keaa St	HID981164254

**TABLE III**  
**EPA CERCLIS Listed Facilities within Three Miles of the Subject Property**

FACILITY	ADDRESS	EPA ID NO.
Army Aviation Support Facility #2	General Lyman Field #619	HI2210090039
Hilo Arsenic Spill Site	33B Liliuokalani Lane	HI0001290816
Hilo Bay Front Soccer Field	Off Kamehameha Ave. bet. Pauahi/Ponahawai	--
Hilo Rubbish Dump	Leilani St.	HID000606582
HPM Building Supply	150 Keaa St	HID981164254
USDA Forest Service PSW Expt Sta.	1643 Kilauea Ave at Kawili	HI0122390008
Waiakea Pond/Hawaiian Cane Products Plant	Hilo	HID982400475

## 7.0 SITE INVESTIGATION

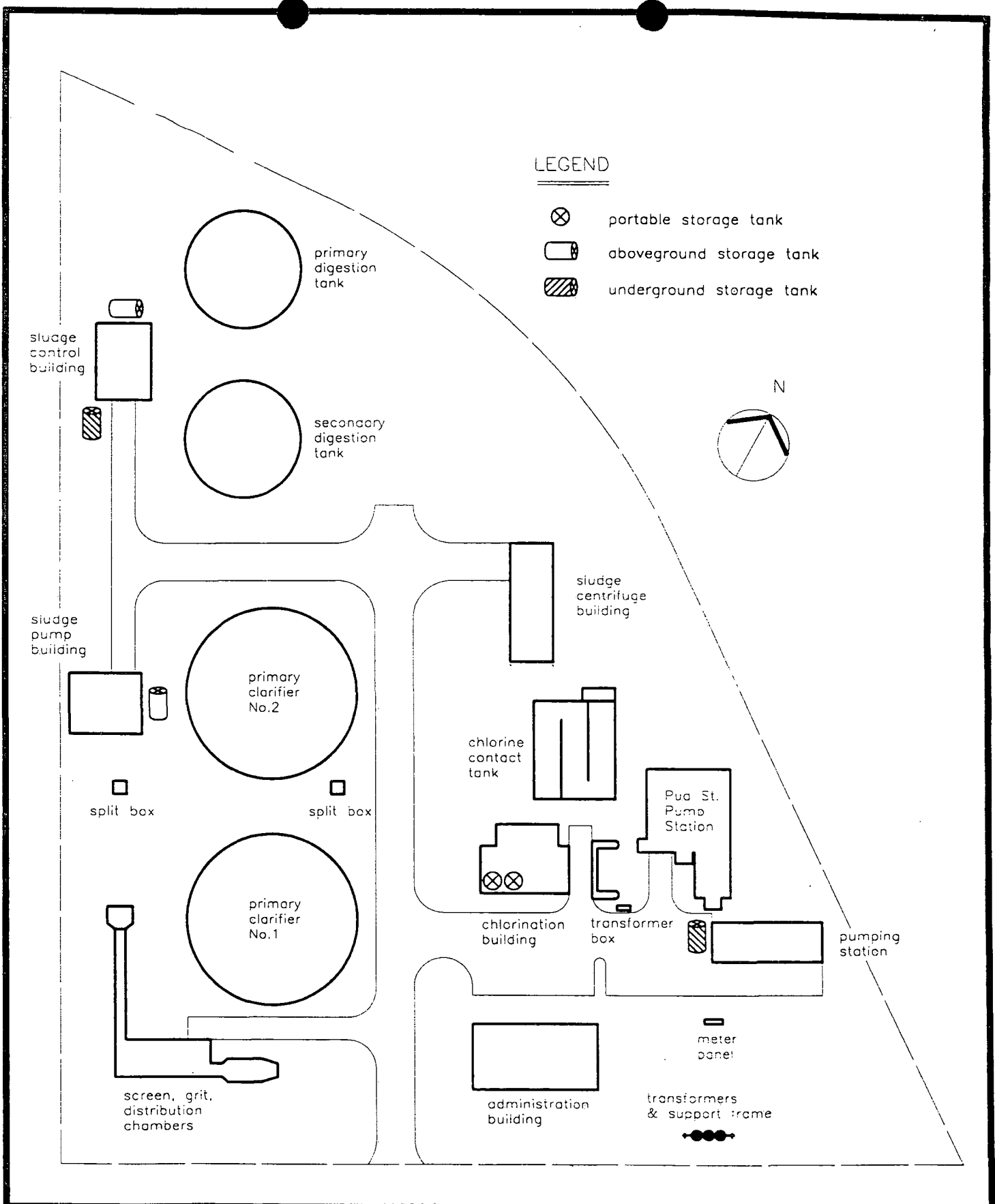
The walk-through inspections of the subject property and adjoining properties were conducted in July, 1996 and on September 22, 1997. Assistance was provided by personnel from the County of Hawaii Department of Public Works.

The subject property mainly consists of the various wastewater treatment facilities, equipment and buildings, and Pua Street Pump Station shown in Figure 3 and are visible in the aerial photograph dated February 24, 1992. Treatment facilities include a grit chamber and grit removal unit, two 85-foot diameter primary clarification tanks, two 60-foot diameter anaerobic digestion tanks, a chlorine contact tank and a pumping station. Buildings that were part of the old wastewater treatment plant include a sludge pump building, sludge control building, sludge centrifuge building, chlorination building and an administration building. Other miscellaneous structures found at the site include sewer manholes, pump-out pits, abandoned fuel tanks, below-ground sewerlines, a meter panel, valve and wet wells, electric and split boxes, a transformer box and a transformer support frame. The remainder of the grounds consist of grass landscaping, paved roadways and miscellaneous trees and other landscaping. These features are evident on the aerial photographs (Appendix A).

The buildings are all of masonry construction. The clarifiers and digestion tanks were partially filled with stale rainwater. The one of the digestion tanks reportedly still contained some old sludge. Various equipment that was used for wastewater treatment on the subject property, including various sumps and pumps, valves, rail cranes and electrical control equipment, were found inside the plant buildings. Most of the equipment was rusty, some of them on the verge of collapse.

Two (2) abandoned aboveground diesel tanks were found at the site, located outside of the sludge control building and the sludge pump building (Figure 3), respectively. Both tanks are cut open. The tank outside at the sludge control building contained some rainwater, and the one outside the sludge pump building contained some petroleum products and rainwater. Two (2) portable diesel tanks were kept inside the chlorination building. One of them belongs to the Pua Street Pump Station, the other is abandoned and was used by the treatment plant.

An abandoned underground fuel tank is located by the sludge control building (Figure 3). As indicated on the treatment plant as-built drawings (1963), it is a 750-gallon tank supplying oil for the heater inside the sludge control building. This UST is not recorded with the DOH, and no



other details are available regarding it. Another underground storage tank is located next to Pua Street Pump Station (Figure 3), containing diesel fuel for the pump station's emergency generator. It is identified by DOH as 9-600351, and has no leakage history.

Chemical usage at the plant included chlorine, potassium permanganate, herbicides and oils and solvents associated with equipment and ground maintenance. Chlorine was used for disinfecting sewage effluent, potassium permanganate for oxidation, herbicides for landscape vegetation within the plant, and oils and solvents for maintenance purposes. There was no large amount of storage of the chemicals found at the site, except that four (4) drums of activated carbon and one (1) unlabeled drum were found inside the pumping station, two (2) bottles of old oil and solvents inside the sludge pump building. Small quantities of lab chemicals were stored in the chemical storage room in the administration building.

One electrical transformer box was installed near by the chlorination building, and three (3) electrical transformers are mounted on an aboveground support frame near the fence behind the administration building (Figure 3). Electrical transformers can contain polychlorinated biphenyls (PCB), a known carcinogen and an environmental liability. It is stated on the transformer box that it does not contain PCB. The other three (3) transformers on the support frame do not contain PCB since they were installed in 1986 while manufacture of PCBs were banned in 1979.

Some old one-gallon paint cans and one (1) coil fragment which may contain lead were scattered inside the sludge pump building. A pile of PVC pipes were stored in the chlorination building. No distressed grass, fertilizers, trash, rubbish, junk cars, batteries and tires were found on-site during the walk-through inspection on the subject property.

## 8.0 ENVIRONMENTAL CONCERNS

Although no signs of hazardous waste disposal were noted during the walk-through inspection, the following subsections, however, describe specific environmental concerns regarding the subject property. These concerns are

- Potential petroleum contamination from fuel storage tanks
- Building materials may contain asbestos
- Walls may have lead-based paints

## 8.1 USTs and Petroleum Contamination

Petroleum contamination can result from leaks, spills or on-site disposal of petroleum based fuel or oil. The regulations applicable to releases of petroleum from underground storage tanks are codified in Title 40 of the Code of Federal Regulations (40 CFR) Part 280, Chapter 342L of the Hawaii Revised Statutes (HRS) and Chapter 128D, HRS. In general, petroleum contamination must be removed or remediated if the contamination poses a significant risk to human health or the environment.

One 1,000-gallon diesel underground storage tank on site is presently used by Pua Street Pump Station. The tank is of recent construction and has no known history of leakage. Another UST on site is a 750-gallon tank near the sludge control building. This tank is of old construction and has not been removed. It is identified on the plant draw maps as a oil-supply tank for the heater of the sludge control building. Its content and leakage history are unknown. The leakage history of two (2) aboveground storage tanks at the site which were used by the Old Hilo Wastewater Treatment Plant are also unknown. However, no evidence of petroleum contamination was observed during the site visit. Stained soil was not observed on the subject property. Soil stains would indicate potential surface contamination from drips or spills. The old UST and the two portable fuel tanks will be removed from the site.

There is no documented evidence of subsurface petroleum contamination at the subject property or adjacent properties. A total of two (2) facilities which have UST leakage histories, however, are located within half (0.5) mile of the site (Table I).

## 8.2 Asbestos and Lead Paint

Asbestos is a group of naturally occurring minerals which were widely used because of their fire, heat and sound insulating properties. The adverse effects of asbestos fibers on the respiratory system resulted in a ban on the use of many asbestos containing materials (ACMs). EPA defines ACMs as any material containing greater than one percent (1%) asbestos. The presence of asbestos on-site does not require immediate remedial action. However, OSHA standards 29 CFR parts 1910 and 1926 regulate the permissible exposure level to workers. Also, asbestos is regulated as a hazardous airborne pollutant under 40 CFR part 61. Thus, demolition and renovations involving ACMs require strict procedures for asbestos removal, containment and ultimate disposal.



The floor tiles in the panel room of the administration building may be an ACM. However, it should be noted that a thorough search for ACM was not conducted as part of this ESA. A thorough search would involve an intensive survey of the building components, including field and laboratory analysis of building materials.

Lead-based paint is an issue because of the adverse affects of lead on the nervous system, particularly in children. The commercial use of lead-based paints was banned in 1978. Since the subject property was constructed before 1978, the lead-based paints are assumed to have been used during the construction and later for maintenance. However, a thorough investigation for lead-based paints was not conducted as part of this ESA. A thorough investigation would involve sampling of painting fragments and conducting laboratory analysis for lead component.

### 8.3 Hazardous Waste

"Hazardous waste" regulations (RCRA, CERCLA, SARA, HSWA, OSHA) range from production of a substance through ultimate disposal. In addition, sites contaminated with "hazardous substances" may result in substantial liabilities for cleanup under CERCLA.

No documented evidence of hazardous waste contamination of the subject property or adjoining properties was listed in the sources reviewed. A transformer box and another three transformers were found at site. Electrical transformers can contain polychlorinated biphenyls, a known carcinogen and an environmental liability. Manufacture of PCBs was banned by EPA in 1979. The label on the transformer box states that the transformer does not contain PCB. The three transformers were installed in 1986 by Hawaii Electric Light Company, they are not PCB containing.

Two (2) facilities located within one (1) mile of the subject property are listed in the EPA CERCLIS database, as shown in Table I.

## 9.0 CONCLUSIONS

An environmental site assessment was performed in conformance with the scope and limitations of ASTM Practice E 1527. This assessment has revealed no evidence of recognized environmental conditions in connection with the subject property except for the following:

- Two (2) leaking UST facilities are located within half (0.5) mile, and seven (7) leaking UST facilities within three (3) miles of the subject property. There is no evidence that these sites have impacted the subject property.
- Two (2) CERCLIS facilities on record are located within one (1) mile of the subject property. There is no evidence nor reason to believe that these sites have impacted the subject property.
- Two (2) underground storage tanks (USTs), two (2) abandoned aboveground storage tanks (ASTs) and two (2) portable fuel tanks are on the subject property. One of the USTs is of recent construction and will remain in service to the Pua Street Pumping Station. The other UST is an old, 750-gallon oil tank near the sludge control building and will require removal. There is no disposal of petroleum or RCRA-classified hazardous wastes recorded on-site.
- Lead paints, and ACMs may exist at the site. No PCB containing materials, fertilizers, trash, rubbish, junk cars, batteries and tires were found on the subject property.
- Some buildings contain small quantities of old paint and solvent cans, waste oil. One (1) unlabelled fuel drum, four (4) drums of activated carbon were found in the old pump station building. Small quantities of lab chemicals were stored in the administration building.
- Current operations do not include generation, handling or disposal of petroleum or RCRA-classified hazardous wastes.

## 10.0 STATEMENT OF LIMITATIONS

The data presented and the opinions expressed in this report are qualified as follows:

The sole purpose of the investigation and of this report was to assess the observable characteristics of the site with respect to the presence or absence in the environment of petroleum or hazardous materials and substances as defined in the applicable state and federal environmental laws and regulations, and to gather information regarding current and past environmental conditions at the Site.

M&E Pacific (M&E) derived the data in this report primarily from visual inspections, examinations of records in the public domain, and interviews with individuals with information

about the Site. The passage of time, manifestation of latent conditions or occurrence of future events may require further exploration at the Site, analysis of the data, and reevaluation of the findings, observations, and conclusions expressed in the report.

In preparing this report, M&E has relied upon and presumed accurate certain information (or the absence thereof) about the Site and adjacent properties provided by governmental officials and agencies, the Client, and others identified herein. Except as otherwise stated in the report, M&E has not attempted to verify the accuracy or completeness of any such information.

The data reported and the findings, observations, and conclusions expressed in the report are limited by the Scope of Services, including the extent of subsurface exploration and other tests. The Scope of Services was defined by the requests of the Client, the time and budgetary constraints imposed by the Client, and the availability of access to the Site.

Because of the limitations stated above, the findings, observations, and conclusions expressed by M&E in this report are not, and should not be considered, an opinion concerning the compliance of any past or present owner or operator of the site with any federal, state, or local law or regulation. No warranty or guarantee, whether expressed or implied, is made with respect to the data reported or findings, observations, and conclusions expressed in this report. Further, such data, findings, observations, and conclusions are based solely upon site conditions in existence at the time of investigation.

This report has been prepared on behalf of and for the exclusive use of the Client, and is subject to and issued in connection with the Agreement and the provisions thereof.

## **11.0 STATEMENT OF QUALIFICATIONS**

This environmental site assessment was conducted and reported by Bruce Wade, Jenny Li and Floyd Mitchell from M&E Pacific, Inc. M&E Pacific has conducted environmental assessments and real estate transaction audits for numerous clients and properties throughout the state of Hawaii.

## 12.0 REFERENCES

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- R.M. Towill, November 13, 1983, aerial photograph no. 8276-7.
- R.M. Towill, February 24, 1992, aerial photograph no. 8804-5.
- U.S. Environmental Protection Agency, September, 1996, *EPA Region IX CERCLIS Sites, List 8 for Hawaii*.
- U.S. Environmental Protection Agency, September, 1996, *RCRA Notifiers List, Region IX, Hawaii Listing*.

APPENDIX A

AERIAL PHOTOGRAPHS



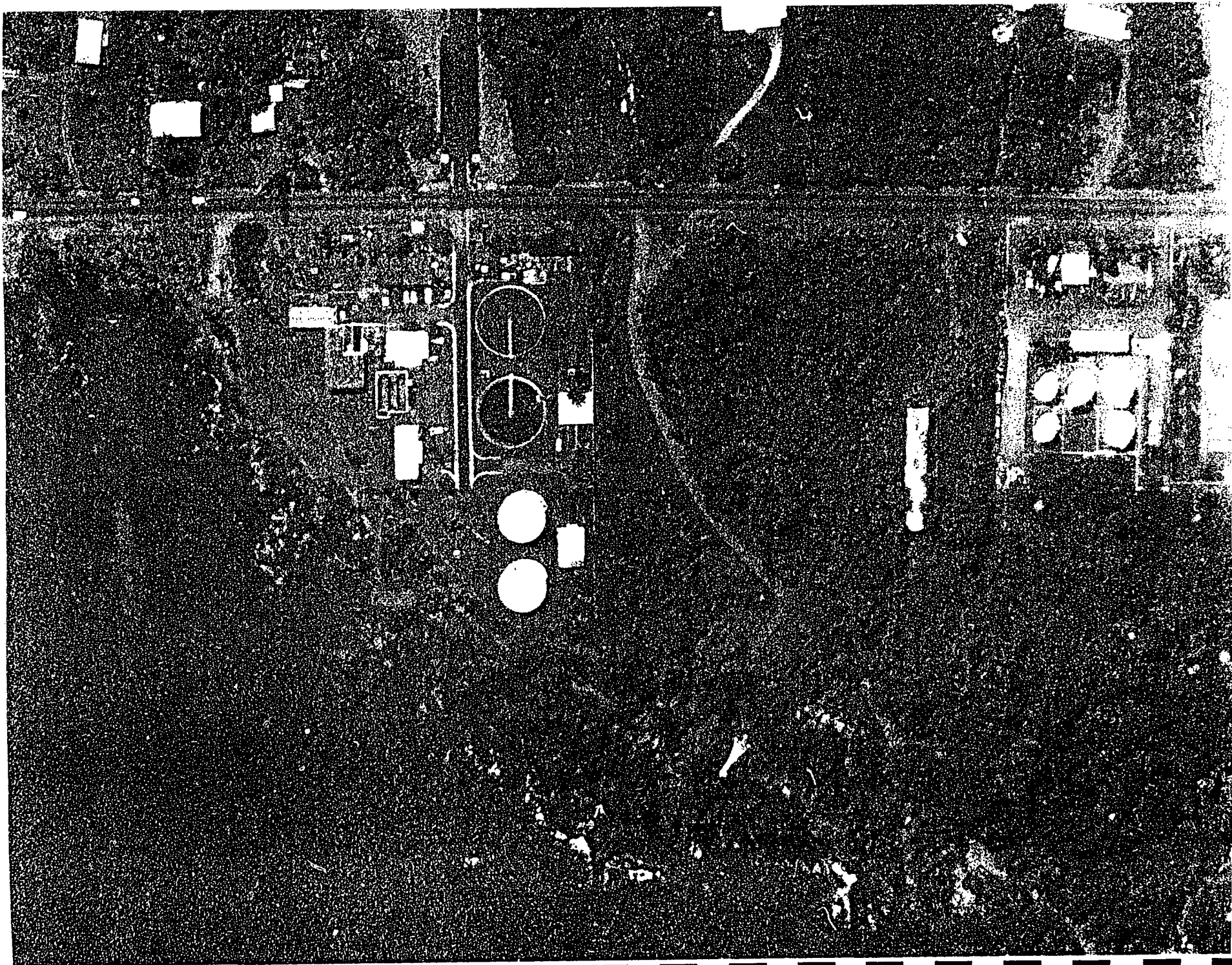
PHOTOGRAPH

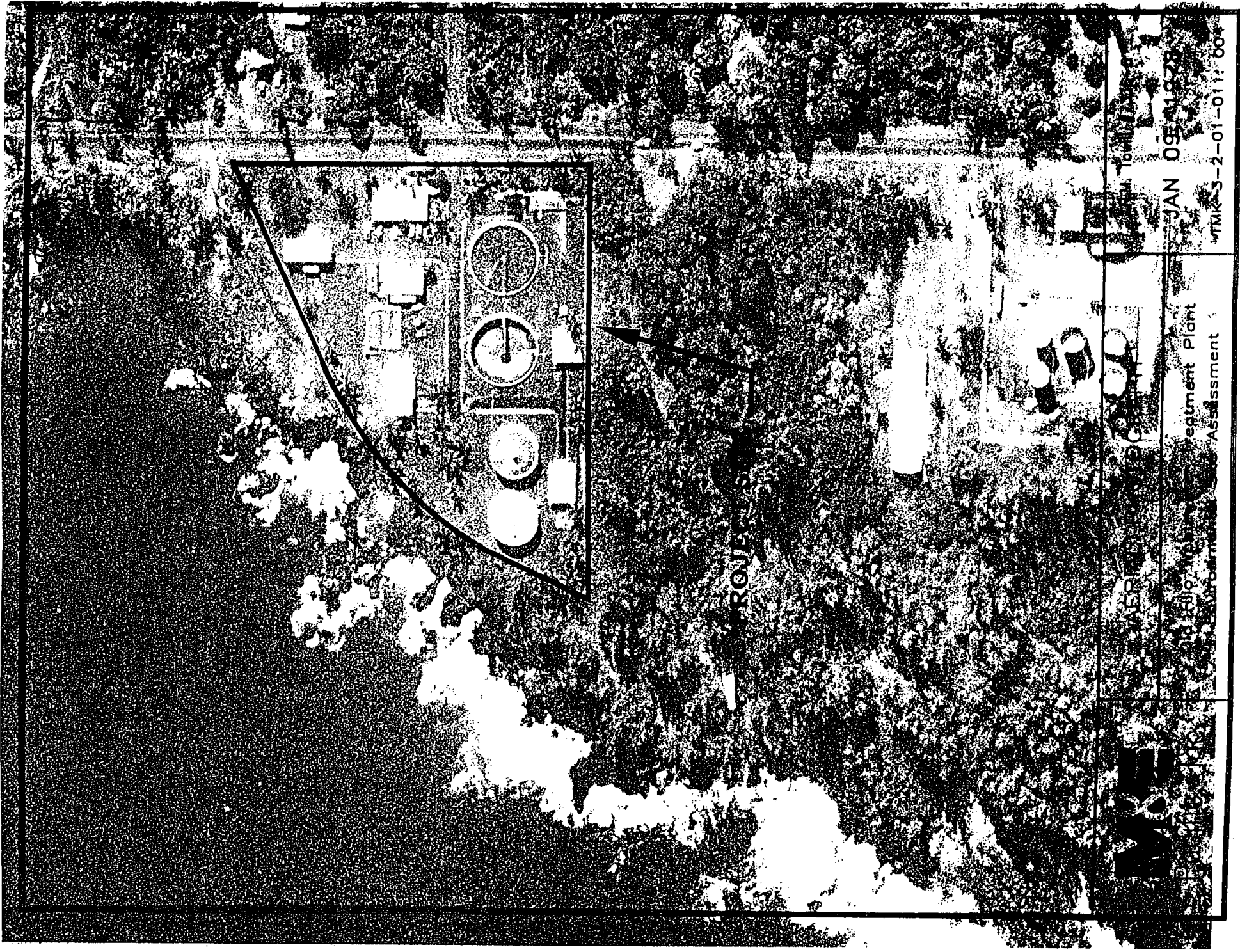
Site Assessment

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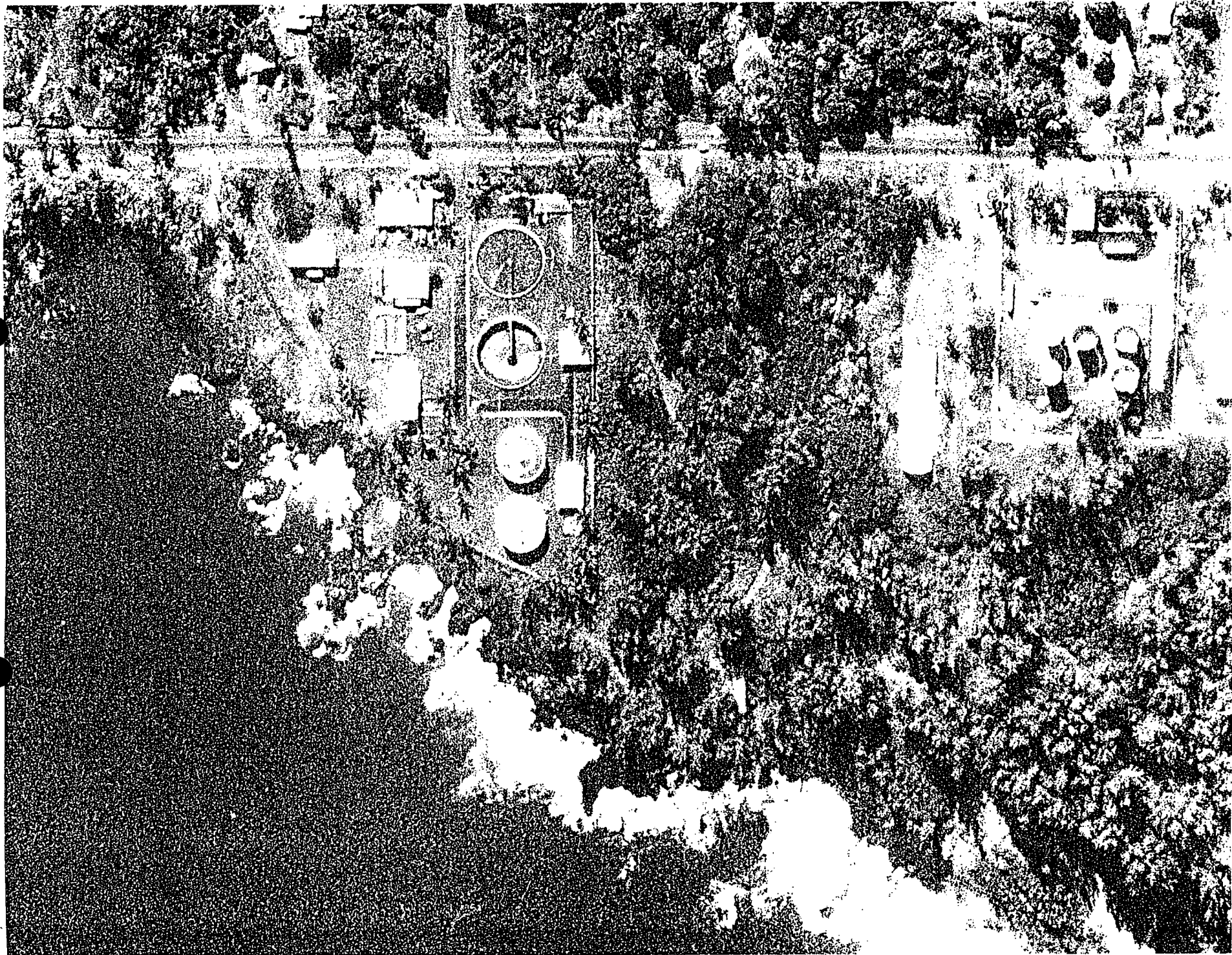
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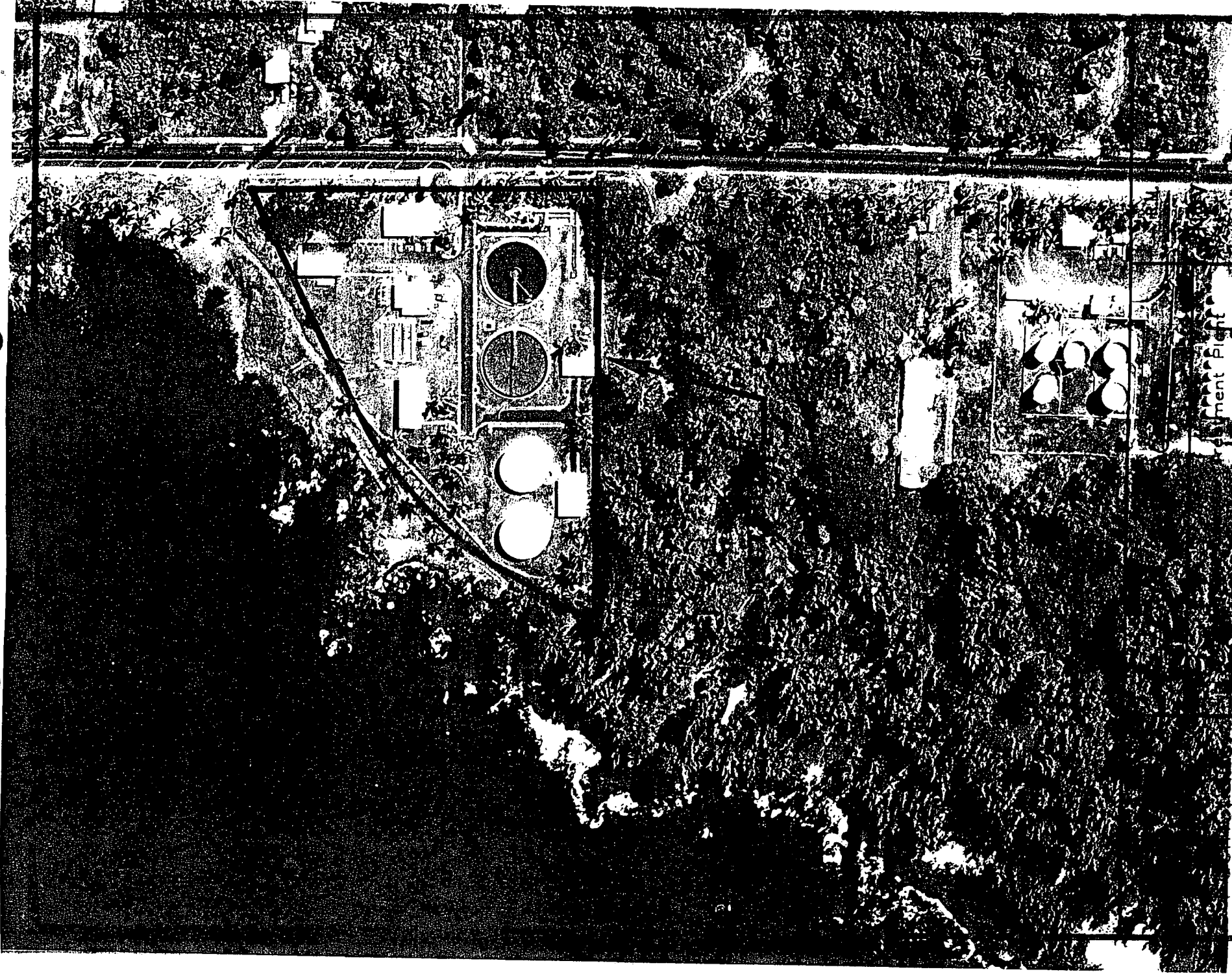
ASPHALT PAVING CONTRACT  
Treatment Plant  
Assessment

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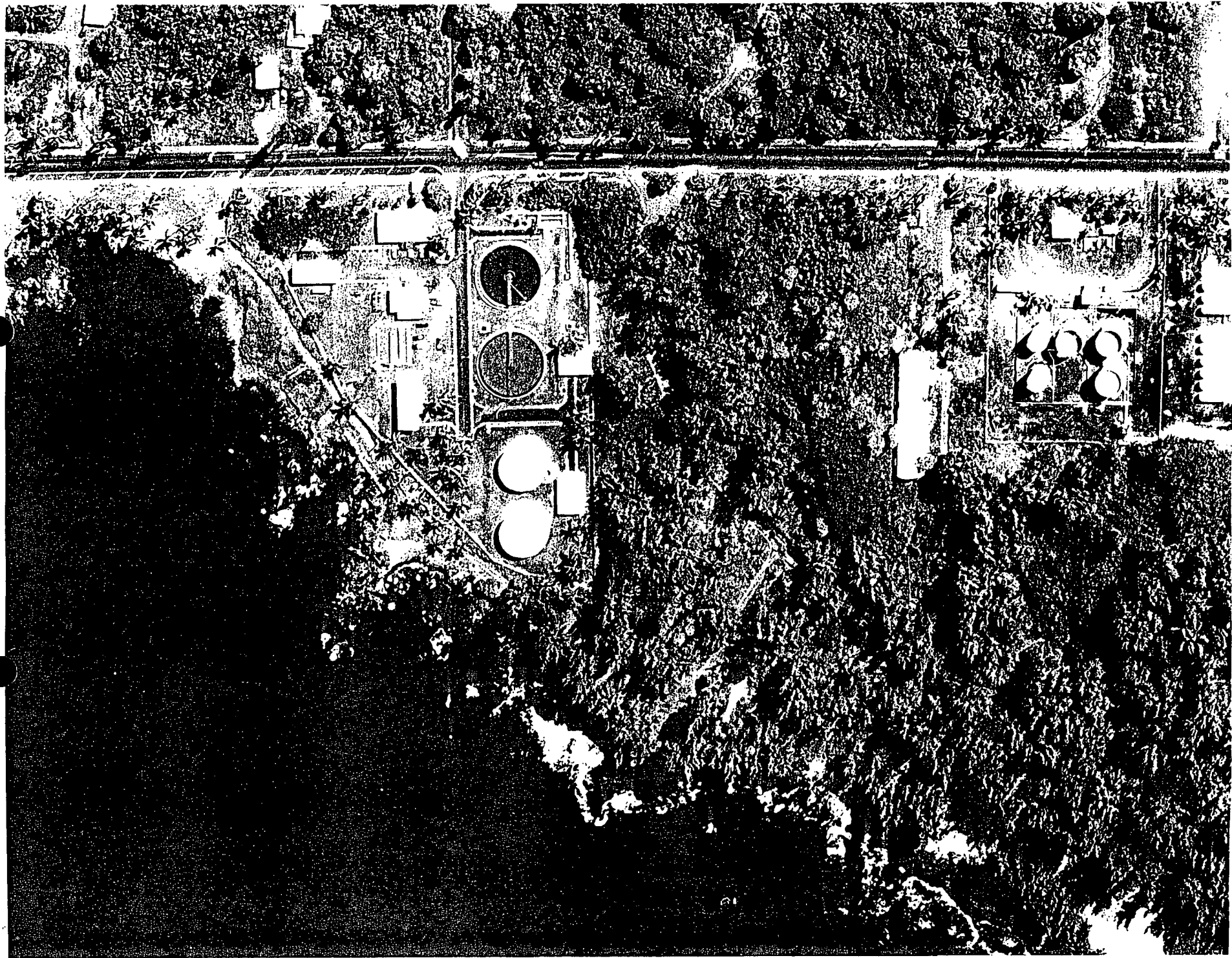




Environmental Site Assessment

Plant

TMK 3-Z-01-011: 004





UNIVERSITY  
OF HAWAII  
HILO

## Pacific Aquaculture and Coastal Resources Center

Hilo, Hawaii

A joint project of the University of Hawaii at Hilo, the University of Hawaii Sea Grant College Program, the County of Hawaii, the Keaukaha Hawaiian Homelands Community Association, and the State of Hawaii's Aquaculture Development Program

### Description

The Pacific Aquaculture and Coastal Resources Center (PACRC) is being developed at two sites: a coastal site (Keaukaha) which includes a decommissioned wastewater treatment plant adjacent to the Hilo port, on the island of Hawaii; and an inland site (Panaewa) just 6 miles away. PACRC's long-term goals are to contribute to the sustainable development of east Hawaii by providing the basic infrastructure needed for the development of world-class aquaculture and marine science programs at the University of Hawaii at Hilo. These programs will support the development of commercial aquaculture, fisheries and ecotourism in east Hawaii in addition to transferring technologies developed and tested at the Center to similar coastal areas throughout the Pacific.

Hilo is one of the few places in the world where both warm seawater and freshwater are readily available and cold seawater can be obtained from deep wells. Thus, it is possible to grow and conduct research upon most types of fish, shellfish and algae (tropical to cold-water) throughout the year. Additionally, a wide range of aquatic habitats ranging from tide pools, estuaries, coral reefs, rocky shorelines, and the deep open ocean occur within a mile or two of the Center. The close proximity of these varied habitats provides study areas for a broadly-based marine science program.

### Economic Benefits

The Center will provide significant economic benefits to east Hawaii. A one-time infusion of \$7.5 million will be brought into the local economy by the renovation and development of the Center. Center operations should also bring \$650,000 per year into the economy. Indirect benefits, although more difficult to quantify, will lead to an additional \$3 million from local expenditures by students attracted to the Center, new fish farms and increased tourism. Lastly, the Center will enhance depleted local fisheries by growing and releasing native species spawned at the Center.

### Development Costs

The first phase of the Center will cost approximately \$3 million. The County of Hawaii has agreed to provide up to 20% of that amount for basic renovation of the wastewater plant. The State of Hawaii has provided \$509,000 for the water system in Panaewa. Funds to complete phase I are now being raised. Later phases of development will cost an additional \$4 to \$5 million.

Total operating costs are expected to be \$650,000 per year, maintenance and utilities - \$150,000; extension & training - \$250,000; and research - \$250,000.

July 1999 Funding Update - The State of Hawaii has increased its contribution to \$1.09 million and the US Economic Development Administration is considering a \$1.7 million grant to the project. With these new funds, Phase I can be completed.

Pacific Aquaculture & Coastal Resources Center  
Keaukaha, Hilo, Hawaii

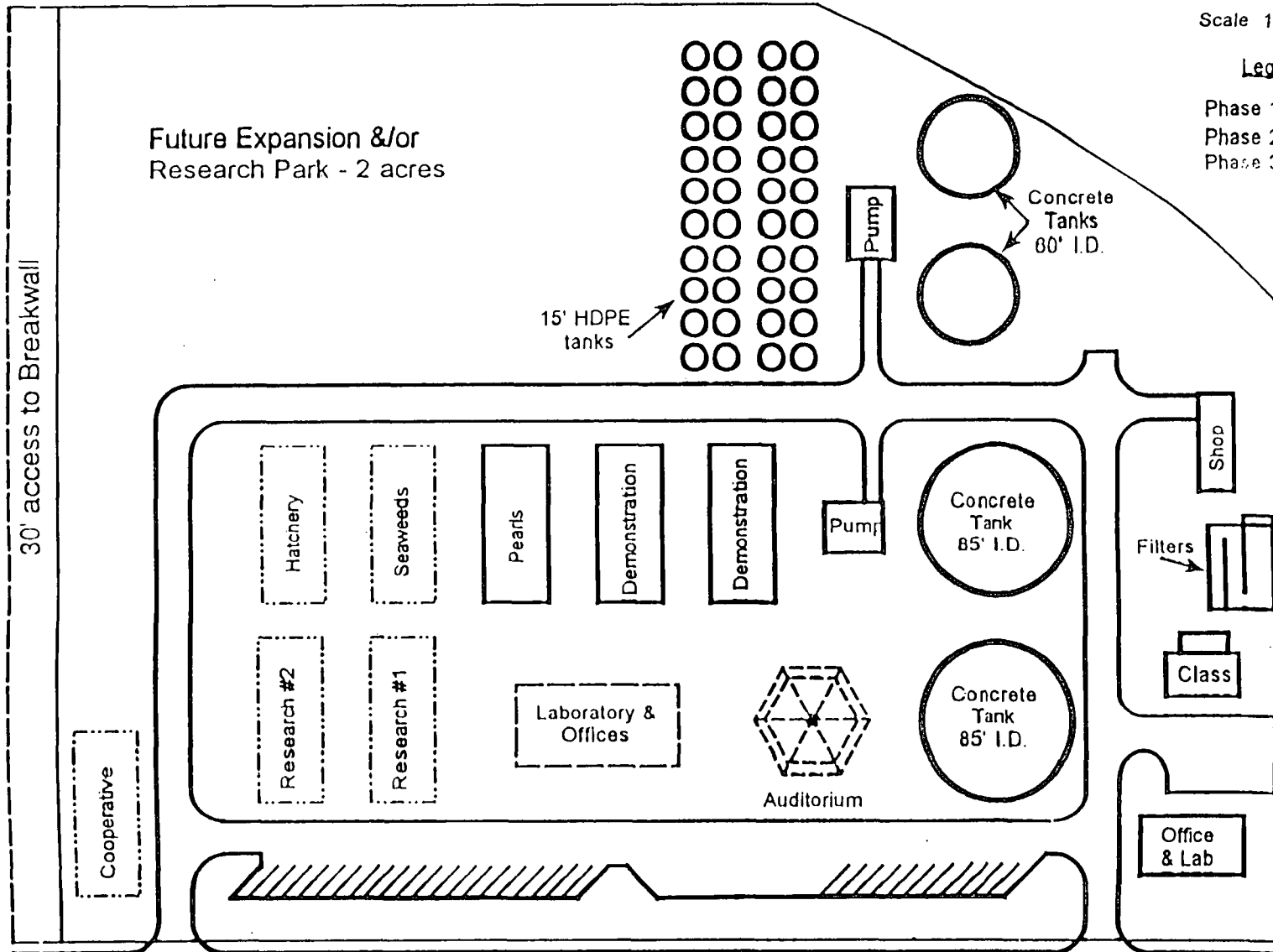
Puhi Bay



Scale 1" = 100"

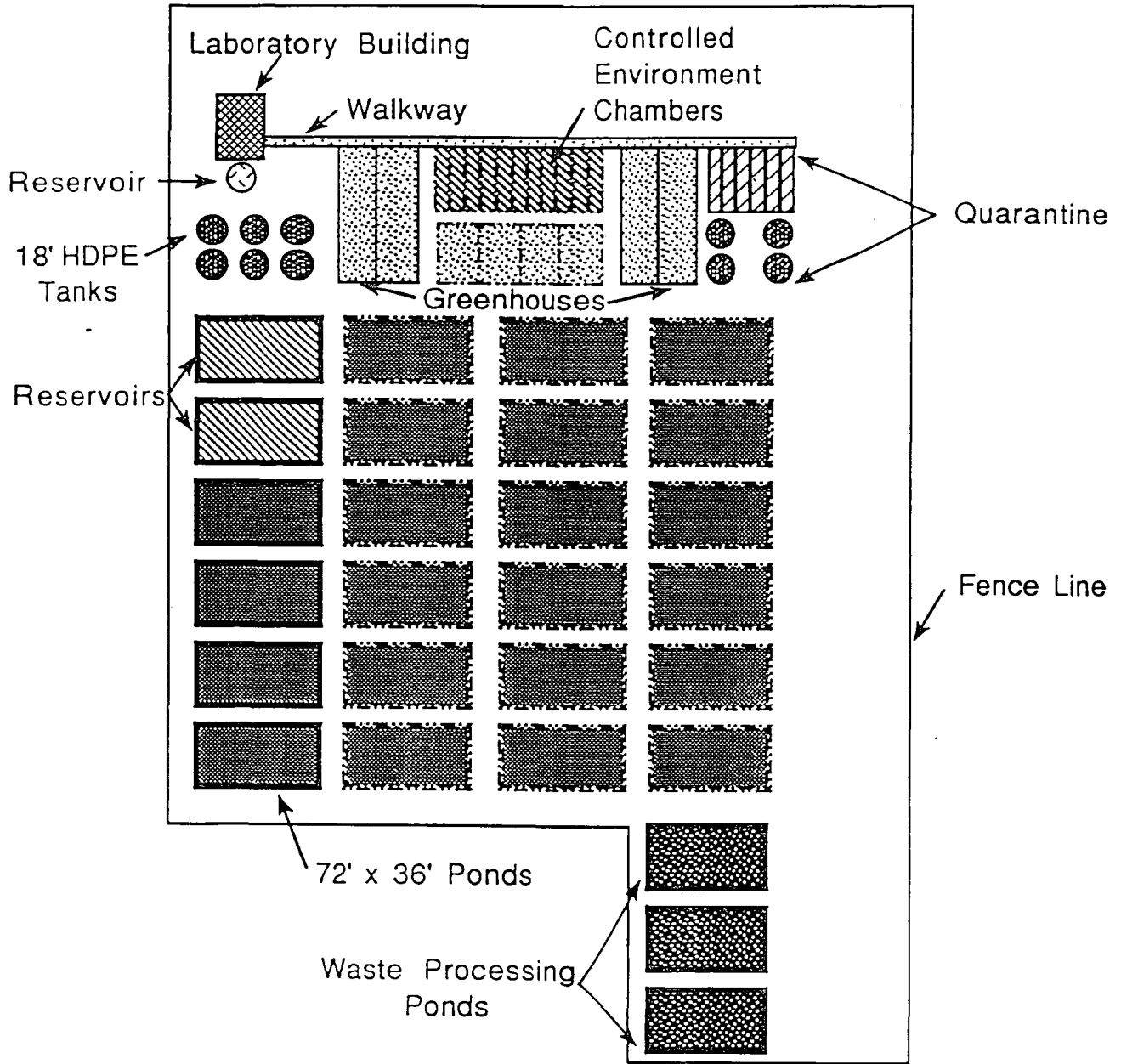
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- Phase 1 ———
- Phase 2 - - - - -
- Phase 3 - - - - -



Kalaniana'ole Street

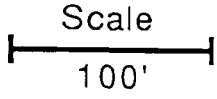
# PACIFIC AQUACULTURE & COASTAL RESOURCES CENTER PANAWEA (INLAND) FACILITY



**Legend**

Phase 1 ————

Phase 2 - · - · - ·



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## Keaukaha

The Keaukaha site consists of 3.5 acres formerly used by the wastewater treatment plant and 6.5 acres of adjacent land. This adjacent land was used by the military in the past but is now vacant and overgrown. Phase 1 of development will include the decommissioning and conversion of the wastewater treatment plant into the physical core of the Center, followed by the construction of wells and small demonstration facilities on the adjacent parcel. The demonstration facilities will be an integral part of an extension program geared toward the development of a sustainable aquaculture industry in east Hawaii. The program will initially focus on ornamental fish because the mild Hawaiian climate allows year-round production of tropical fish. Additional aquaculture activities at the Keaukaha site will include: a research and training facility for pearl production; a saltwater hatchery and other facilities which could be used to support open-ocean cage culture and stock enhancement projects by UH and other institutions; and a saltwater teaching and research facility in support of UH undergraduate and graduate aquaculture programs.

During later phases of development, expanded laboratories, public park facilities, and a small visitor center with parking will be constructed. The visitor center will be available for community meetings when it is not in use by the Center.

## Panaewa

The Panaewa site consists of 5 acres on the UH-Hilo Agricultural Farm. The primary purpose of this site will be quarantine for all fish brought into the Center and research on freshwater ornamental fish. There are no natural surface water sources within a several miles of the site so the potential for any escape of fishes or contamination of natural water bodies are extremely remote. Further, the Panaewa site will be used to develop and demonstrate technologies which integrate aquaculture and agriculture. In this way water usage can be minimized and nutrients used most efficiently. Other aquaculture activities will include: development of a gene bank for genetically-improved tilapia and other freshwater species which may be produced and sold to local farmers; applied research to adapt freshwater aquaculture technologies to local conditions; and freshwater teaching and research facility in support of UH undergraduate and graduate aquaculture programs.

During Phase 1 of development, a well and water distribution system will be installed, the quarantine unit constructed and the existing hatchery building converted into a pathology laboratory. During later phases, an environmentally controlled hatchery and nursery and a set of small freshwater ponds will be constructed.

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**For Further Information** - Contact Kevin Hopkins, University of Hawaii at Hilo, 200 W. Kawili, Hilo, HI 96720. Telephone (808) 974-7393 Fax (808) 974-7674 E-mail Hopkins@hawaii.edu or Bruce Miller, University of Hawaii Sea Grant College Program. Telephone (808) 956-8645. Fax (808) 956-2858 E-mail bmillier@hawaii.edu

FINAL ENVIRONMENTAL ASSESSMENT  
AND NEGATIVE DECLARATION

HAWAII PILOT HOLE PROJECT  
South Hilo District, Island of Hawaii

Proposed by:

THE UNIVERSITY OF HAWAII

Ralph T. Horii, Jr.  
Vice President for  
Finance and Operations

Dr. C. B. Raleigh  
School of Ocean and Earth  
Science and Technology

March 1992



**FINAL ENVIRONMENTAL ASSESSMENT  
AND NEGATIVE DECLARATION**

**PROJECT: HAWAII PILOT HOLE PROJECT**

**LOCATION: South Hilo District  
Island of Hawaii  
State of Hawaii**

**PROPOSING  
AGENCY: The University of Hawaii  
Vice-President for Finance and Operations  
2444 Dole Street  
Honolulu, HI 96822**

**ACCEPTING  
AUTHORITY:**

**CONTACT: Dr. C. Barry Raleigh  
School of Ocean and Earth Science and Technology  
University of Hawaii at Manoa  
2525 Correa Rd.  
Honolulu, HI 96822**

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## Executive Summary

This environmental assessment has been prepared to comply with Section 11-200-5 (b), Environmental Impact Statement Rules, which states that "...when an agency proposes to implement an action to use state or county lands or funds, it shall be subject to the provisions of Chapter 343, Hawaii Revised Statutes, and this chapter"; and, Section 11-200-10 which states that "agencies .. shall prepare an environmental assessment of each proposed action and determine whether the anticipated effects constitute a significant effect in the context of Chapter 343, Hawaii Revised Statutes, and Section 11-200-12."

### Description of the Action

The University of Hawaii School of Ocean and Earth Science and Technology, in collaboration with University of California at Berkeley and Cal Tech University, propose to undertake a research pilot hole drilling project. This research will be undertaken in order to test the feasibility of diamond core drilling and sampling submarine and subaereal basalt lavas for chemical analysis.

The proposed location of the drilling effort is adjacent to the Hilo Harbor facility on the Island of Hawaii. The parcels on which the work will occur are TMK 2-1-09-1 and TMK 2-1-09-41. These parcels are within the Urban Land Use Classification and are zoned General Industrial and Open (a portion of 2-1-09-1) under the County Zoning code.

The project will clear a drilling pad and drill and core a small diameter hole to a depth of 600 meters (2000 ft.). The upper 23 m of the hole will be drilled to a diameter of approximately 355 mm (14 in.) and cased with 254 mm (10 in.) casing. A 101 mm diameter hole will be drilled from that depth to 150 m (500 ft.) and reamed to a diameter of 216 mm (8.5 in.) and a temporary casing of 178 mm (7 in.) will be set. Drilling with the 101 mm core bit will then continue to a total depth of approximately 2000 ft.

At the conclusion of drilling, downhole sampling and measurements will be made in the well at periodic intervals.

If the drilling project is successful, and subsequent reviews recommend funding, a subsequent research program will be proposed for this, or a nearby, site to conduct a deep drilling and sampling program.

## **Summary of Potential Impacts and Mitigating Measures**

### **Geologic Hazards**

The lava flow hazards within this area are considered to be low and would allow sufficient time to remove the drilling rig prior to inundation of the site. This area is within the tsunami inundation zone. Tsunamis generated by distant earthquakes would allow sufficient time to secure the hole and remove the drilling rig. Locally generated tsunamis would not allow sufficient time to relocate the rig but, because the wave height associated with these events is generally small in this area, they are unlikely to significantly impact the drill site.

### **Air Quality**

The drill rig will emit diesel exhaust at rates that will be equivalent to or less than those from a typical truck engine. Emissions are believed unlikely to contribute significantly to the existing load of vehicular, marine, and jet exhaust discharges that occur in this area.

### **Water Quality**

The materials used in the drilling process that are likely to be discharged into the shallow aquifers consist of bentonite clay and organic polymer additives that are routinely used in water well drilling. The groundwater beneath the drilling site is believed to be brackish and unfit for consumption. Hence, the proposed action will not have a significant impact on drinking water resources.

There is a very small possibility of leakage of the drilling fluids into the coastal water way during the drilling in the shallow portion of the hole. If this discharge is considered to pose an unacceptable risk, a drilling method can be used over the shallow portion of the hole that will eliminate the need to use drilling mud.

### **Noise**

The drilling rig will be equipped with hospital type mufflers to reduce the noise levels emitted by the drilling rig. In light of the relatively high levels of noise generated by the harbor facilities, traffic on Kalaniana'ole Street, and jet traffic at the General Lyman field, it is unlikely that the drilling program will significantly affect ambient noise levels in this area.

### **Flora and Fauna**

This site has been exposed to extensive disturbance in the past and is routinely impacted by industrial activities that are underway on the adjoining parcels. Hence, it is unlikely that significant natural resources exist at this site nor that the impacts associated with drilling here will impact the existing environment. A botanical survey of the site did not identify sensitive species present here.

### **Archaeology**

These parcels were checked by the staff of the State Historic Preservation Division in January 1992. The land surface was found to be extensively altered with evidence of bulldozing and other activities. This fact makes it unlikely that significant historic sites remain in the project area. No such sites were found by the State Historic Preservation Division. It is, therefore, considered unlikely that any significant impact will occur.

### **Socio-Economic Impact**

The impact of four to six workers commuting into this site is considered to be insignificant relative to the normal traffic through this area. The drilling activities will be limited in duration and will not impact the community lifestyle in the area nor access to the ocean along this coastline. The location of the site, although near Keaukaha and Onekahakaha beach parks, is buffered from these parks by the Keaukaha Wastewater Treatment Facility.

### **Access and Traffic**

The site is located adjacent to Kalaniana'ole Street which is the major traffic artery through the industrial and dock area. The addition of two to four round trips daily to the site will not add measurably to the existing traffic load on this street.

### **Infrastructure, Utilities, and Services**

The only infrastructure that is likely to be impacted by the drilling project is for water supply. An estimated 7,500 gallons per day will be required for drilling mud and water. This volume would be derived from the 6 inch water main that runs parallel to Kalaniana'ole St.

Solid waste volumes are expected to be small and would be disposed of at the Hilo landfill or as otherwise directed by the County of Hawaii or the Department of Land and Natural Resources.

### **Visual Impacts**

The rig will not present a significant contrast to the existing industrial land uses in the area. Further, the preferred drilling site will be shielded by a stand of trees and will not be directly visible from most of the nearby residential areas.

### **Lighting**

The drilling contractor will be informed of the Hawaii Outdoor Lighting Regulations and compliance will be a condition of the contract.

## I : INTRODUCTION

### **A. Summary of the Hawaii Pilot Hole Project**

The University of Hawaii School of Ocean and Earth Science and Technology, in collaboration with the University of California at Berkeley and Cal Tech University, propose to undertake a pilot hole drilling project in the South Hilo district of the Island of Hawaii. This drilling project is intended to test the feasibility of obtaining samples of rock from a sequence of subaerial and submarine lava flows that form the flanks of Mauna Loa and Mauna Kea volcanoes using core drilling technology.

The drilling program will drill a single hole to a depth of approximately 610 m (2000 ft.) over a period of approximately six weeks and will recover continuous samples of core throughout the interval drilled. Measurements of downhole rock morphology and chemistry, and water chemistry and temperature will be made over a period of several months after completion of drilling. Depending upon the results of this drilling effort, the results of downhole measurements, and funding availability, a separate proposal may be submitted to deepen this hole, or drill a second one in close proximity to that presently proposed, in an effort to sample a much longer sequence of lava flows from Mauna Kea volcano.

### **B. Background**

The unusual conditions that have led to the formation of the Hawaiian Archipelago are widely recognized as providing unique opportunities to study a number of fundamental earth science questions. Included among these are not only the study of volcanic hazards but also the very basic questions of why volcanoes such as those that form Hawaii occur at all and the role that this type of volcanism plays in the planetary evolution process.

The Hawaiian archipelago makes up one of a very few volcanic chains that exist in the world that result from a mantle "hot spot" located tens to hundreds of kilometers below the earth's crust. Current geologic models indicate that the mantle "hot spot", or "plume", that is responsible for the Hawaiian Archipelago has existed for tens of millions of years beneath the ocean floor that forms the Pacific Plate of the earth's crust. During this time, the Pacific Plate has moved slowly northward while the mantle plume has pumped molten magma onto the ocean floor to form the sea mounts and islands that we know as the Hawaiian chain. However, we know very little more about this plume, or "hot spot" than that it exists and appears to be nearly stationary relative to the rest of the planet below its surface crust. A proposal has recently been funded by the National Science Foundation to begin the study of the mantle plume that forms the Hawaiian Hot Spot.

This program will be a joint effort of the University of Hawaii School of Ocean and Earth Science and Technology, the University of California at Berkeley, and Cal Tech University. The objective of the research is to obtain an extended set of samples of lava flows that have formed a single volcano and that span the majority of its eruptive life. Because this effort will require drilling to a depth of nearly 4.5 km (14,500 ft.) in a rock type for which drilling experience is limited, it has been recommended that a shallow pilot hole be drilled to demonstrate the technical feasibility of drilling through a long sequence of subaerial and submarine lavas using core drilling technology. This Environmental Disclosure Document is being prepared to evaluate the potential environmental impacts of this preliminary drilling effort.

### **C. Purpose of this Environmental Assessment**

This environmental assessment has been prepared to comply with Section 11-200-5 (b), Environmental Impact Statement Rules, which states that "...when an agency proposes to implement an action to use state or county lands or funds, it shall be subject to the provisions of Chapter 343, Hawaii Revised Statutes, and this chapter"; and, Section 11-200-10 which states that "agencies .. shall prepare an environmental assessment of each proposed action and determine whether the anticipated effects constitute a significant effect in the context of Chapter 343, Hawaii Revised Statutes, and Section 11-200-12."

## PART II : DESCRIPTION OF THE ACTION

### **A. General Characteristics of the Project**

The steps involved in the research program will consist of the following: a 30 m by 60 m (100 ft. by 200 ft.) drilling pad will be cleared and graded; a wellhead slab will be installed; a truck-mounted drill rig will be set up on the wellhead slab; the hole will be drilled to a depth of approximately 610 m (2000 ft.); the drilling rig will be removed and the wellhead will be secured; periodic downhole measurements will be performed in the hole.

### **B. Site Location**

The location of the proposed action is within two State-owned parcels of land at TMK 2-1-09-1 and 2-1-09-41 (Fig. 1). The precise location of the hole within these parcels will be based upon recommendations by the Department of Land and Natural Resources under the conditions of a Right of Entry permit that will be requested from that agency. The total land area of these parcels is approximately 3.9 and 3.3 acres respectively. Both are



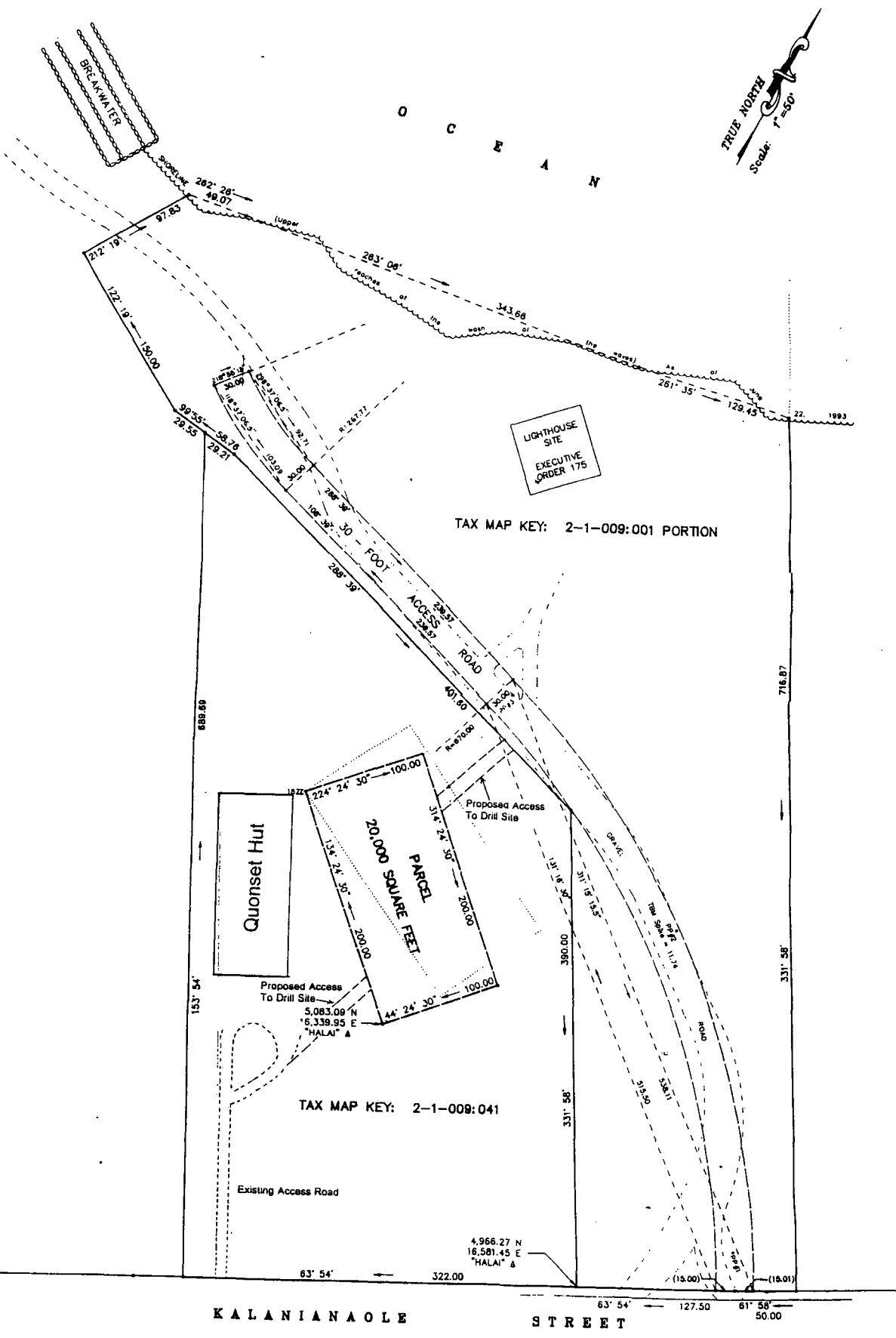
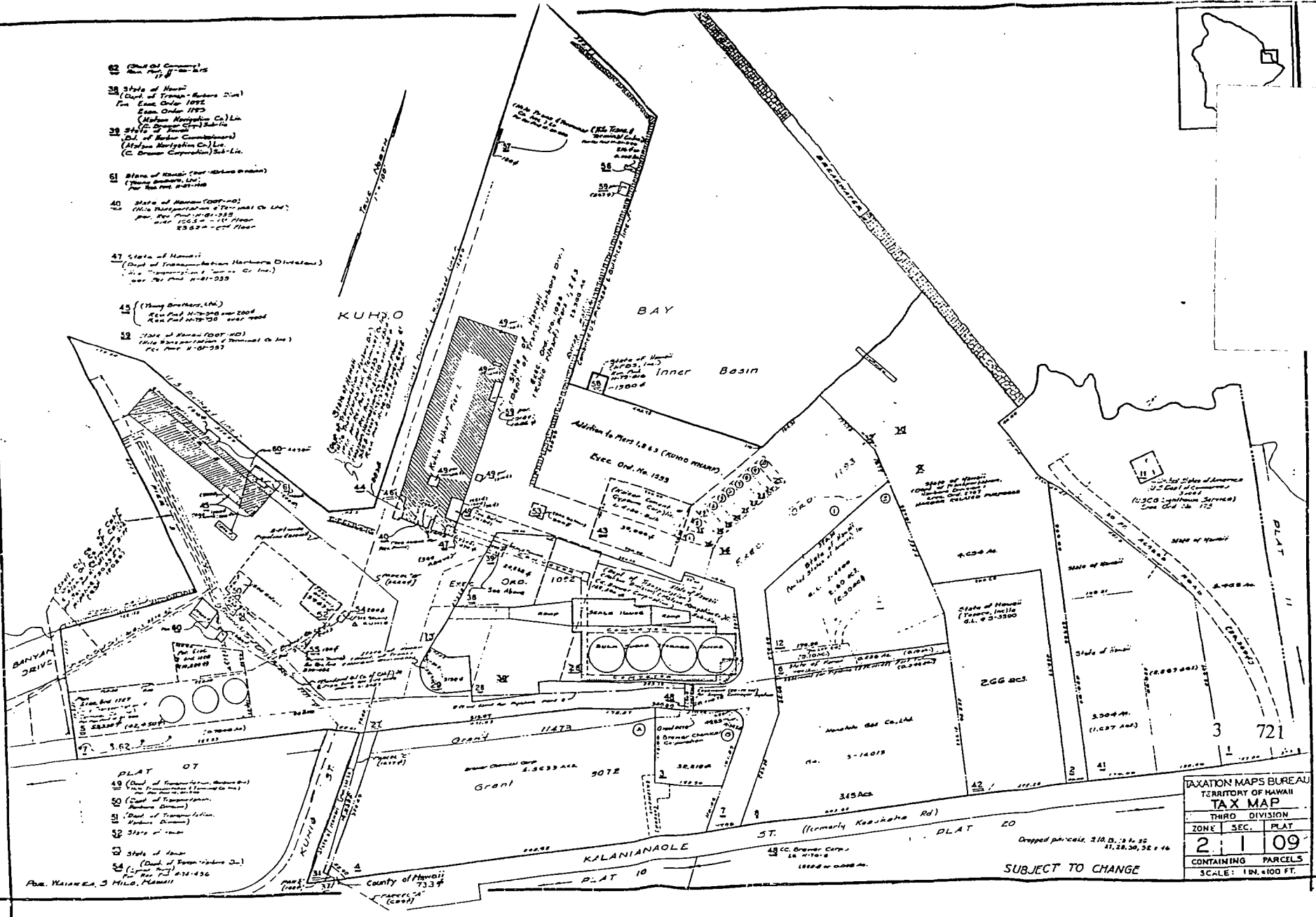


Figure 1. Plot plan for the proposed site showing location of shoreline, drill pad and access road.

- 38 State of Hawaii  
(Dept. of Transport - Harbor Div.)  
Exec. Ord. No. 1092  
Exec. Ord. No. 1183  
(Hawaii Navigation Co.) Ltd.  
(Hawaii Navigation Co.) Ltd.  
(C. Brewer Corporation) Sub-Lit.
- 41 State of Hawaii (Trust Agreement)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 40 State of Hawaii (Trust Agreement)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100  
Exec. Ord. No. 1183  
Exec. Ord. No. 1183
- 47 State of Hawaii  
(Dept. of Transportation - Harbor Division)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 45 (Trust Agreement, Ltd.)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 32 State of Hawaii (Trust Agreement)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100



- 49 (Dept. of Transportation - Harbor Div.)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 50 (Dept. of Transportation - Harbor Division)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 51 (Dept. of Transportation - Harbor Division)  
(Trust Agreement, Ltd.)  
Per. No. 100-100-100
- 52 State of Hawaii  
(Dept. of Transport - Harbor Div.)  
Per. No. 100-100-100

TAXATION MAPS BUREAU  
TERRITORY OF HAWAII  
**TAX MAP**  
THIRD DIVISION  
ZONE SEC. PLAT  
2 1 09  
CONTAINING PARCELS  
SCALE: 1 IN. = 100 FT.

SUBJECT TO CHANGE

THAK 2111-4100

owned by the State of Hawaii. These parcels are zoned Urban/General Industrial and Urban/Open (a portion of TMK 2-1-09-1) and are located between the Hilo dock facility and the Keaukaha Wastewater treatment plant.

### C. Site Preparation

A drill pad having dimensions of approximately 30 m by 60 m will have to be cleared and levelled for location of the truck mounted rig, drilling fluid tanks, drill-pipe laydown area, and for access to supply vehicles. A wellhead pad will be prepared by digging a 2 m by 2 m (6 ft. by 6 ft.) cellar to a depth of approximately 1.5 m (4 ft.). A steel reinforced concrete pad, having dimensions of 4 m by 4 m (12 ft. by 12 ft.), will be poured to form a stable base for the rig; at this time a concrete pad will also be prepared as a cover for the wellhead cellar.

### D. Drilling Operations

The drilling rig to be used for this project will be similar to the Universal 1500, truck mounted diamond coring rig (Fig. 2). The rig has a self-contained power train and uses a 230 hp diesel engine to generate its own hydraulic and electrical power. The rig will be set up and anchored on the wellhead pad as shown in Figure 3. Ancillary equipment that will be installed on the drilling pad include: skid mounted drilling fluid tanks and pumps, a water tank, a supplies trailer, and a cuttings sump.

The drilling program will consist of three phases of drilling that will be run consecutively and will be conducted on a 24 hour per day schedule. The first phase will be to core drill to a depth of approximately 23 m (75 ft.) using a 101 mm (4 in.) core drill. At 23 m (75 ft.), core drilling will be suspended and the hole will be reamed to approximately 355 mm (14 in.) using a rotary drill to total depth. Surface casing will then be cemented into the open section of the hole. Core drilling will recommence and a 101 mm (4 in.) hole will be drilled to a depth of 150 m (500 ft.). The hole will again be reamed to a diameter of 8.5 in. and a 7 in. casing will be set (cemented) from the surface to 150 m. Coring will again be undertaken after completion of the casing program and will continue to a total depth of approximately 610 m (2000 ft.). At the completion of the drilling program, a valve will be welded onto the wellhead and the wellhead pad will be secured.

During the drilling process, fluids will be pumped down the hole to cool and lubricate the drill string and bit. We will use a bentonite based drilling fluid to which organic polymers have been added to increase lubricity and viscosity. However, we have the capability to drill using seawater over some portions of the hole in order to prevent contamination of the recovered core with drilling mud residue. The drilling fluids will be circulated down the string and those that return will be cycled through a "mud

tank", to allow rock particles to be removed, and then will be recycled down the hole. Drill cuttings recovered from the hole will be stock-piled at the site in a cuttings sump and will be disposed of in the County of Hawaii landfill or, if deemed appropriate, will be disposed of as grade material at the site.

As discussed below, we will also have as an option to drill the first 23 m of the hole using cable drilling technology rather than core drilling. This option can be pursued if, during the environmental and permit review process, this method is recommended in order to eliminate any possibility of loss of drilling fluids to the shallow groundwater that might be discharged to the coastal waters adjacent to this site.

During and subsequent to completion of the drilling program, a series of measurements will be performed in the well at intervals of a few days to a few months. During the drilling operation, maximum reading thermometers will be run into the hole at least once per day. Fluid chemistry samples during drilling will be obtained at the water table and at intervals down the hole as deemed necessary by the drilling supervisor. Other geophysical measurements may also be made during and after the drilling program is completed. These measurements will be made by lowering various instruments into the well on a wireline cable that is controlled by a truck mounted winch. Each set of measurements may require that the truck be set up at the site for periods of up to 24 hours. The measurements to be made may include: measurements of the downhole temperatures, fluid flow within the well, the location and orientation of fractures in the rocks, and variations in the chemical composition of the rock units down the length of the hole.

#### **E. Access**

Access to the site would be via existing roadways; an unimproved road enters the state-owned parcel from Kalaniana'ole Street. This road was installed during construction of the Hilo breakwater and is currently used to maintain the breakwater as well as fishermen for access to the bay. It is of an adequate width to accommodate the drill rig anticipated for use in this project. We propose to clear the drilling pad adjacent to this access road or at a very short distance (<100 ft.) from it.

#### **F. Infrastructure**

It will be necessary to provide water to the drilling rig for the preparation of drilling mud and to flush cuttings from the hole during periods when no drilling mud is used. Our expected need for these purposes is in the range of 7,500 gallons of water per day.

We will have two options open to us for water supply. The first is if we are required to drill with seawater, we propose to run a line to Hilo Bay and draw seawater to the site using a

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Year
Temperature °F													
Normals													
-Daily Maximum	79.5	79.0	79.0	79.7	81.0	82.5	82.8	83.3	83.6	83.0	80.9	79.5	81.2
-Daily Minimum	63.2	63.2	63.9	64.9	66.1	67.1	68.0	68.4	68.0	67.5	66.3	64.3	65.9
Precipitation (inches):													
Water Equivalent													
-Normal	9.42	13.47	13.55	13.10	9.40	6.13	8.68	10.02	6.63	10.01	14.88	12.86	128.15
-Maximum Monthly	32.24	45.55	49.93	43.24	25.01	15.50	28.59	26.42	14.36	26.10	35.72	50.82	50.82
-Minimum Monthly	0.36	0.58	0.88	2.93	1.18	1.80	3.83	2.66	1.59	2.40	2.33	0.28	0.28
Wind:													
Mean Speed (mph)	7.5	7.7	7.6	7.4	7.3	7.1	6.9	6.8	6.7	6.7	6.8	7.2	7.2

Table 1. Normal, Mean, and Extreme meteorological data for Hilo Hawaii.

Wind direction is from the Northeast during the daylight hours and shifts to Mauna Loa drainage winds from the Northwest and West during the nighttime hours (Fig. 4).

### **Geology**

The geology of the area proposed for drilling is composed of relatively young basaltic rocks derived from lava flows of Mauna Loa volcano. Soil thicknesses in this area are minimal, amounting to no more than a few inches. The subsurface geology is not known in detail, but probably consists of alternating layers of basalt lava flows interspersed with deposits of coralline sand and reef rock from earlier, now buried shorelines of Hilo Bay. Within the subsurface stratigraphy we expect to find a transition from Mauna Loa lava flows to those originating from Mauna Kea volcano. At the present time our best estimates place this transition somewhere below the target depth of the proposed hole. However, because the currently estimated depth is little more than speculation, the results of this hole will provide substantially better data with which to make such an assessment.

One of the major criteria in choice of this site for a drilling target is the avoidance of alteration of the subsurface lava flows by hydrothermal activity. Hence, the site is located as far away from the rift zones of either Mauna Kea or (to the extent known) Mauna Loa. We do not anticipate encountering thermal activity of any kind in this hole and hope to avoid any evidence of past active thermal alteration of the lava flows sampled.

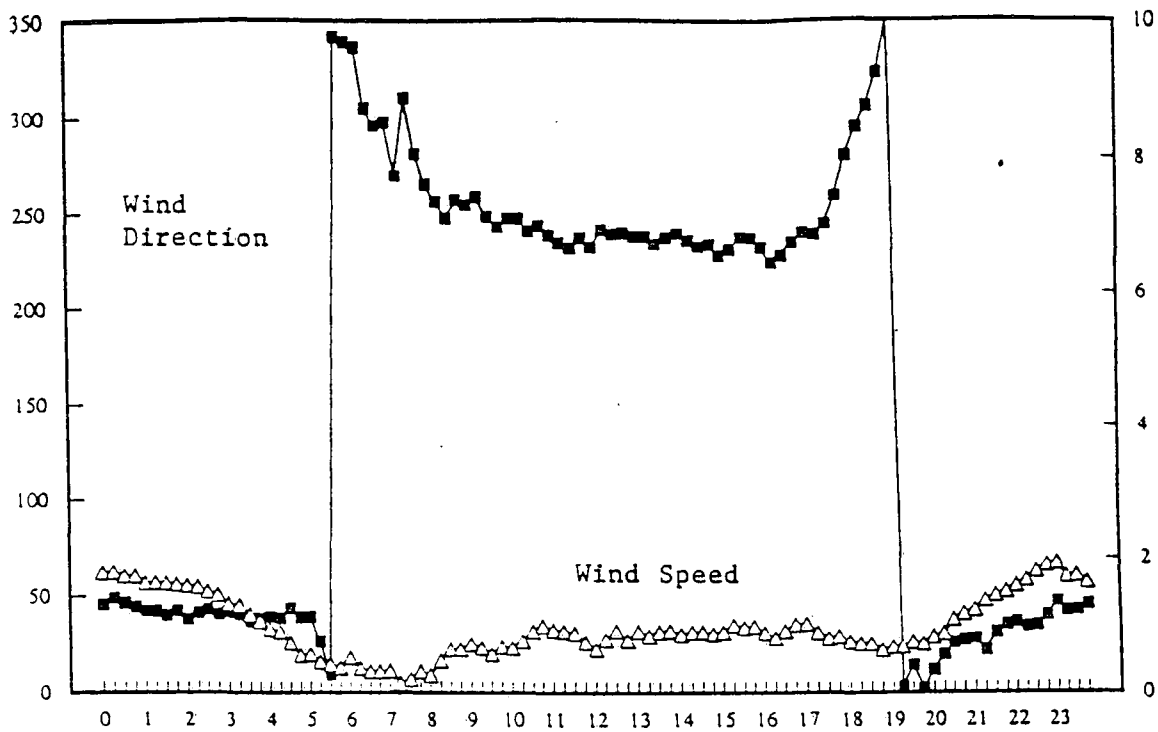
The topography of the proposed site is very gently sloping and has almost certainly been modified by grubbing and grading associated with the installation of the harbor facility and the breakwater. The elevation of the site ranges from sea level to approximately ten feet or less at the in-shore boundary.

### **Geologic Hazards**

The proposed drilling site is within Lava Flow Hazard Zone 3 as identified by Helicker in the USGS publication "Volcanic and Seismic Hazards on the Island of Hawaii (U.S.G.P.O. # 1990-259-799). This zone encompasses virtually all of Hilo and much of the lower flanks of Mauna Loa volcano. If a lava flow were to threaten Hilo, there would be more than adequate time to secure the hole and remove the drilling rig to a safe location.

The proposed site is, however, located within the boundaries of the tsunami hazard zone at Hilo. In the event of a tsunami generated outside of Hawaii during the drilling project, there would be adequate time to disconnect the rig from the drill string, lower the drilling mast, and remove the vehicle to a site outside the coastal flooding zone. If a tsunami is generated by a local earthquake, it is unlikely that there would be sufficient time to remove the drill rig. Rig personnel should, however, have adequate time to evacuate the site. Rig personnel will be instructed in the

# station9



# station9

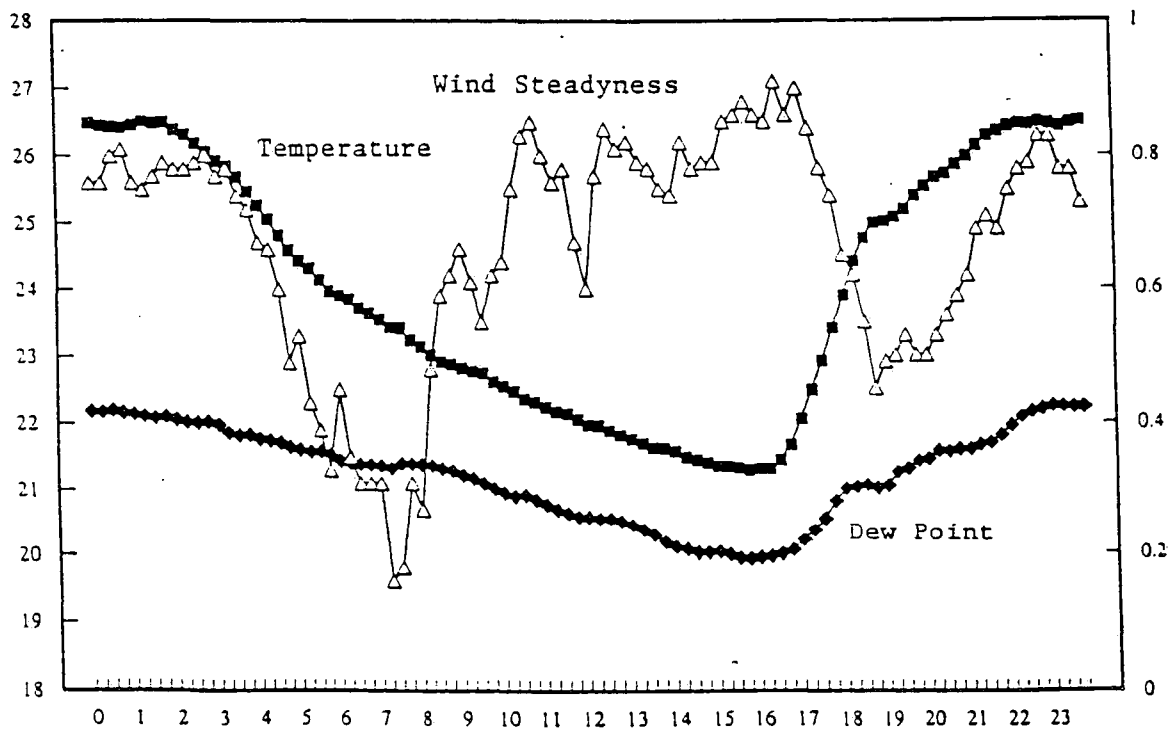


Figure 4. Meteorological data for Keaukaha vicinity of Hilo, Hawaii.

procedures to follow in the event of a strong local earthquake.

#### **Hydrology**

The hydrology is quite simple in the immediate vicinity of the proposed drilling. Because the site is located immediately adjacent to the coast, the groundwater will be brackish to pure seawater. The high permeability of the coastal rocks will result in a groundwater level being at local sea level and will also allow efficient tidal pumping of the basal lens. Hence it can be anticipated that there will be substantial intrusion of saline water into the groundwater below the site. The hydraulic gradient will, however, be toward the ocean in this area and there is likely to be substantial brackish water outflow along the coastal zone here. It is, however, possible that major discharges of brackish water will be encountered if large diameter lava tubes are present below the site. At the present time we have no way of determining the presence of these tube systems at this location.

As noted above, this site was chosen to be as far as possible away from the rift zones of Mauna Loa or Mauna Kea in order to avoid the possibility of modification of the lava chemistry by hydrothermal alteration processes. Hence we do not expect to encounter thermal fluids in the present drilling program.

#### **Noise**

Noise levels are controlled by the industrial nature of the surroundings of the proposed site. The Hilo airport runway ends less than one-half mile from the site; the commercial dock abuts the site; Kalaniana'ole Street, the major artery through the area, is less than 150 m (500 ft.) away from the proposed drill pad.

Natural sources of noise include surf breaking on the outer flanks of the breakwater and along the coastline not protected by the breakwater. Wind and heavy rain would also periodically be significant natural sources of noise in the area. Current Hawaii County guidelines for noise restrict noise levels to 55 dBA during daylight hours and 45 dBA during nighttime.

### **B. The Biological Environment**

A biological assessment of the proposed site has been conducted by W. Char and Associates. The findings of this work are attached as Appendix A and can be summarized as follows: The site has been heavily impacted by prior anthropogenic activity and the vegetation is dominated primarily by alien species. Although there are limited numbers of native plant species present on the site, none are listed as threatened or endangered species. "There is very little of botanical interest on the site and ... the proposed project should not have a significant negative impact on the botanical resources."



### C. Archaeology

These parcels were checked by the staff of the State Historic Preservation Division in January 1992. The land surface was found to be extensively altered with evidence of bulldozing and other activities. This fact makes it unlikely that significant historic sites remain in the project area. No such sites were found by the State Historic Preservation Division.

### D. The Socio-Economic Environment

The proposed site is located in an Urban Land Use district and has been designated "General Industrial" within the County of Hawaii zoning code. It is located in the coastal area bordering the city of Hilo. The population of Hilo is approximately 46,000 persons and its industrial area encompasses several large tracts of land adjacent to the main airport and along State Highway 11, the main roadway out of Hilo toward the south. The proposed site for the drilling project is bounded by the Hilo commercial docking facility to the west, a petroleum storage area to the south, and the Hilo/Keaukaha sewage treatment facility to the east. The northern boundary of the parcel is the coastline facing Hilo Bay.

The nearest residential area is Keaukaha, located about 150 m to the south across Kalaniana'ole St. from the proposed site. This area is controlled by the Department of Hawaiian Home Lands and is comprised of sparsely distributed, older to recent, modest sized homes occupied by predominantly long-time residents of Hilo. The density of housing is relatively low closest to Kalaniana'ole St. and increases with distance back from this street. Lyman Field, the main airport for east Hawaii is located south of this area.

It should also be noted that, at the present time, the coastal portion of the parcel proposed for the drilling project is occupied by a several temporary shelters comprised of tents, abandoned cars and vans, and assorted scavenged building materials. Occupancy of these shelters appears to range from occasional to full-time although none of the shelters appears to have been authorized for construction or occupancy there by any state or county agency.

The nearest park facilities are located along the coastline to the east where Keaukaha and Onekahakaha Beach Parks are located at distances of 350 m (1200 ft.) and 1.6 km (1 mi.) respectively.

### Infrastructure and Utilities

The main roadway through the industrial district is Kalaniana'ole St. that runs adjacent to the project site and leads into the main business district of the city of Hilo. This roadway also carries rights of way for power, telephone, and a 6 in. diameter county water main. Wastewater treatment facilities are

located adjacent to the proposed site.

All other infrastructure expected for a city having a population of 50,000 (fire protection, hospital, industrial and fuel supply houses, etc.) are easily accessible from the site.

#### Part IV : POTENTIAL IMPACTS AND MITIGATING MEASURES

##### **A. Introduction**

The proposed project is for purposes of scientific research only. Samples of rock and water will be recovered from the proposed drill hole and measurements of rock properties and subsurface conditions will be made in the hole after its completion. As such, the environmental impacts from the proposed action are transitory in nature: the drilling rig will be on site for a period of up to six weeks and subsequent measurements in the hole will require that a logging truck be sporadically parked at the site for a few hours to a few days during periods of downhole measurement. The only ancillary impact that may result from the proposed action would be subsequent drilling at or near this site. A deep drill hole will only be undertaken if the results of this effort indicate that deep drilling will be technically feasible and scientifically rewarding. The likelihood of the follow-on drilling is further conditioned upon the availability of funding from the National Science Foundation.

The areas of surface disturbance at this site will be limited in area and, to the extent possible, will be confined to areas in which ground disturbance has already occurred during prior use of the site. We have also been informed that this area may also be considered for long term expansion of the harbor facility or for use as a public boat ramp. Hence, future disturbance of the site may very well obliterate any minor disturbance that the proposed project would create.

##### **B. Geology and Soils**

There will be some clearing and leveling of the ground surface to provide a stable surface for the drilling rig and ancillary equipment. The gentle slope that exists at the site will enable us to perform this work with a minimum of disturbance to the natural contour and renders it unlikely that the changes made will perceptibly impact normal rainfall runoff or percolation patterns.

The geologic hazards identified indicate that the threat of tsunami inundation of the site is the most significant hazard at the proposed site. In the event of tsunami generation at substantial distances from Hawaii (e.g. Alaska, North or South America), there will be adequate time to secure the hole and remove the drilling rig from the site prior to inundation. Although locally generated tsunamis are unlikely to provide time for

anything but evacuation of the site by drilling personnel, such events have generally resulted in relatively modest wave heights in Hilo Bay. Further, the location of the proposed site behind the Hilo breakwater may provide some measure of protection from these small events.

The geologic hazard posed by lava flow is minimal. In the unlikely event of such a threat there will be adequate time to secure the hole and remove the drilling rig prior to the site being affected by volcanic activity from Mauna Loa Volcano.

### **C. Air Quality**

The air quality impacts arising from this project will include minor dust mobilization during clearing and diesel exhaust emissions associated with the clearing equipment and the drilling rig. Given the high rainfall at the site, dust mobilization is likely to be minimal. However, if dust becomes a problem, water can be sprayed over the exposed portions of the site to minimize the dust generation. The emission rate of diesel exhaust will be less than or equivalent to that produced by a standard 40' trailer truck. The diesel engines on the rig will be operated at constant speed and, hence, the engine will burn much more cleanly than an equivalent motor that accelerates and decelerates in its normal mode of operation. The rate of these emissions within the industrial district will not contribute detectably to the existing load of exhaust generated by harbor operations, discharges from jet engines using the nearby airport, and the routine traffic of heavy trucks using Kalaniana'ole Street.

### **D. Water Quality**

The water underlying the site is believed to consist of very brackish water derived from tidal mixing of seawater with natural freshwater coastal discharge. Below this layer is believed to lie saline seawater that has infiltrated into the deeper basalts by tidal action. The proximity to the coast can be taken to indicate that the water quality does not meet EPA drinking water standards and, hence, the proposed drilling will not affect a source of underground drinking water.

The drilling operation does have the potential to release drilling mud into the rock formation around the drill hole. The mud to be used in the proposed project will be composed of a mixture of bentonite clay particles and organic additives derived from plant material (guar gum). They are non-toxic and, because they are used in the drilling of water wells for potable supplies, they are not considered to pose a significant health hazard.

During the drilling of the shallow portion of the hole there is a slight chance that this mud could migrate into the waters of Hilo Bay. We believe, however, that, as the mud is mixed with the

brackish groundwater at this site, the mud particles will tend to coagulate and precipitate out within the rock matrix and not escape to the bay water. In order to minimize the opportunity for mud losses in the shallow portion of the hole, we have also designed the hole to have solid casing installed at a depth of approximately 23 m (75 ft.). Below this depth, it is unlikely that discharge of mud to the bay could occur since the nearest horizontal distance to a potential ocean discharge is approximately 1100 m (3600 ft.).

In the event of extreme concerns regarding possible contamination of bay water the drilling plan could be modified to allow us to use cable drilling down to the first casing point. Because this method does not use drilling mud, even the remote possibility of mud loss to bay waters will be eliminated.

After completion of the shallow portion of the well, casing will be installed and grouted over the first 23 m of the hole. This casing will preclude any possibility of mixing of deeper saline water with the shallow brackish water underlying the site.

One positive impact of the proposed drilling will be an opportunity to sample the shallow groundwater immediately up-gradient of the coastal waters. Samples of fluid from this hole will provide us with data regarding the nutrient load being carried into the Hilo Bay as a result of non-point-source groundwater contamination associated with residential and agriculture related land uses located inland of the proposed well. Even though there may be no significant levels of discharge, the data will verify that fact and will serve as a baseline by which to evaluate future changes as the regional population increases.

#### **E. Noise**

Noise will be generated by both heavy equipment during the site preparation process and by the drilling rig during the drilling operation. The former activities will be conducted during daylight hours only using a single bulldozer with intermittent truck deliveries of cinders and concrete for levelling and grading the drill pad. The impact of this noise source will be trivial relative to the existing truck, jet, and boat traffic that frequents this area.

Noise associated with drilling will be continuous since drilling operations will be on a twenty four hour a day schedule. The drilling rig will be equipped with "hospital-type" mufflers to minimize the level of engine noise generated. Engine noise can be reduced to less than 65 dBa at 30 m (100 ft.).

The noise receptors of greatest concern are the residential dwellings located across Kalaniana'ole Street from the proposed site. The presence of a stand of tall trees that are present between the proposed site and the fuel oil storage facility located

on the north side of Kalaniana'ole Street will effectively break up the sound and serve as a natural shield between the rig and the residential area. Furthermore, the presence of anthropogenic and natural sources of noise in this area will, in many cases be far more intrusive than that produced by the rig. These sources include: vehicle noise on Kalaniana'ole Street; jet traffic on the airport runway, noise generated by activities at the harbor that will include truck and equipment noise as well as that from ship and tug operations. The presence of a nearly constant source of noise generated by surf breaking on the coastline will also serve to mask the low drone of the drill rig. Hence, we believe that the drilling noise will have minimal impacts on the ambient noise level within the residential area.

Other noise receptors of possible concern are the users of the Keaukaha and Onekahakaha Parks. The former is closer to the proposed drill site, at a distance of nearly 350 m (1200 ft.), but is buffered from it by the Keaukaha sewage treatment facility. Because these beach parks are used predominantly during daylight and early evening hours, we believe that the normal daytime vehicle and jet traffic noise will effectively drown out the noise generated by the drilling rig.

#### **F. Flora And Fauna**

The attached botanical report did not identify any significant negative impacts resulting from the proposed action on the botanical resources on this site.

#### **G. Archaeology**

In light of the finding by the Historic Preservation Division that no significant historic sites are present within the parcels proposed for this project, that division has indicated that the proposed work in these parcels will have "no effect" on significant sites.

#### **H. Socio-Economic**

There will be four to six workers engaged in the drilling operation: two shifts of two workers each with one foreman and one helper. It is our intent that some of the workers will be local residents of the Island of Hawaii and, hence, will be able to commute by car to the drill site. Any workers that are brought in from off island or out of state will reside in local hotels.

Local contractors and suppliers will be used for all general utility supplies as we do not believe that the completion of this well will be so specialized as to require importation of non-standard materials from off island.

The limited nature and short duration of the project makes it

that would be derived from the county water supply. In that this is a relatively small volume of water usage with respect to most industrial activities, and is of only a temporary nature, we believe that the impact on public water supplies will be minimal. Water lines currently exist within close proximity to the proposed drilling site and hence will require the installation of only a temporary water line that will be removed at the completion of the project. As noted above, there is also a possibility of using sea water for some of the drilling activities which may reduce the demands of the project.

Sanitary wastes will be dealt with using contractor supplied chemical toilets and, hence, no impacts are anticipated from these services.

#### **K. Public Facilities and Services**

The limited duration and scope of the proposed activity is considered unlikely to have any detectable impact on schools, hospitals, fire protection, police protection, or other public services of this nature.

There will be some solid waste generated by the incoming materials and supplies and the drill cuttings. This waste will be disposed of either at the Hilo landfill or at another location as directed by the state and county permitting agencies.

#### **L. Aesthetics**

The visual impact of the project will be associated with the presence of the drill rig and lighting for nighttime operations. Because the rig will be shielded from the residential area by trees, we do not believe that the rig will be visible from most of the residential area. Although more distant view-planes may be able to see the rig, its location in an industrial area is likely to make its presence insignificant.

#### **M. Light Impacts**

Lighting on the rig will be shielded according to the Hawaii County Lighting Code to minimize its impact on adjoining properties and harbor activities. The presence of these lights adjacent to the harbor is again likely to render their impacts insignificant compared to the existing environment.

### Part V : ASSESSMENT

The potential impacts of the proposed Continental Scientific Drilling Program Pilot Hole Project have been fully disclosed in this Environmental Assessment. Any negative environmental effects from this activity are believed to be limited in scope and in duration. Therefore, based on the significance criteria outlined

in Section 11-200-12, Environmental Impact Statement Rules, the University of Hawaii believes that the project, as proposed, would have no significant adverse effect on the environment and that no Environmental Impact Statement is required.

This assessment of no significant impact is conditioned on the fact that UH (SOEST) will strictly adhere to the mitigating measures outlined in the environmental assessment and to conditions that may be imposed upon the project in the drilling permit, the right of entry issued by DLNR, and the SMA permit issued by the Hawaii County Planning Department.

#### PART VI : RESULTS OF PROJECT ENVIRONMENTAL REVIEW PROCESS

The above Environmental Assessment was distributed for agency review in early October, 1992 and a notice and summary of the project was published by the State Office of Environmental Quality Control on October 23, 1992. In response to circulation of the Assessment, three agencies provided comment on the proposed project; no comments were received from the public by OEQC, DLNR, or the University with respect to the proposed project.

The Office of Environmental Quality Control offered the following (summarized) comments:

- 1) The proposed project is located in a Special Management Area and, hence, should be reviewed by County of Hawaii, Planning Department regarding the SMA permit; the Department of Land and Natural Resources, Commission on Water Resource Management must be consulted regarding a well drilling permit;

- 2) A list of agencies consulted must be disclosed in the Environmental Assessment;

- 3) A new form exists and should be used for future publication of project summaries.

The County of Hawaii Planning Department offered the following (summarized) comments:

- 1) The proposed project is within the County's Special Management Area (SMA) and that relevant County rules must be complied with; and that shoreline setback requirements will have to be met in locating the proposed hole;

- 2) Concern was expressed regarding the potential for disturbance to nearby residences in Keaukaha from noise that will be generated by the drilling activity; a request is made for more information regarding "hospital type" mufflers; it is recommended that the drilling operation be placed as far from the front property boundary as possible;

- 3) Lighting will have to comply with the Electrical Code and that the Building Department be consulted;

- 4) It was observed that shelters along the coastal portion of the property appear to be permanently occupied; it was noted that residential use of the property is not permitted under County zoning rules.

The Department of Hawaiian Home Lands offered the following (summarized) comments:

1) Concern was expressed that noise generated by the drilling would have the potential for disturbing the residents of the (Keaukaha) community that exists across Kalaniana'ole St. from the proposed project site; it was suggested that an environmental assessment may be needed to address this concern and other (unnamed) potential impacts; it was further suggested that noise levels be monitored and that drilling activity be restricted to specific hours to minimize disturbance to the community.

#### PART VII : RESPONSE TO AGENCY COMMENTS

##### **Office of Environmental Quality Control**

1) The proposed project has been discussed with several agencies (see below) including the County of Hawaii Planning Department and the Department of Land and Natural Resources, Division of Water Resources Management. We are aware of the requirement for an SMA permit and have discussed the submittal of an SMA petition with representatives of the Planning Department. This process must, however, follow the completion of the Environmental Assessment process.

2) A list of agencies that have been consulted was omitted from the original assessment through an oversight. The agencies that have been consulted to date are listed in PART IX : AGENCIES CONSULTED below.

3) The new form is acknowledged and will be used for future submittals.

##### **County of Hawaii Planning Department**

1) The location of the proposed project within the SMA is acknowledged. We will consult with the County of Hawaii regarding shoreline setback prior to specifying the precise location of the proposed drill-hole.

2) We are aware of the concern regarding possible noise disturbance of the community. We have met with members of the community at a regularly scheduled Keaukaha/Panaewa Community Association meeting to describe the project and to inform them of our activities. At that meeting we discussed their concerns regarding noise and other issues. We will also be meeting individually with residents directly across Kalaniana'ole St. from the proposed project site to also discuss noise concerns with them.

The reference to "hospital type" mufflers refers to high-attenuation muffling devices that can be placed on combustion engines. These devices are also referred to as "critical" mufflers or "40 dB" mufflers. Technical data on this type of muffler is attached in Appendix B.

The recommendation by the Planning Department that the project be set back as far from Kalaniana'ole St. as possible is acknowledged. It is our intent to locate the drilling site as far from Kalaniana'ole St. as is allowed under the requirements of the shoreline setback noted in 1) above.



We would also point out, however, that there are several mitigating conditions that already exist with respect to the noise concerns expressed.

A. Although the primary rationale for choosing the proposed site as our drilling target were scientific, the existing environment - including noise - at this location was also a major consideration. This site is in an industrial area and is located in close proximity to the Hilo wharf. The latter facility operates on a twenty-four hour basis with heavy machinery, trucks, diesel engines, and portage equipment in use whenever a barge is being loaded or unloaded. On several evening visits to the site, the portage equipment and their back-up alarms were clearly audible at the site as well as on Kalaniana'ole St. We believe that we can abate noise generation from our equipment to reduce noise from our operations to be less intrusive than those that currently exist in the area.

B. We have analyzed the site in terms of the likelihood that noise will propagate toward the residential area. Our preferred location is on the interior portion of the property (toward the ocean) that consists of cut and fill. We have been informed that the cut portion was formed when the area was mined for rock during construction of the breakwater. Mauka of this area is a bank or berm that was left after the mining operation. In our discussions with a noise consultant, it was indicated that the existing contour will substantially reduce propagation of ground level noise toward the residential area. The mauka buffer is heavily wooded with large trees which will further assist in shielding the community from noise propagation. It is also important to consider that, during the most sensitive hours of operation - 22:00 hrs to 06:00 hrs, the prevailing wind pattern is toward the ocean. As indicated on page 6 and in Figure 4 of the EA, the drainage winds occur at night that bring air from the upper Mauna Loa slopes toward the ocean. This wind pattern will further inhibit sound propagation from the proposed drill site toward the community.

C. An analysis of drilling noise generated during an earlier drilling project suggests that disturbance to residents should be minimal. We attach a letter from Darby and Associates, noise consultants, who performed noise level measurements at a residence in Puna during drilling of the SOH-1 drill hole. The measurements were made during the early morning hours when the rig was performing some of its noisiest operations - withdrawing the drill string from the hole. The residence was located up-wind from the rig and was shielded from the rig by a pre-existing rock and soil berm. The rig was not audible at the residence during the hours of the survey. We acknowledge that the circumstances are not identical to those at the proposed site: the distance between the dwelling and rig is greater (approximately 1000 ft. versus 600 ft. in our case), however, the intervening space is not wooded, as is the case for our proposed site, and the rig in the former case is substantially larger than that proposed in the present project.

D. There are several strategies that can be applied toward mitigation of the noise generated by the drilling project. We have

committed to the installation of "critical type" mufflers on the drilling rig and are committed to working with the community residents nearest to the drilling target to minimize disturbance to them from our operations.

In summary, we believe that the potential for significant disturbance to the residential community from the proposed operations is relatively small and that, with adequate communication with the affected residents, we will be able to minimize the potential impacts on their environment.

3) The requirement that lighting comply with County building ordinances is acknowledged. We will consult with that department prior to mobilization of the drilling rig.

4) The petitioner is aware of the shoreline activities at this site. We have met with representatives of the area and informed them of our plans to conduct drilling in this area.

#### **Department of Hawaiian Home Lands**

1) The concern for noise impacts is acknowledged and is responded to above. For the reasons described above, we do not believe that the potential for noise impacts from the proposed project justify the execution of an Environmental Impact Statement. The limited scope and short duration of the proposed project and the absence of any other significant impacts brought forth during the environmental review process, further indicates that an Environmental Impact Statement is not required by the proposed project. The recommendation that noise levels be monitored is acknowledged. We have no objection to documenting the existing noise environment in the area and evaluating the impacts of our operations on the existing environment. However, if our operations are not found to contribute significantly to the existing noise environment, and there are no objections from the community regarding our operations, we would suggest that continuous monitoring through the project will simply represent an unnecessary expenditure of already limited research funds.

The recommendation that drilling be restricted to specific hours is acknowledged. We submit that this type of restriction should be exercised only as a last resort for the following reasons:

A) Cessation of drilling operations for extended periods of time incurs the risk that the walls of the hole could collapse with the result that the drill string is trapped in the hole or that the hole is lost. Either situation will result in substantial added expense to the project and could result in a failure to achieve the objectives of the program.

B) Although cessation of drilling will reduce the rate of drilling the hole, it will not commensurately reduce the cost of drilling since we will be paying for the rig on a day-rate basis. Hence, daily stoppage of drilling will substantially increase the cost of the hole.

C) There are several other sound mitigation measures that, if necessary, could effectively reduce noise propagation into the community. Many of these strategies are more cost effective, and

pose less of a risk to the success of the project, than interrupting drilling on a daily basis.

#### Part VIII : DETERMINATION

The potential impacts of the proposed Continental Scientific Drilling Program Pilot Hole Project have been fully disclosed in this Environmental Assessment. Any negative environmental effects from this activity are believed to be limited in scope and in duration. Therefore, based on the significance criteria outlined in Section 11-200-12, Environmental Impact Statement Rules, the University of Hawaii believes that the project, as proposed, would have no significant adverse effect on the environment and that no Environmental Impact Statement is required.

This assessment of no significant impact is conditioned on the fact that UH (SOEST) will strictly adhere to the mitigating measures outlined in the environmental assessment and to conditions that may be imposed upon the project in the drilling permit, the right of entry issued by DLNR, and the SMA permit issued by the Hawaii County Planning Department.

#### Part IX : AGENCIES CONSULTED

##### UNITED STATES GOVERNMENT:

Department of Transportation - U.S. Coast Guard, Office of Aids to Navigation

Department of Interior - U.S. Geological Survey, Hawaiian Volcano Observatory and Water Resources Division

##### STATE OF HAWAII:

Department of Land and Natural Resources - Division of Land Management; Division of Water Resources Management; Historic Sites Division

Department of Transportation - Harbors Division, Honolulu Office; and Hilo Harbor Master's Office

Department of Health - Safe Drinking Water Branch

Department of Hawaiian Home Lands - Hilo Office

University of Hawaii - Environmental Center

##### COUNTY OF HAWAII:

Planning Department

Public Works - Wastewater/Solid Waste

Water Supply Department

##### COMMUNITY ORGANIZATIONS:

Keaukaha-Panaewa Community Association

Hue Ho'o Mau

Au Puni O Hawaii

APPENDIX A

Botanical Assessment Survey

BOTANICAL ASSESSMENT SURVEY  
HAWAI'I PILOT HOLE PROJECT  
HILO DISTRICT, ISLAND OF HAWAI'I

by

Winona P. Char

CHAR & ASSOCIATES  
Botanical Consultants  
Honolulu, Hawai'i

Prepared for: University of Hawai'i  
Hawai'i Institute of Geophysics

February 1992

BOTANICAL ASSESSMENT SURVEY  
HAWAI'I PILOT HOLE PROJECT  
HILO DISTRICT, ISLAND OF HAWAI'I

INTRODUCTION

The Hawai'i Pilot Hole project site consists of approximately 7.2 acres, composed of two state-owned parcels (TMK: 2-1-09-1 and 2-1-09-41). The parcels are zoned "Urban/Industrial" and are located between the Hilo dock facility and the Keaukaha wastewater treatment plant. Access onto the site is via an existing unimproved road which enters the state-owned parcels from Kalaniana'ole Avenue; the road is used to maintain the Hilo breakwater which adjoins the subject parcels.

Field studies to assess the botanical resources found on the proposed Hawai'i Pilot Hole Project were conducted on 06 February 1992. The primary objectives of the survey were to: 1) provide a general description of the major vegetation type(s); 2) search for threatened and endangered plant species protected by federal and state endangered species laws; and 3) identify any areas of potential botanical concern.

A walk-through survey method was used. Plant identifications were made in the field; plants which could not be positively identified were collected for later determination in the herbarium and for comparison with the most recent taxonomic literature. Notes were made on plant associations and distribution, substrate types, drainage, exposure, etc. The flowering plant names are in accordance with Wagner et al. (1990); the ferns follow Lamoureux (1984).

## DESCRIPTION OF THE VEGETATION

Vegetation on the project site consists of a mixed forest composed almost exclusively of introduced or alien tree species, 30 to 60 ft. tall. Fronting Kalaniana'ole Avenue is a row of coconut palms (Cocos nucifera); a small stand of swamp mahogany (Eucalyptus robusta) is found by the entrance to the access road. The remainder of the property is covered primarily by ironwood trees (Casuarina equisetifolia) with scattered stands of other tree species; these include false kamani or Chinese almond (Terminalia catappa), bingabing (Macaranga mappia), gunpowder tree (Trema orientalis), melochia (Melochia umbellata), guarumo (Cecropia obtusifolia), Chinese banyan (Ficus microcarpa), and octopus tree (Schefflera actinophylla). Hala or pandanus (Pandanus tectorius) and hau (Hibiscus tiliaceus), two species native to the Hawaiian Islands and the Pacific area, are also found on the site.

Understory vegetation is generally dense except for along the shoreline area where there is more human activity. In addition to the saplings of the tree species mentioned above, there are shrubs such as guava (Psidium guajava), Christmas berry (Schinus terebinthifolius), strawberry guava (Psidium cattleianum), and Odontonema strictum.

Ground cover is variable. Low mats of wedelia (Wedelia trilobata) are common along the access road and the shoreline areas. Where the tree cover is more open and also along some portions of the access road, California grass (Brachiaria mutica) forms thick mats. Scattered through the California grass, in a few places, are plants of umbrella sedge (Cyperus alternifolius). White shrimp plant (Justicia betonica) is locally abundant in open, sunny areas along the access road. In most places though, the ground cover consists of seedlings of the tree and shrub species mentioned above, leaf litter, and a mixture of ferns, herbs, and small

shrubs (subshrubs) such as hairy sword fern (Nephrolepis multiflora), l auwa'e fern (Phymatosorus scolopendria), thimbleberry (Rubus rosaefolius), maile hohono (Ageratum houstonianum), etc.

Climbing up trunks of trees and draping over shrubs are two native vines, koali-'awania (Ipomoea indica) and ka'e'e (Mucuna gigantea), and an introduced vine, maile-pilau (Paederia scandens). Golden pothos vine or taro vine (Epipremnum pinnatum) is found on the swamp mahogany trees fronting the property.

### DISCUSSION AND RECOMMENDATIONS

The vegetation on the project site is dominated primarily by introduced or alien species. A few native species such as hau, hala, koali-'awania, and ka'e'e are found on the site. None of the plants occurring on the site are officially listed threatened and endangered species nor are any proposed or candidate for such status (U.S. Fish and Wildlife Service 1989, 1990). The native species found on the site can be found in similar environmental habitats throughout the islands.

There is very little of botanical interest on the site and given the findings above, the proposed project should not have a significant negative impact on the botanical resources. There are no botanical reasons to impose any restrictions, impediments or constraints to the proposed project.



## LITERATURE CITED

Lamoureux, C. H. 1984. Checklist of Hawaiian pteridophytes.  
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\_\_\_\_\_. 1990. Endangered and threatened wildlife and  
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6184-6229.

Wagner, W. L., D. R. Herbst, and S. H. Sohmer. 1990. Manual of  
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Hawai'i Press and Bishop Museum Press, Honolulu. Bishop  
Museum Special Publication 83.

APPENDIX B

Technical Specifications on Critical Muffler Devices

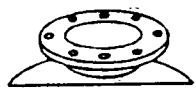
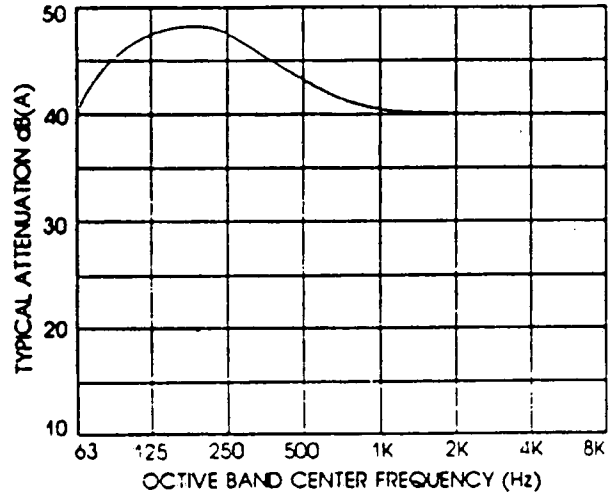


ENCL. 1 (1 of 2)

# Special "400" Level Exhaust Silencers

BACKPRESSURE ON ENGINE  
MUST BE CONSIDERED.  
MAX = 27" H<sup>2</sup>O

TYPICAL ATTENUATION CURVE dB(A)



"F" Mounting Flange  
Standard in sizes 4" to 14". Drilling matches  
125/150# ASA standard.

**Application:**

Nelson Special "400" Level Silencers are designed to reduce total engine exhaust noise 35-45dB(A). These silencers are recommended where ambient noise is low and a high degree of silencing is necessary.

**Construction:**

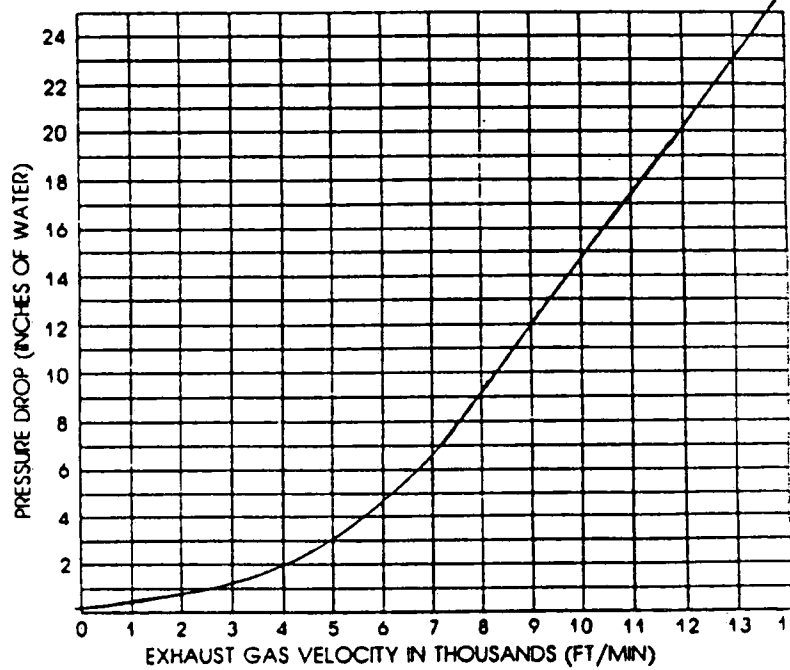
**Mild Steel:** Nelson silencers over 26.1 O.D. are fabricated of mild steel as standard material. Maximum operating temperature is 1100°F.

**Aluminized Steel:** Nelson silencers through 26.1 O.D. are fabricated of aluminized steel as standard materials. This material has better resistance to corrosion. Maximum operating temperature is 1250°F.

**Silicon Aluminum Paint:** Nelson silencers through 26.1 O.D. are given a coat of high heat resisting silicon aluminum paint.

**Gray Primer:** Nelson silencers over 26.1 O.D. are given a coat of high heat resisting gray primer as standard paint.

PRESSURE DROP:



Note: When figuring pressure drop for side inlet or middle side inlet add 3" H<sub>2</sub>O to back pressure shown on above curve

**Sample Specification:**

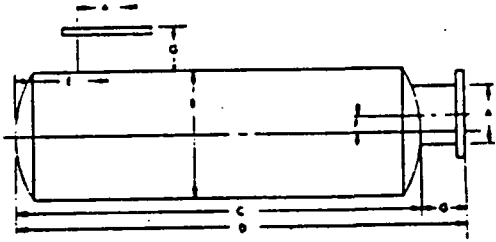
The silencer is to be a Nelson Special "400" Level Exhaust Silencer constructed of aluminized steel (26.1 inch body diameter and smaller) or mild steel (larger than 26.1 inch body diameter) with all welded construction and suitable for mounting in any position. The silencer shall be complete with the following Nelson accessories: \_\_\_\_\_



Model Number	A Nominal Inlet Dia	B Body Dia O.D.	C Body Length	D Over All Length	E Offset To C/L	F Offset To C/L	G Inlet Length
41440	4"	14.1	67.0	75.0	4.0	4.0	4.0
41450	5"	16.1	74.0	82.0	4.7	4.7	4.0
41460	6"	18.1	85.0	93.0	5.0	5.0	4.0
41480	8"	26.1	91.0	99.0	0	0	4.0
41482	10"	30.1	104.0	112.0	0	0	4.0
41484	12"	36.1	130.0	138.0	0	0	4.0
41486	14"	42.1	131.0	139.0	0	0	4.0

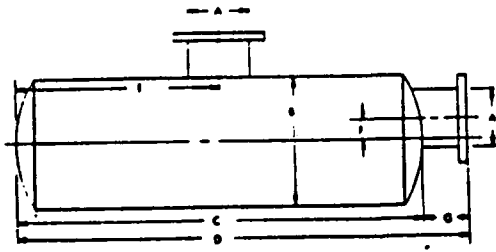
ENCL. 1 (2 of 2)

**TYPE 3**



Model Number	A Nominal Inlet Dia	B Body Dia O.D.	C Body Length	D Over All Length	E Offset To C/L	F Offset To C/L	G Inlet Length
43440	4"	14.1	67.0	69.0	5.9	4.0	3.0
43450	5"	16.1	74.0	78.0	6.7	4.7	4.0
43460	6"	18.1	85.0	89.0	8.2	5.0	4.0
43480	8"	26.1	91.0	95.0	10.5	0	4.0
43482	10"	30.1	104.0	108.0	12.0	0	4.0
43484	12"	36.1	130.0	134.0	13.8	0	4.0
43486	14"	42.1	131.0	135.0	15.6	0	4.0

**TYPE 4**



Model Number	A Nominal Inlet Dia	B Body Dia O.D.	C Body Length	D Over All Length	E Offset To C/L	F Offset To C/L	G Inlet Length
44840	4"	14.1	66.8	69.8	33.4	4.0	3.0
44850	5"	16.1	73.7	77.7	36.9	4.7	4.0
44860	6"	18.1	84.9	88.9	42.4	5.0	4.0
44880	8"	26.1	91.0	95.0	45.5	0	4.0
44882	10"	30.1	104.0	108.0	52.0	0	4.0
44884	12"	36.1	129.7	133.7	64.8	0	4.0
44886	14"	42.1	131.3	135.3	65.6	0	4.0



**Nelson Muffler**  
 P.O. Box 428 - HWY 51 West  
 Stoughton, WI 53589  
 Area (608) 873-4200  
 Telex 265-433

\* Inlet & outlet offset from centerline of silencer as shown in dimension E & F.

APPENDIX C

Noise Analysis for Universal 5000 Rig  
at SOH-1 Drill Site



#89-10  
November 14, 1990

University of Hawaii  
Hawaii Natural Energy Institute  
2540 Dole St., Holmes Hall #206  
Honolulu, Hawaii 96822

Attention: Mr. Art Seki

Subject: Noise Level Measurements During Tripping Out at SOH #1  
on November 10, 1990

Dear Art:

Noise level measurements were made from about 3:45 am to 5:30 am near SOH #1 while the drilling rig was tripping out from about 4,000 feet. The measurement locations are shown in Figure 1 and were all on the edge of the highways except for Location D in the visitors parking lot of HGPA.

The sounds from SOH operations were audible at Locations A, B and F and were characterized by periodic high speed diesel engine and/or winch sounds and occasional impact sounds. See Table I. At Location A, a few low-frequency, rumbling sounds from the ORMAT rig were audible and distinguishable from the SOH activities.

SOH rig sounds were not audible (and, therefore, not measurable) at Locations C, D, E, and G. However, a single shout was heard at Location G coming from the direction of the SOH rig.

The ORMAT rig could be heard at Locations D and E being characterized: low-frequency rumbles from the drilling rig itself, muffled diesel generators, and occasional impact sounds. It is understood that the ORMAT rig was drilling at less than 300 feet.

At no location did either of the rigs exceed the allowable noise levels in the County Geothermal Noise Guidelines.

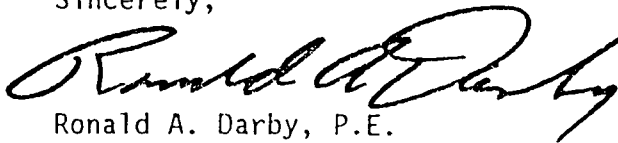
University of Hawaii  
November 14, 1990

#89-10  
Page 2

During the measurement period there was either no wind, or very light wind; and occasional misting and/or light rain. The cloud cover opened occasionally.

These manual measurements can be compared to the noise charts from the three automatic monitoring stations and analyzed with meteorological data when they become available to see if typical nighttime conditions prevailed.

Sincerely,

A handwritten signature in cursive script, appearing to read "Ronald A. Darby".

Ronald A. Darby, P.E.

RAD/ld.8rpt

Encl.

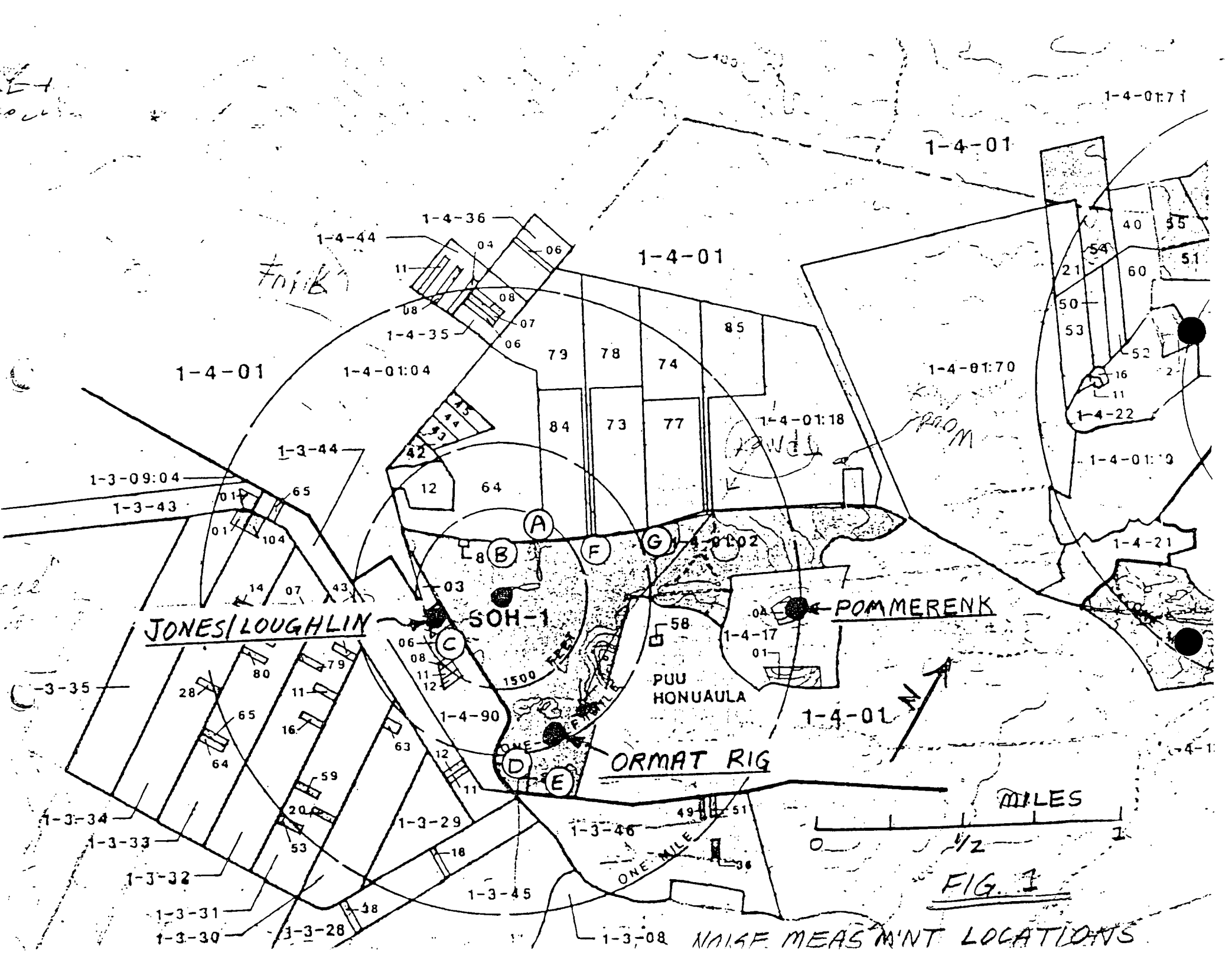


FIG. 1

NOISE MEASUREMENT LOCATIONS



TABLE I - Summary of Noise Level Measurements Made on November 10, 1990  
 Along County Roads Near SOH #1 Geothermal Rig While Tripping Out

Location	Description	Time	Leq (2 min)	Lmax	Lmin	Comments
A	Main Entrance Road	0351	40.8	47.5	34.3	SOH sounds controlling.
B	CPA* to SOH #1	0417	41.1	45.9	30.3	SOH sounds controlling.
		055	42.0**	42.0	30.2	(See Figure 2)
C	Near Jones/Loughlin	0430	-	-	-	No rigs were audible.
D	HGPA Visitor Center	0437	39.8	52.2	35.0	ORMAT rig sounds audible.
E	CPA* to ORMAT Rig	0455	39.5	48.8	33.8	ORMAT rig sounds audible.
F	0.2 Miles from Main Entrance Road	0516	41.5	50.8	33.3	SOH slightly audible.
G	0.4 Miles from Main Entrance Road	0520	30.0	30.0	30.0	No rigs audible. Ocean surf sounds controlling.

\*CPA - Closest Point of Approach

\*\*L10 - The level exceeded 10% of the time as opposed to Leq (2 min) which  
 is the energy average over 2 minutes.

# AMBIENT NOISE SURVEY DATA SHEET

FIGURE 2

POSITION:

ENGINEER:

DAY OF WEEK: Sat

DATE: 11/10/90

TIME: BEGIN 5:00<sup>am</sup>  
CAL: BEGIN 5:04

JOB NO. 89-10

FINISH: \_\_\_\_\_

FINISH: \_\_\_\_\_

SKY: Moon visible 80-90% cloud

WIND: 0

dBA L<sub>10</sub>: \_\_\_\_\_

LIMITS, dBA: \_\_\_\_\_

NOTES AND SKETCH:

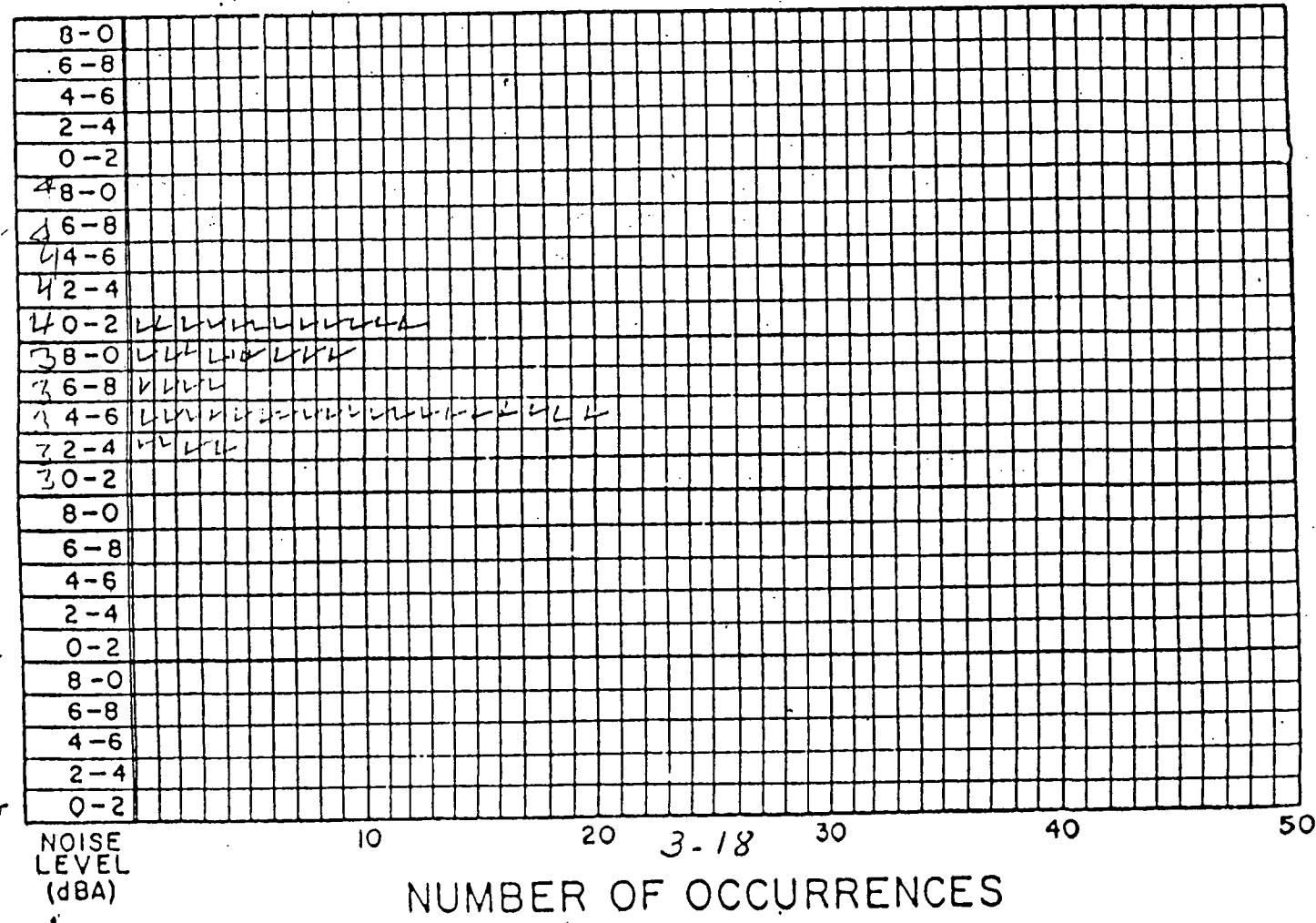
*Pull-off to SOH #1  
Trip out*

*RA Darby*

Total # Samples	Upper Limit	L <sub>10</sub>	Lower Limit
50	1st	5th	10th
100	5th	10th	17th
150	8th	15th	23rd
200	12th	20th	29th
250	16th	25th	35th
300	20th	30th	41st
350	25th	35th	47th

sample from the top

Location B



NUMBER OF OCCURRENCES

# UNDERGROUND STORAGE TANK CLOSURE REPORT

*for*

**COUNTY OF HAWAII  
DEPARTMENT OF PUBLIC WORKS, WASTEWATER DIVISION**

*At*

**OLD HILO WASTEWATER TREATMENT PLANT  
1087 KALANIANAOLE AVENUE, HILO, HAWAII ISLAND  
TMK No. 2-1-11:04  
DOH UST FACILITY ID 9-502439  
DOH RELEASE ID 990108**

**APRIL 1999**

*Prepared by*

**WALKER CONSULTANTS, LTD.**

*P.O. BOX 4998, HILO, HAWAII 96720*

*(808) 966-7481 FAX (808) 966-6509*

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**Walker Consultants, Ltd.**

Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

- APPENDIX B NOTICE OF INTENT TO CLOSE UNDERGROUND STORAGE TANKS, HAWAII COUNTY FIRE DEPARTMENT UST REMOVAL PERMIT, NOTIFICATION FOR UNDERGROUND STORAGE TANKS, AND CONFIRMED RELEASE NOTIFICATION**
- APPENDIX C WORK ORDER/TIME TICKET, DISPOSAL INFORMATION / DISPOSAL RECEIPT, AND NON-HAZARDOUS WASTE MANIFEST**
- APPENDIX D PID FIELD SCREENING AND SAMPLE COLLECTION METHODS**
- APPENDIX E SOIL SAMPLE ANALYTICAL RESULTS, LABORATORY QA/QC DATA, AND CHAIN-OF-CUSTODY RECORDS**

## LIST OF ABBREVIATIONS AND ACRONYMS

APCL	Applied P and Ch Laboratory
bgs	below ground surface
BTEX	benzene, toluene, ethylbenzene, xylenes
CFR	Code of Federal Regulations
County of Hawaii	County of Hawaii, Department of Public Works, Wastewater Division
DLNR	Hawaii Department of Land and Natural Resources
DOH	Hawaii Department of Health
Downing	D.L. Downing General Contractors, Inc.
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
HAR	Hawaii Administrative Rules
Hawaii DWS	Hawaii Department of Water Supply
HELCO	Hawaii Electric Light Company
HMR	Hawaii Metal Recyclers
LEL	lower explosive level
makai	coastward or near-coastal
mauka	inland or toward the mountains
mg/kg	milligrams per kilogram (approximate parts per million)
mg/L	milligrams per liter (approximate parts per million)
MSL	mean sea level
PAHs	the four DOH-listed polynuclear aromatic hydrocarbons: acenaphthene, benzo(a)pyrene, fluoranthene, and naphthalene
PID	photo ionization detector
ppmv	parts per million volumetric
PSH	Philip Service Hawaii, Ltd.
QA/QC	quality assurance/quality control
SALs	DOH Tier 1 Soil Action Levels
TMK	Tax Map Key
TPH-D	total petroleum hydrocarbons as diesel or Diesel
TPH-O	total petroleum hydrocarbons as oil or Motor oil
UIC	Underground Injection Control
USDOT	U.S. Department of Transportation
UST	underground storage tank
WCL	Walker Consultants, Ltd.
WWTP	Old Hilo Wastewater Treatment Plant

## EXECUTIVE SUMMARY

This Underground Storage Tank (UST) Closure Report was prepared by Walker Consultants, Ltd. (WCL) to describe the closure (removal) of one 750-gallon diesel UST for WCL's client, D.L. Downing General Contractors, Inc. (Downing), on behalf of Downing's client, County of Hawaii Department of Public Works, Wastewater Division (County of Hawaii). The former UST was located at Old Hilo Wastewater Treatment Plant (WWTP), 1087 Kalaniana'ole Avenue, Hilo, Hawaii Island, Tax Map Key (TMK) No. 2-1-11:04 (the Property). The former UST previously supplied diesel for use in an onsite digester heater; it was not replaced.

WCL is a subcontractor to Downing (state contractors license BC/C37f 10231), who is the prime contractor to the County of Hawaii on this project. WCL's responsibilities consisted of the following: 1) preparing a Health and Safety Plan and a Work Plan, 2) observing UST- and pipe-removal activities, 3) collecting and analyzing soil samples, and 4) preparing this UST Closure Report.

The Property is a roughly triangular parcel that comprises approximately 4.154 acres. The nearest residences are across Kalaniana'ole Avenue from the Property. The Property is approximately 2.0 miles makai (coastward) of the Underground Injection Control line, and is therefore within an exempted portion of the local aquifer.

The WWTP, which formerly occupied the Property, has been out of service since 1992, excluding a sewage pump station. Much of the WWTP structures remain and are reportedly being converted into an aquaculture. The former diesel UST was located in the northwestern part of the Property, south of the former generator building. Access to the Property is via an asphalt-paved driveway extending from Kalaniana'ole Avenue. The Property boundaries are fenced, excluding the frontage along Puhī Bay. Portions of the Property are either paved or covered by structures, but it is primarily unpaved. The ground surface onsite is nearly level.

On December 17, 1998, prior to UST removal, nearly all of the diesel (approximately 600 gallons) were removed from the UST and placed it into a vacuum truck. When Downing removed the UST, it was essentially empty. Using the following procedures, Downing exposed and removed the UST.

1. The top of the UST and the overlying pipes were exposed. The product and vent pipes were disconnected from the UST, cut-off near the edges of the UST-removal excavation, and these portions were removed. The remainders of the product and vent pipes were removed after completing the UST removal. The straight-drop fill pipe was removed with the UST.
2. The UST interior was degassed, the excavation was extended to remove the UST, and the UST was removed.
3. The UST-removal excavation was backfilled using the excavated soil, together with imported clean soil.
4. The UST interior was triple washed/rinsed. The UST, together with associated pipes, was disposed of.
5. The residual UST contents and wash/rinse water were treated/recycled/ disposed of.

The basal water table was not encountered in the UST-removal excavation, which was approximately 9 feet below ground surface (bgs) for soil sample collection. The basal water table at the former UST site is estimated to be at MSL (approximately 10 to 12 feet bgs, based on surface elevations onsite). Due to its proximity to the ocean, the water table probably fluctuates tidally an estimated 1 to 2 feet. The groundwater flow direction and the gradient are inferred to be makai (northerly), toward the coast. The annual rainfall is approximately 138 inches (approximately 350 cm) on the Property.

No visual/olfactory field evidence of UST release (diesel odors and discolored soil) was noted during UST removal, but each of the four associated soil samples contained diesel/motor oil, which are indications of release. The former diesel UST and pipes were apparently intact, and the diesel UST release is therefore attributed to minor overfill spillage. WCL reported the release (spillage) to the Hawaii Department of Health (DOH) on December 29, 1998, and submitted a Confirmed Release Notification to the DOH. Based on the release report, the DOH has assigned Release ID 990108 to the former UST.

On December 17, 1998, WCL collected the following four soil samples: 1) one sample under the fill end of the former UST; 2) one sample under the product pipes; and 3) two samples from stockpile of excavated, uncompacted soil. Each of the four soil samples was analyzed for total petroleum hydrocarbons as diesel (TPH-D or Diesel); TPH as oil (TPH-O or Motor oil) was also reported, based on the TPH-D analyses. One sample was additionally analyzed for the following: 1) benzene, toluene, ethylbenzene, and xylenes; and 2) the four DOH-listed polynuclear aromatic hydrocarbons: acenaphthene, benzo(a)pyrene, fluoranthene, and naphthalene.

The following are concluded, based on: 1) field observations during UST removal and sample collection, 2) laboratory analyses of soil samples collected during UST removal, and 3) interpretations consistent with the above data and field observations.

1. No visual/olfactory field evidence of UST release was observed, but each of the associated soil samples contained very low TPH-D and(or) TPH-O concentrations, which are indications of UST release.
2. The former diesel UST and pipes were apparently intact and had no visible holes or significant corrosion. The diesel UST release is attributed to minor overfill spillage.
3. All of the sample analytical results are less than DOH Tier 1 Soil Action Levels, indicating that additional assessment is unnecessary.
4. There is essentially no potential human health or environmental exposure risk due to past use of the former UST because there is no evidence of significant remaining impacts associated with the former UST.

No further action is recommended, and the site of the former UST should be considered permanently closed. These recommendations are consistent with field observations and sample analytical data, interpretations and conclusions therefrom, professional judgment, and applicable regulations and DOH guidance.



**UNDERGROUND STORAGE TANK CLOSURE REPORT**  
**For**  
**COUNTY OF HAWAII**  
**DEPARTMENT OF PUBLIC WORKS, WASTEWATER DIVISION**  
**At**  
**OLD HILO WASTEWATER TREATMENT PLANT**  
**1087 KALANIANAOLE AVENUE, HILO, HAWAII ISLAND**  
**TMK No. 2-1-11:04**  
**DOH UST FACILITY ID 9-502439**  
**DOH RELEASE ID 990108**

**Prepared By**  
**WALKER CONSULTANTS, LTD.**

**APRIL 1999**

**1.0 INTRODUCTION**

This Underground Storage Tank (UST) Closure Report was prepared by Walker Consultants, Ltd. (WCL) to describe the closure (removal) of one 750-gallon diesel UST for WCL's client, D.L. Downing General Contractors, Inc. (Downing), on behalf of Downing's client, County of Hawaii Department of Public Works, Wastewater Division (County of Hawaii). The former UST was located at Old Hilo Wastewater Treatment Plant (WWTP), 1087 Kalanianaole Avenue, Hilo, Hawaii Island, Tax Map Key (TMK) No. 2-1-11:04 (the Property). The former UST previously supplied diesel for use in an onsite digester heater; it was not replaced. This UST Closure Report generally complies with the following: 1) Title 40, Code of Federal Regulations (CFR) Part 280 *Technical Standards and Corrective Actions for Owners and Operators of Underground Storage Tanks*; 2) *Technical Guidance Manual for Underground Storage Tank Closure and Release Response* (Hawaii Department of Health (DOH), August 1992) and DOH Policy Updates; and 3) *Risk-Based Corrective Action and Decision Making at Sites with Contaminated Soil and Groundwater* (DOH, December 1995, Revised June 1996). Photographs taken during UST removal activities are contained in Appendix A.

WCL is a subcontractor to Downing (state contractors license BC/C37F 10231), who is the prime contractor to the County of Hawaii on this project. WCL's responsibilities consisted of the following: 1) preparing a Health and Safety Plan and a Work Plan, 2) observing UST- and pipe-removal activities, 3) collecting and analyzing soil samples, and 4) preparing this UST Closure Report. Downing's responsibilities consisted of the following: 1) removing the UST and pipes, 2) backfilling of the UST-removal excavation, 3) cleaning the UST, 4) disposing of the UST and pipes, and 5) recycling/disposing of the residual UST contents and wash/rinse water. The soil samples were analyzed by Applied P & Ch Laboratory (APCL) in Chino, California. Philip Service Hawaii, Ltd. (PSH) cleaned the UST and disposed of the UST, together with associated pipes, as scrap at the Hawaii Metal Recyclers (HMR) facility in Hilo. The residual UST contents and wash/rinse water have been treated/recycled/disposed of by PSH at its state-permitted facility in Kapolei.

## 2.0 SITE BACKGROUND

### 2.1 Site Description

Located at 1087 Kalaniana'ole Avenue, the Property is on the northwestern side of Kalaniana'ole Avenue, along the eastern arm of Hilo Bay (Figure 1). Puhi Bay adjoins the Property to the north. A vacant state-owned property adjoins to Property to the west, and a park adjoins the Property to the east. The nearest residences are across Kalaniana'ole Avenue from the Property.

In plan view, the Property is a roughly triangular parcel that comprises approximately 4.154 acres. The WWTP, which formerly occupied the Property, has been out of service since 1982, excluding a sewage pump station. Much of the WWTP structures remain and are reportedly being converted into an aquaculture. The former diesel UST was located in the northwestern part of the Property, south of the former generator building (Figure 2). Access to the Property is via an asphalt-paved driveway extending from Kalaniana'ole Avenue. The Property boundaries are fenced, excluding the frontage along Puhi Bay. Portions of the Property are either paved or covered by structures, but it is primarily unpaved. The ground surface onsite is nearly level.

The elevations onsite range from mean sea level (MSL) to approximately 20 feet above MSL. Per the Federal Emergency Management Agency (FEMA) map sheet 0885, the Property is within Flood Hazard Zone "X", which is an area determined to be outside the 500-year flood plain. The Property is inside the tsunami ("tidal wave") evacuation area as determined by the Hawaii Civil Defense System (GTE Hawaiian Tel, 1998-1999).

### 2.2 Underground Storage Tank Information

The former 750-gallon single-walled steel diesel UST was registered with the DOH, Facility ID 9-502439. DOH records indicate that the age of the former UST was unknown. The former UST was located south of the pump station building and formerly provided diesel for use in the onsite digester heater. The UST had been out of service since 1992 and was not replaced. Prior to removal of the UST, there had been no known or reported UST releases (leaks or spills).

The former 750-gallon single-walled steel diesel UST was approximately 46 inches in diameter by 109 inches long. The top of the UST was buried approximately 3 feet below ground surface (bgs), and its bottom was approximately 8¾ feet bgs. The product, vent, and fill pipes were constructed of single-walled steel. The straight-drop fill pipe was connected near the southern end of the UST, and the product (suction and return) and vent pipes were connected near the center and northern end of the UST. The product pipes extended underground approximately 8 feet north from the UST to the building wall, and then extended aboveground inside the building to the generator. The vent pipe extended underground approximately 6 feet north from the UST to a riser pipe attached to the building wall. The approximate former locations of the UST and associated pipes are depicted on Figure 4.

### 2.3 Nearby Surface Water Bodies

The Pacific Ocean coastline in Puhi Bay adjoins the Property to the north. There are no other permanent surface water bodies within 0.5 mile of the Property.

## 2.4 Nearby Wells

The well information in this section is from the following: 1) Sheet H-67 of the DOH Underground Injection Control (UIC) Program Map series by the DOH Safe Drinking Water Branch (Figure 3); and 2) the *Ground Water Index and Summary* by the State Department of Land and Natural Resources (DLNR). The locations of the nearby offsite wells are depicted on Figure 3 which is a reproduction of a portion of Sheet H-67. Data from the nearby wells depicted on Figure 3 are contained on pages 68 and 69 (from the *Groundwater Index and Summary*) which follow Figure 3.

Located approximately 1.3 miles west-southwest of the Property, the nearest water wells are a cluster of six wells, the Waiakea wells (state water well number 8-4304-01 through -06), which are owned by the Hawaii Electric Light Company (HELCO). There is information for only three wells (well numbers 8-4304-02 through -04). Well numbers 8-4304-02 and -03 are used for industrial purposes. Well number 8-4304-04 is a disposal well which is actually one of four injection wells located at the HELCO facility. The surface elevations for well numbers 8-4304-02 and -03 are 10 feet above MSL, approximately 6 to 10 feet lower than elevations on the Property. The total depths of well number 8-4304-02 through -04 range from 16 to 27 feet. Well numbers 8-4304-02 and -03 are "dug", as opposed to drilled wells, and well numbers 8-4304-03 and -04 have 84 and 60 inch diameters, respectively. There are no water levels (static head data) for these wells, and no chloride concentrations for the water from these wells. These wells are hydraulically crossgradient of the Property, relative to the presumed north-northwesterly hydraulic gradient.

The next nearest water wells is the Hilo Airport well (state water well number 8-4202-01), which is located approximately 1.4 miles south-southeast of the Property. This well, which is owned by the Hawaii Department of Water Supply (Hawaii DWS), is reportedly unused. The surface elevation for this well is 59 feet above MSL, approximately 39 to 43 feet higher than elevations on the Property. The total depth of this 16-inch well is 76 feet bgs, and the basal water table in the well is 4.0 feet above MSL (equivalent to 55 feet bgs), based on static head data. The chloride concentrations for the water from this well range from 110 to 186 mg/L, indicating that it supplies freshwater. This well is upslope of the Property and is obliquely upgradient of it hydraulically, relative to the presumed north-northwesterly hydraulic gradient.

Also nearby is another Hilo Airport well (state water well number 8-4202-02), which is located approximately 1.5 miles south-southeast of the Property. This well, which is also owned by HELCO, is reportedly unused. The surface elevation for this well is 71 feet above MSL, approximately 51 to 55 feet higher than elevations on the Property. The bottom of casing in this 5-inch well is 16 feet above MSL (equivalent to 55 feet bgs). The basal water table in the well is, however, 11 feet deeper (5.0 feet above MSL or 66 feet bgs), based on static head data; this relationship suggests that the bottom of casing may have been incorrectly reported. The chloride concentration for the water from this well was 2 mg/L, indicating that it supplies freshwater. Hydraulically, this well is upslope of the Property and is obliquely upgradient of it hydraulically.

The nearest drinking water wells are the Panaewa 1, 2, and 3 (state water well numbers 8-4003-01 through -03) which are located approximately 3.8 miles south-southeast of the Property. These three municipal water supply wells are also owned by the Hawaii DWS. The surface elevations for these wells are 206, 201, and 205 feet above MSL, respectively, which are approximately 181 to 190 feet higher than elevations on the Property. The respective total depths of these three domestic drinking water wells are 306, 302, and 303 feet bgs (equivalent to 100,

101, and 98 feet bgs, respectively). The respective depths to the bottoms of solid casings (tops of perforations) in these three wells are 14, 11, and 17 feet below MSL (equivalent to 220, 212, and 222 feet bgs. Based on static head data, the respective basal water tables in these three wells are 13.1, 13.1 and 12.2 feet above MSL (equivalent to 192.9, 187.9, and 192.8 feet bgs, respectively). Chloride concentrations for the water in well number 8-4003-01 range from 3 to 8 mg/L, indicating that it (and by analogy all three wells) supplies freshwater. These wells are upslope of the Property, and are hydraulically upgradient of it. There is essentially no possibility that conditions onsite could affect any of these three municipal water supply wells, based on the following: 1) separation distances between the wells and the Property, 2) the depths to the water tables and tops of perforations in the wells, and 3) their locations upslope of the Property and obliquely upgradient of it hydraulically.

The nearest known injection well (state injection well number 8-4303-04) is located approximately 0.9 mile east of the Property. There are no other known injection wells within 1 mile of the Property.

## **2.5 Underground Injection Control Line**

The UIC line was established by the DOH as the boundary between underground sources of drinking water and exempted (non-drinking water) portions of aquifers. The areas mauka (inland) of the UIC line are defined in *Underground Injection Control* in Hawaii Administrative Rules (HAR) 11-23 as drinking water portions of aquifers, and the areas makai (coastward) of the UIC line are defined as exempted (non-drinking water) portions of aquifers. The Property is approximately 2.0 miles makai of the UIC line (Figure 3), and is therefore within an exempted portion of the local aquifer.

## **2.6 Annual Rainfall**

The annual rainfall is approximately 138 inches (approximately 350 cm) on the Property (DOH, December 1995, Revised June 1996).

### **3.0 UNDERGROUND STORAGE TANK REMOVAL ACTIVITIES**

#### **3.1 Permits and Notifications**

On October 30, 1998, WCL notified the DOH the diesel UST was going to be removed (Appendix B). On December 17, 1998, Downing applied for a UST removal permit with the Hawaii County Fire Department (Appendix B). WCL prepared a Notification for Underground Storage Tanks (7530-1), which has been submitted to the DOH (Appendix B).

No visual/olfactory field evidence of UST release (diesel odors and discolored soil) was noted during UST removal, but each of the four associated soil samples contained diesel/motor oil, which are indications of release. The former diesel UST and pipes were apparently intact, and the diesel UST release is therefore attributed to minor overfill spillage. WCL reported the release (spillage) to the DOH on December 29, 1998, and submitted a Confirmed Release Notification to the DOH (Appendix B). Based on the release report, the DOH has assigned Release ID 990108 to the former UST.

#### **3.2 Underground Storage Tank and Pipe Exposure and Removal**

On December 17, 1998, prior to UST removal, PSH had removed nearly all of the diesel (approximately 600 gallons) from the UST and placed it in its vacuum truck. When Downing removed the UST, it was essentially empty. Downing first exposed the top of the UST, together with the overlying pipes, using a backhoe and shovels. The product (suction and return) and vent pipes were disconnected from the UST and cut-off near the edges of the UST-removal excavation, and the portions of the vent and product pipes within the excavation were removed. After removal of the portions of the product and vent pipes over the UST, the fittings in the UST were plugged. The straight-drop fill pipe was removed with the UST. The remainders of the product and vent pipes were removed after completing the UST removal.

PSH degassed the UST interior with an air-operated eductor fan, and then monitored the lower explosive level (LEL) inside the UST using a Gastech LEL meter, to confirm that the LEL was below 10 percent. The UST-removal excavation was extended downward along both ends and one side of the UST, which was then removed by a backhoe using a chain connected to lifting eyes on the UST. While the UST was suspended, WCL's geologist observed the entire UST. The UST was slightly rusted, but it was intact, and had no visible holes. The UST was temporarily set on the nearby ground, and was blocked to prevent it from rolling over.

The diesel UST-removal excavation was approximately 7½ feet wide, 14 feet long, and 9 feet deep. An estimated 27 cubic yards of soil were excavated during removal of the UST. After sample collection, the UST-removal excavation was backfilled to approximately the surrounding pavement subgrade using the excavated, unimpacted soil from UST removal together with sufficient imported, clean soil to compensate for the volume of the UST. The UST site was not paved and the surface of the backfilled excavation was not repaved.

#### **3.3 Cleaning of Underground Storage Tank**

PSH transported the UST to a nearby location onsite to clean it. PSH again degassed the UST interior with the air-operated eductor fan, and monitored the LEL inside the UST using a Gastech LEL meter, to confirm that it was below 10 percent. PSH next cut an approximately 2-foot square hole in the UST, and triple washed/rinsed its interior in place (Work Order/Time

Ticket, Appendix C). PSH placed the wash/rinse water and residual UST contents (approximately 30 gallons, total) into a USDOT-approved 55-gallon steel drum.

### **3.4 Field Screening of Soil**

During exposure and removal of the UST and associated pipes, the soil lining the UST-removal excavation and the excavated soil were observed by WCL's geologist for visual/olfactory evidence of field-evident diesel impacts, and were monitored by WCL's geologist using a Photovac Microtip photo ionization detector (PID). PID calibration and screening procedures are described in Appendix D.

No field evident diesel-impacted soil was observed during UST exposure and removal. The PID readings for the excavated soil and the soil lining the UST-removal excavation were not detected (less than 0.1 part per million volumetric (ppmv)). Using the PID, WCL also field-screened splits of the four soil samples that were collected during UST removal, and the PID readings were less than 0.1 ppmv, Table 1. All of the PID readings are less than the DOH Criterion for PID data, which is 50 ppmv.

### **3.5 Geology and Hydrogeology of the Underground Storage Tank Excavation**

The backfill materials directly surrounding the diesel UST generally consisted of base course. The sidewalls and bottom of the UST-removal excavation exposed red-brown rocky silt/clay.

The basal water table was not encountered in the UST-removal excavation, which was approximately 9 feet bgs for soil sample collection. The basal water table at the former UST site is estimated to be at MSL (approximately 10 to 12 feet bgs, based on surface elevations onsite). Due to its proximity to the ocean, the water table probably fluctuates tidally an estimated 1 to 2 feet. The groundwater flow direction and the gradient are inferred to be makai (northerly), toward the coast.

### **3.6 Disposition of Underground Storage Tank, Pipes, and Associated Wastes**

On December 17, 1998, Downing disposed of the UST, together with associated pipes, as scrap at the HMR facility in Hilo (Disposal Information / Disposal Receipt, Appendix C). The approximately 600 gallons of residual UST contents and approximately 30 gallons of wash/rinse water have been treated/recycled/disposed of by PSH at its state-permitted facility in Kapolei (Non-Hazardous Waste Manifest, Appendix C).

#### 4.0 SITE SAMPLING FOR RELEASE VERIFICATION

##### 4.1 Soil Sample Collection

Soil sample collection information is provided below. Sample collection and storage procedures are described in Appendix D. Approximate sample locations are depicted on Figure 4.

Sample Number	Sample Date	Sample Location	Sample Depth
T-F-9	12/17/98	under fill (southern) end of UST	~9 feet bgs
P-2	12/17/98	under product pipes	~2 feet bgs
SP1	12/17/98	unimpacted soil stockpile	~0.5 foot deep
SP2	12/17/98	unimpacted soil stockpile	~0.5 foot deep

##### 4.2 Soil Sample Analytical Methods and Results

APCL analyzed each of the four soil samples for total petroleum hydrocarbons as diesel (TPH-D or Diesel) using EPA Method M8015E; APCL also reported TPH as oil (TPH-O or Motor oil), based on the TPH-D analyses. SP1 was additionally analyzed for the following: 1) benzene, toluene, ethylbenzene, and xylenes (BTEX) using EPA Method 8020; and 2) the four DOH-listed polynuclear aromatic hydrocarbons (PAHs): acenaphthene, benzo(a)pyrene, fluoranthene, and naphthalene using EPA Method 8270. APCL's laboratory analytical results are summarized below and in Table 1. Complete laboratory analytical results, together with laboratory quality assurance/quality control (QA/QC) data and Chain-of-Custody records, are contained in Appendix E.

The TPH-D concentrations in three samples collected during UST removal ranged from 7 to 10 mg/kg. The TPH-O concentrations in the four samples ranged from 12 to 30 mg/kg. No BTEX and no PAHs were detected in SP1.

##### 4.3 Discussion of Soil Sample Analytical Results

The DOH uses detected TPH-D in one or more samples collected during diesel UST removal, together with field observations, as evidence that a release has occurred (*Technical Guidance Manual*, Section 3.4.6.2). In addition, the DOH uses comparison of analytical results with DOH Tier 1 Soil Action Levels (SALs) to determine whether further action (additional assessment and/or remediation) is necessary.

The very low TPH-D and TPH-O concentrations in the four soil samples indicate that there had been a minor release, but are consistent with the lack of field evidence of UST release (diesel odors and/or discolored soil) during diesel UST exposure and removal. All of the sample analytical results are less than corresponding DOH Tier 1 SALs, indicating that additional assessment or any remediation are unnecessary. The source of the low TPH-O concentrations in the four soil samples is not known, but from time to time, APCL reports TPH-O concentrations for samples associated with diesel USTs, based on TPH-D analyses. Irrespective of its source, the TPH-O is not considered significant, because the concentrations are much less than the DOH Tier 1 SAL.

## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### 5.1 Conclusions

The following are concluded, based on: 1) field observations during UST removal and sample collection, 2) laboratory analyses of soil samples collected during UST removal, and 3) interpretations consistent with the above data and field observations.

1. No visual/olfactory field evidence of UST release was observed, but each of the associated soil samples contained very low TPH-D and(or) TPH-O concentrations, which are indications of UST release.
2. The former diesel UST and pipes were apparently intact and had no visible holes or significant corrosion. The diesel UST release is attributed to minor overfill spillage.
3. All of the sample analytical results are less than DOH Tier 1 SALs, indicating that additional assessment is unnecessary.
4. There is essentially no potential human health or environmental exposure risk due to past use of the former UST because there is no evidence of significant remaining impacts associated with the former UST.

### 5.2 Recommendations

No further action is recommended, and the site of the former UST should be considered permanently closed. These recommendations are consistent with field observations and sample analytical data, interpretations and conclusions therefrom, professional judgment, and applicable regulations and DOH guidance.



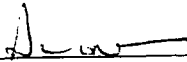
**Walker Consultants, Ltd.**

Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalaniana'ole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**6.0 CERTIFICATION**

This UST Closure Report has been prepared by Walker Consultants, Ltd. for County of Hawaii Department of Public Works, Wastewater Division in accordance with customary professional practice. This UST Closure Report generally complies with the following: 1) Title 40, Code of Federal Regulations (CFR) Part 280 *Technical Standards and Corrective Actions for Owners and Operators of Underground Storage Tanks*; 2) *Technical Guidance Manual for Underground Storage Tank Closure and Release Response* (DOH, August 1992) and DOH Policy Updates; and 3) *Risk-Based Corrective Action and Decision Making at Sites with Contaminated Soil and Groundwater* (DOH, December 1995, Revised June 1996).

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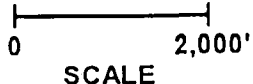
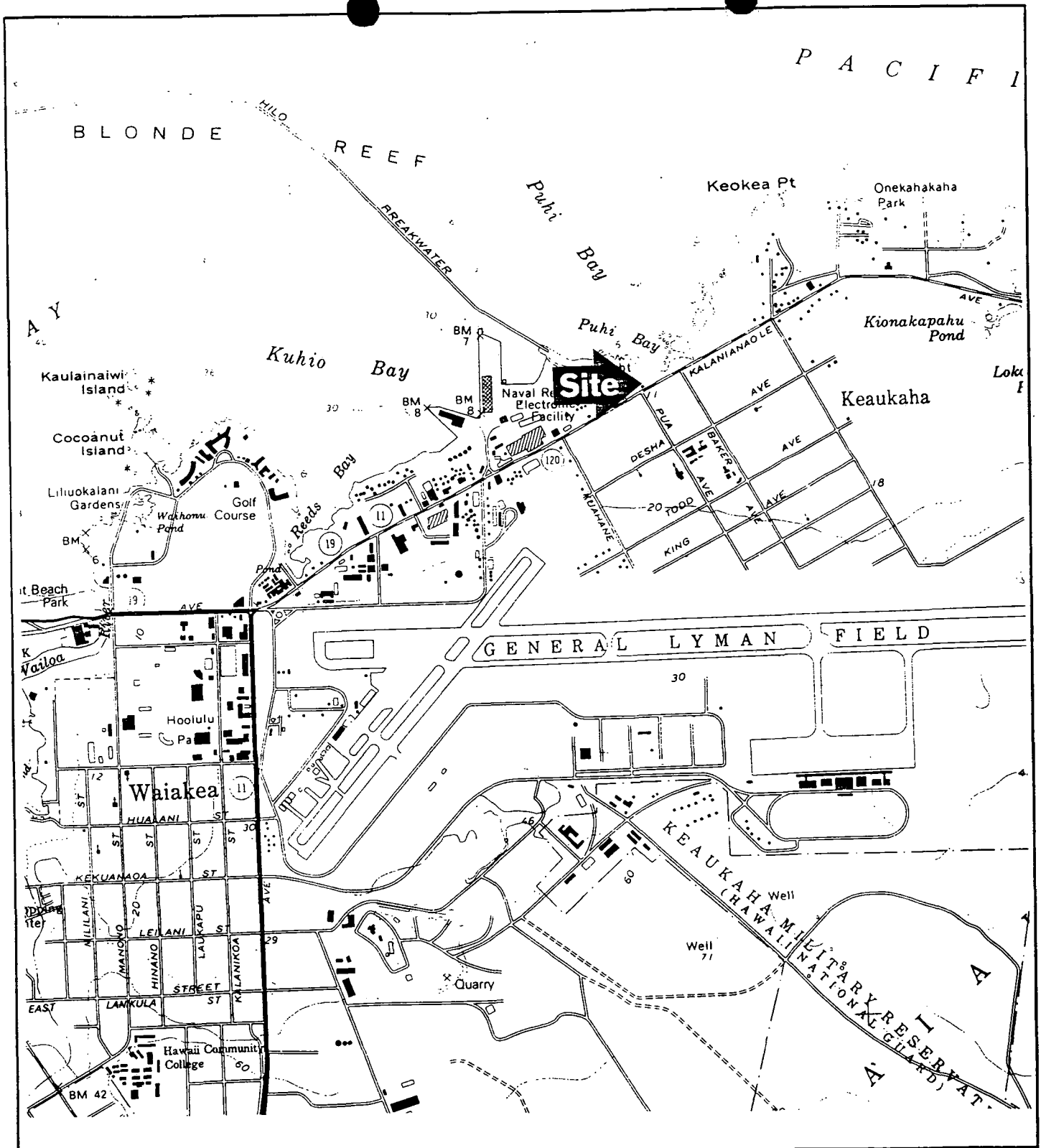
Duncan Walker, RG, CEG

April 26, 1999



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Underground Storage Tank Closure Report  
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1087 Kalaniana'ole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
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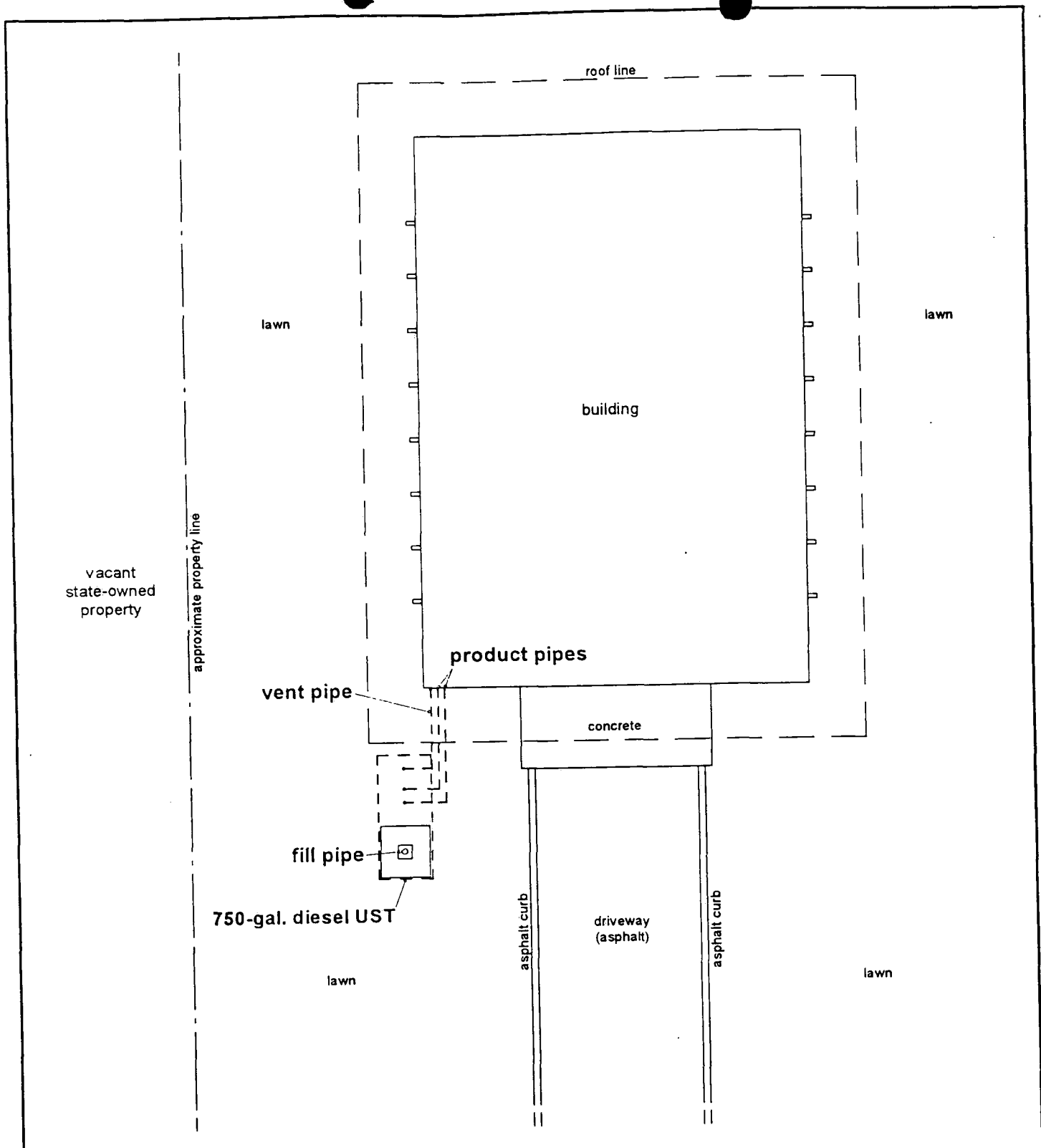
**FIGURES 1 THROUGH 4**



**VICINITY MAP**  
for  
**OLD HILO WASTEWATER  
TREATMENT PLANT**  
prepared by  
**WALKER CONSULTANTS, LTD.**

April 1999 FIGURE 1

Note: Map reproduced from a portion of Hilo 7.5' Quadrangle (USGS, 1981).

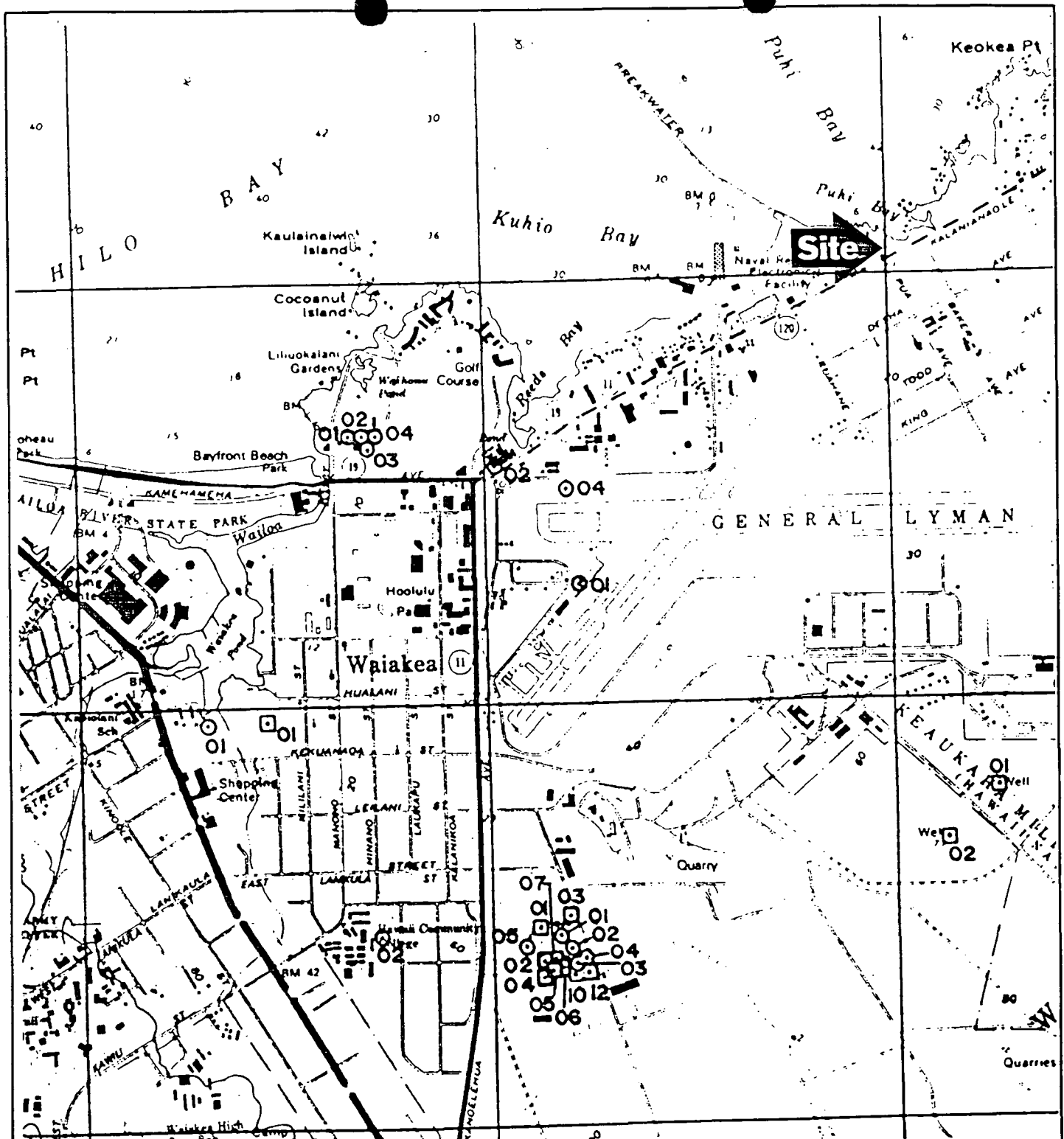


0                      10'  
SCALE



Note: Map not a survey. Map data are based on field measurements and available plans, and are approximate.

**SITE MAP**  
for  
**OLD HILO WASTEWATER  
TREATMENT PLANT**  
prepared by  
**WALKER CONSULTANTS, LTD.**  
April 1999 FIGURE 2



**EXPLANATION**



- Underground Injection Control (UIC) line
- Injection well
- ◻ Drinking source
- ◻ Other well

0 2,000'

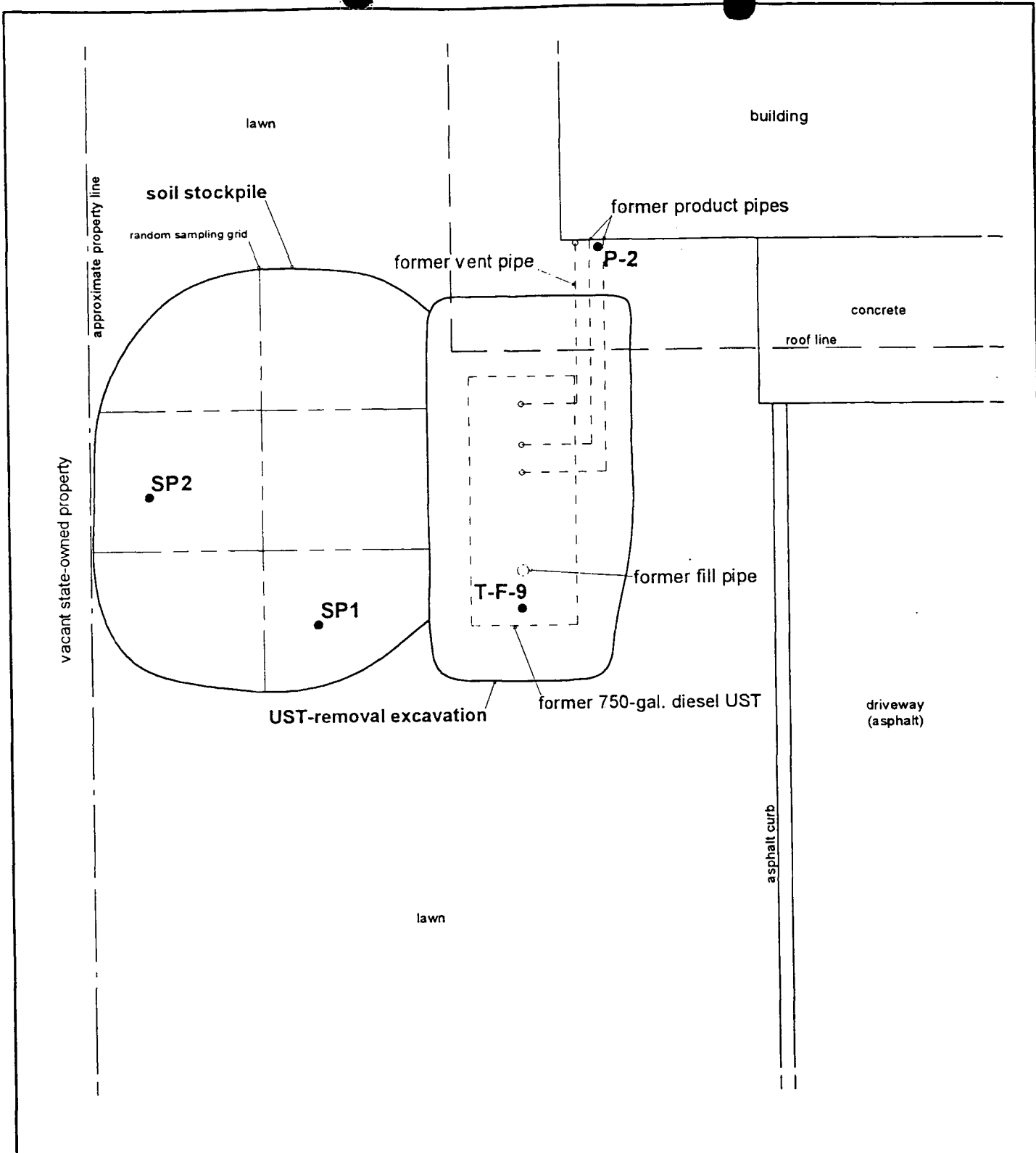
**SCALE**

Note: Map reproduced from a portion of UIC Program Map Sheet H-67 (DOI, 1984).

**UIC PROGRAM MAP**  
*for*  
**OLD HILO WASTEWATER TREATMENT PLANT**  
*prepared by*  
**WALKER CONSULTANTS, LTD.**

April 1999

**FIGURE 3**



**EXPLANATION**  
 ● T-F-9 approximate soil sample location



**SAMPLE LOCATION MAP**  
 for  
**OLD HILO WASTEWATER TREATMENT PLANT**  
 prepared by  
**WALKER CONSULTANTS, LTD.**  
 April 1999 FIGURE 4

Note: Map not a survey. Map data are based on field measurements and available plans, and are approximate.

**Walker Consultants, Ltd.**

Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalaniana'ole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**TABLE 1**

**TABLE 1  
 DIESEL UST-REMOVAL SOIL SAMPLE ANALYTICAL RESULTS**

Sample Number	T-F-9	P-2	SP1	SP2	DOH
Sample Date	12/17/98	12/17/98	12/17/98	12/17/98	Tier 1
Sample Location	UST, fill (southern) end	product pipes	soil stockpile	soil stockpile	Soil Action
Sample Depth	~9' bgs	~2' bgs	~0.5' deep	~0.5' deep	Levels
PID (ppmv)	ND <0.1	ND <0.1	ND <0.1	ND <0.1	50
TPH-D (mg/kg)	ND <10	9 <sup>a</sup>	10	7 <sup>a</sup>	5,000
TPH-O (mg/kg)	12	19	25	30	5,000
benzene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.005	0.68
toluene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.005	5.5
ethylbenzene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.005	0.13
xylenes (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.005	8
acenaphthene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.039 <sup>c</sup>	18
benzo(a)pyrene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.069 <sup>c</sup>	1.0
fluoranthene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.074 <sup>c</sup>	11
naphthalene (mg/kg) <sup>b</sup>	NA	NA	NA	ND <0.034 <sup>c</sup>	41

**NOTES:**

NA Not Analyzed.

ND Not Detected at the listed laboratory practical quantitation limits (PQLs) or method detection limits (MDLs).

a Laboratory reported result between PQL and MDL.

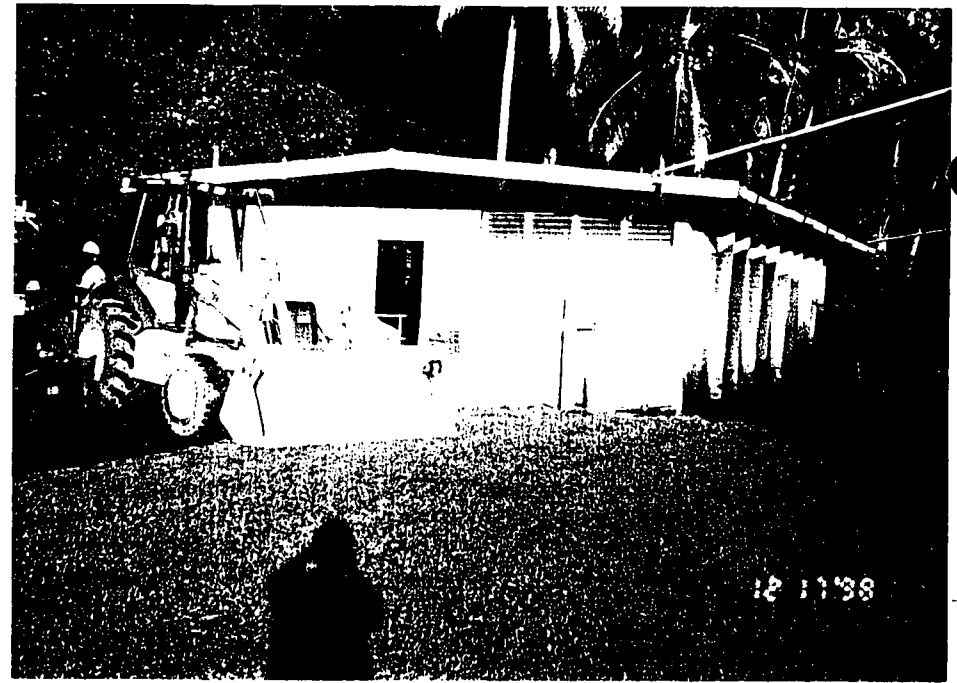
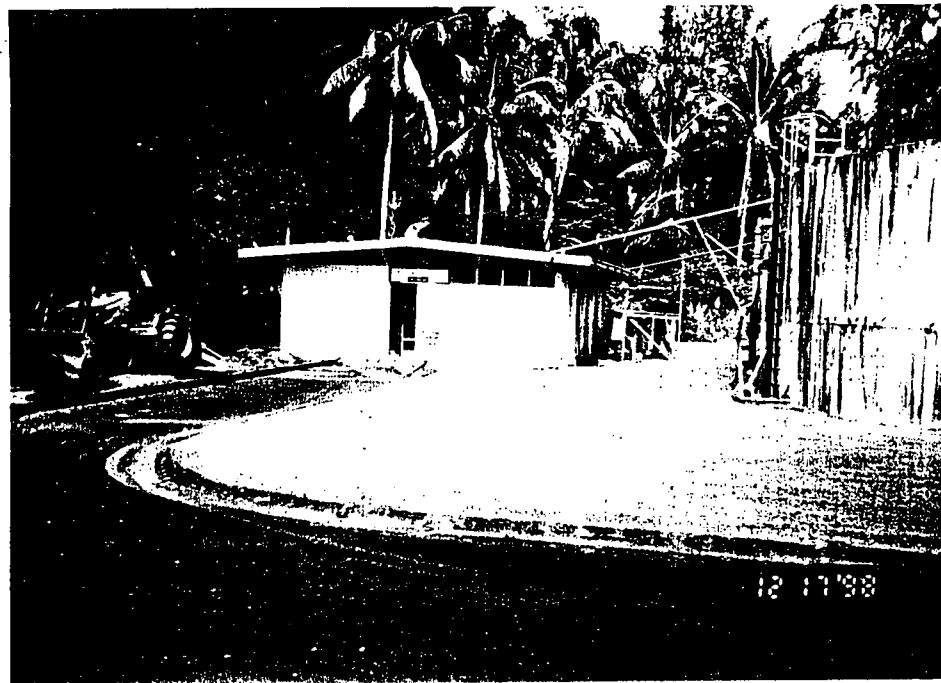
b Results reported in µg/kg (0.001 mg/kg).

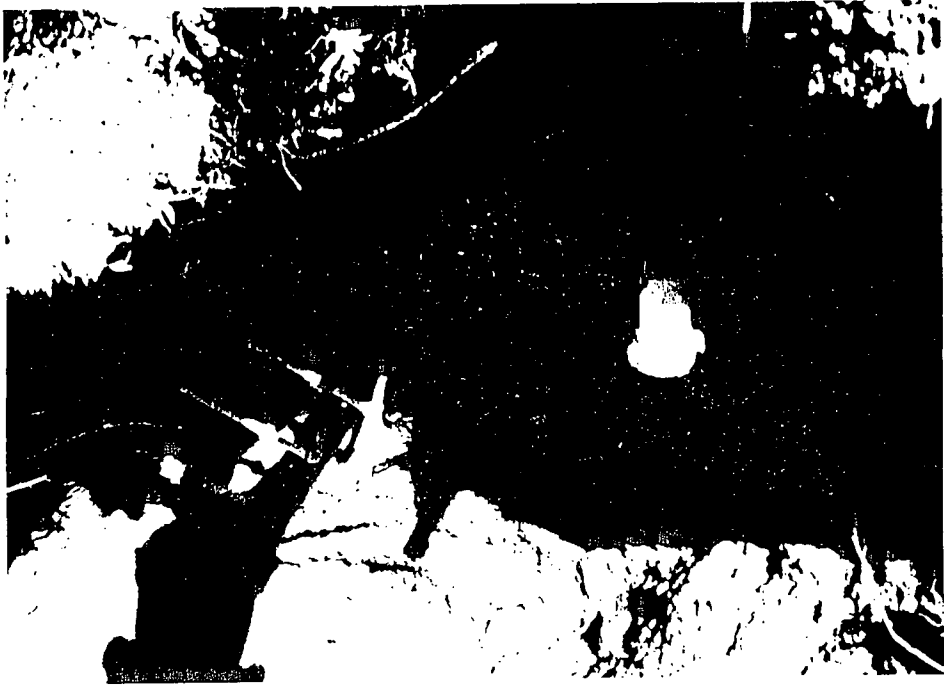
c Laboratory reported MDL.



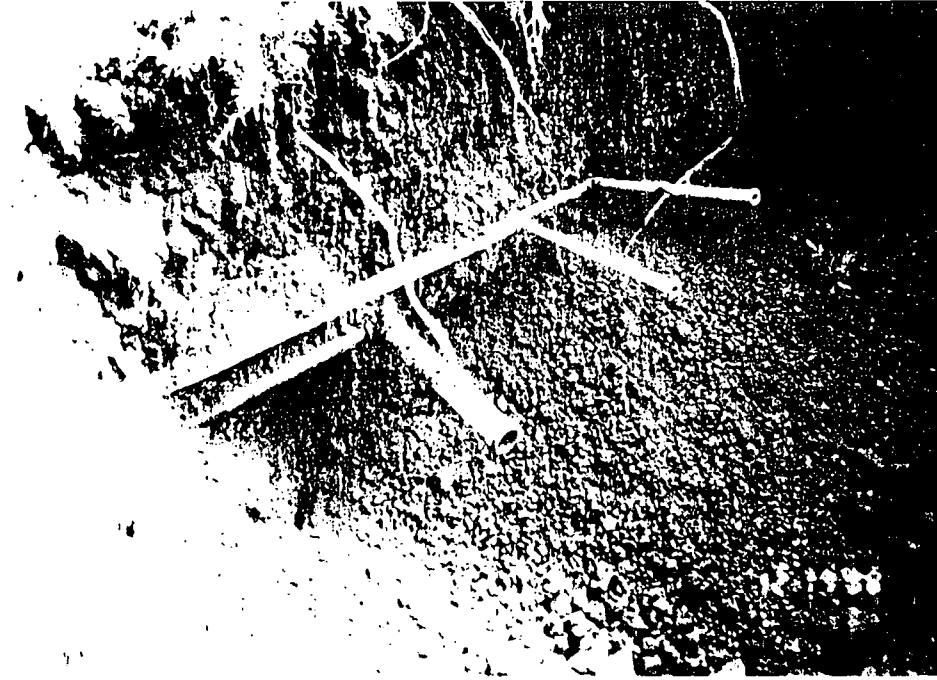
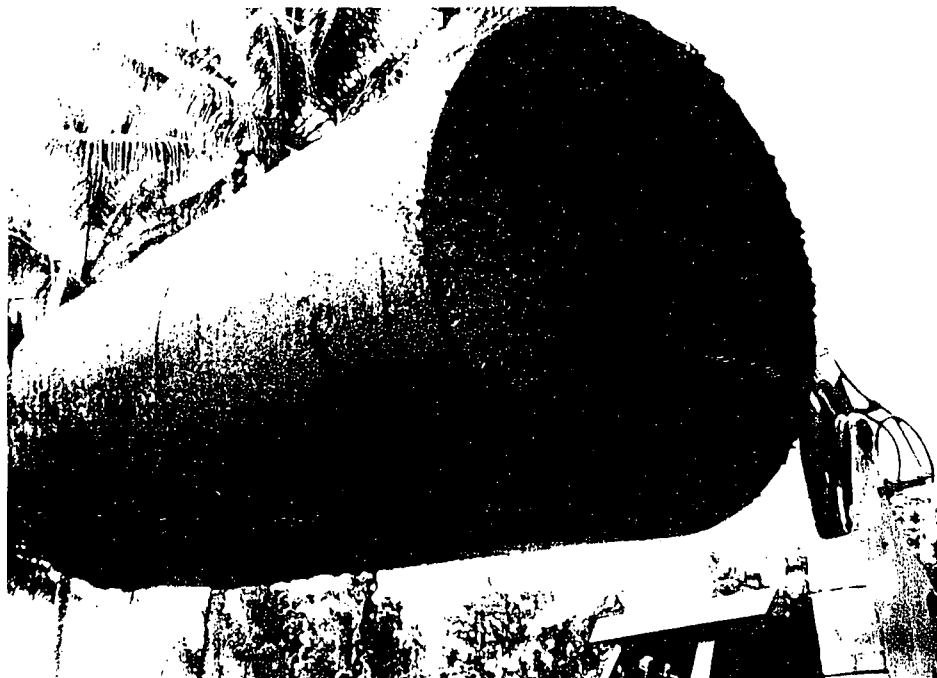
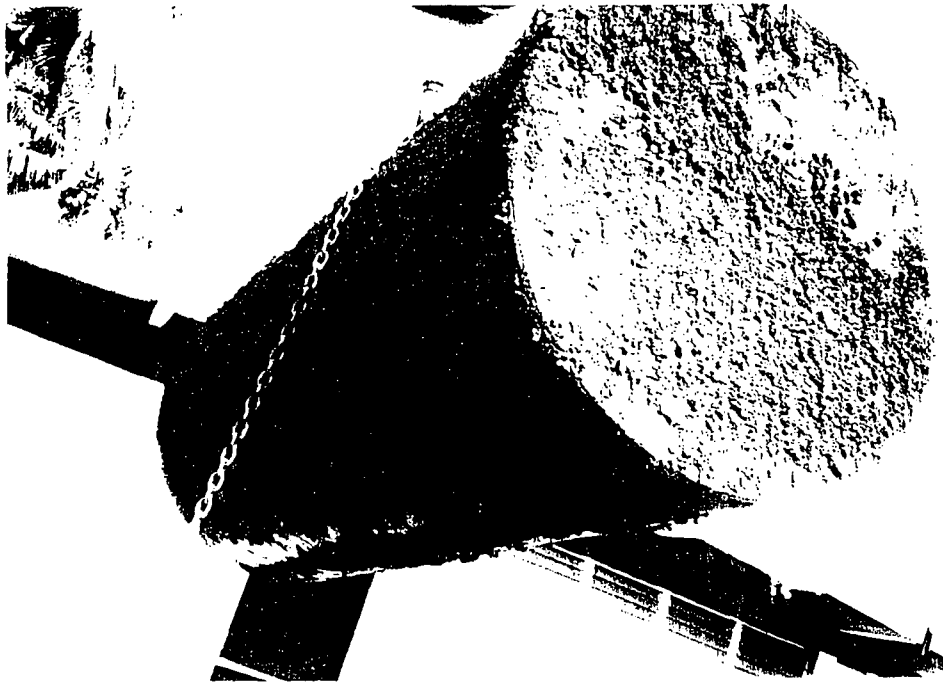
**Walker Consultants, Ltd.**  
Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

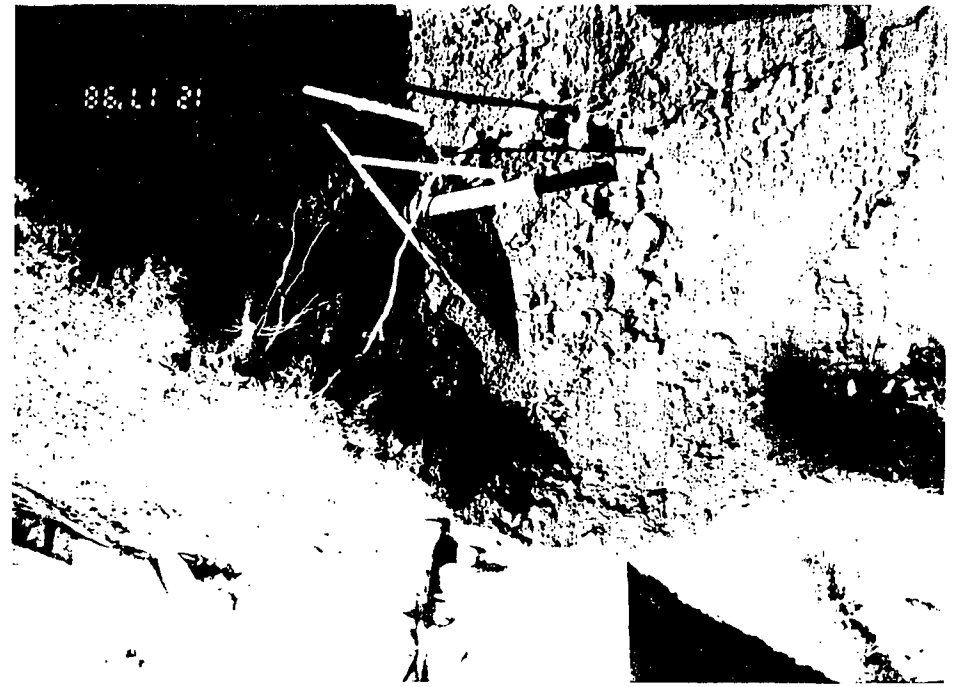
**APPENDIX A**  
**PHOTOGRAPHS**











**Walker Consultants, Ltd.**

Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**APPENDIX B**

**NOTICE OF INTENT TO CLOSE UNDERGROUND STORAGE TANKS,  
HAWAII COUNTY FIRE DEPARTMENT UST REMOVAL PERMIT,  
NOTIFICATION FOR UNDERGROUND STORAGE TANKS,  
AND  
CONFIRMED RELEASE NOTIFICATION**

## Notice of Intent to Close Underground Storage Tanks

**Mail this form to:**

Solid and Hazardous Waste Branch  
 Hawai'i Department of Health  
 919 Ala Moana Boulevard #212  
 Honolulu, Hawai'i 96814

or fax it to: (808) 586-7509

Notice of intent to close a UST must be provided to the Department of Health at least 30 days prior to the actual date of closure. If you have any questions regarding this notice, call our office at (808) 586-4226.

**UST Facility Description - Provide a description of the UST facility.**

Facility ID	Facility Name	Facility Address
9-502439	Old Hilo Wastewater Treatment Plant (Pua Pump Station)	1087 Kalaniana'ole St. Hilo, HI 96720 TMK. 2-1-11:004

**UST System Description - Provide a description of the UST(s) to be closed. Use additional sheets as needed.**

Tank ID	Tank Capacity (gallons)	Substance Stored (gasoline, diesel, etc.)	Material of Tank Construction (steel, FRP, etc.)	Projected Date of Closure
1	750	diesel/fuel oil	steel (?)	11/20/98

**Contact Information - Provide information on the UST owner, UST operator or authorized representative; i.e. a person legally responsible for the UST(s). We will send official correspondence regarding the UST closure to this person.**


Name / Title	Peter J. Boucher / Chief, Wastewater Division
Company Name	Department of Public Works, County of Hawaii
Mailing Address	25 Aupuni St., Rm. 202 Hilo, HI 96720
Phone / Fax Numbers	808-961-8338 / 808-961-8644

**Contractor/Consultant Information - Provide information on the contractors and consultants who will close the UST(s). Use additional sheets as needed.**

Name / Title	Glen Downing / Vice President	Duncan Walker / President
Company Name	D.L. Downing General Contractors, Inc.	Walker Consultants, Ltd.
Mailing Address	34 Wiwoole St. Hilo, HI 96720	P.O. Box 4998 Hilo, HI 96720
Phone / Fax Numbers	808-935-6707 / 808-935-1991	808-966-7481 / 808-966-6509

**Notice Provided By:**

Name: Duncan Walker    Company: Walker Consultants, Ltd.  
 P.O. Box 4998, Hilo, HI 96720  
 808-966-7481/808-966-6509

Signature:     Date: 10/30/98



HAWAII FIRE DEPARTMENT  
County of Hawaii

Fee.....  
Received by.....  
Date Received.....

TMK: 2-1-11-04  
Date of Application 12-17-98

APPLICATION FOR  
Above Ground ( ) ~~REMOVAL~~  
Underground (X) ~~TANK INSTALLATION~~

Location of Tank 1087 KALANIANAOLE AVE. HILO Distance From Property Line: \_\_\_\_\_  
COUNTY OF HAWAII

Person or Firm Using Tank OLD HILO TREATMENT PLANT Address 1087 KALANIANAOLE AVE

Person of Firm ~~Installing~~ REMOVING Tank DL DOWNING CONTR Address 34 WILDOLE ST. HILO

Applicant GLEN DOWNING Address 34 WILDOLE ST. HILO Phone 935-6707

Capacity	Type of Tank	Fiber Glass	Black Iron	Metal Gauge	Type of Storage
1. 750	1. SINGLE WALL	[ ]	[X]	1. _____	1. DIESEL
2. _____	2. _____	[ ]	[ ]	2. _____	2. _____
3. _____	3. _____	[ ]	[ ]	3. _____	3. _____

Dimensions	NBFU Tag No.	Manufactured By	Size of Vent Pipe	Location of Vent Opening
1. 46" X 109"	1. UL-677649	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____

Size of Fill Opening	Size Return	Distance from Building	Tank Coating	Type & Depth of Covering
1. _____	1. _____	1. _____	1. _____	1. _____
2. _____	2. _____	2. _____	2. _____	2. _____
3. _____	3. _____	3. _____	3. _____	3. _____

You may install the above described tank in accordance with Article 79 or Article 82 of the Fire Code of the County of Hawaii. Anytime the installation becomes dangerous to life or surrounding property, the installation shall be repaired or removed immediately upon receipt of notice from the Fire Chief or any of his inspectors. Any alteration to the above described installation shall have the written approval of the Fire Chief. This includes removal, abandonment, placing temporarily out of service or otherwise disposing of any flammable/combustible liquid or LPG tank.

Fire Inspector

HFD USE ONLY	Date	Unsat.	Sat.	Inspector	Remarks
Site Inspection	12/17/98	[ ]	[X]	CA	
Tank <del>Installation</del> Removal	"	[ ]	[X]	CA	
Piping & Vent Line <del>Removed</del>	"	[ ]	[X]	CA	

\*A Permit will be issued upon inspection and approval of the storage tank(s), dispensers and other appurtenances utilized in this process. A plot plan showing the location shall be attached to this application.

<b>Notification for Underground Storage Tanks</b>	<b>STATE USE ONLY</b>
State Agency Name and Address Solid and Hazardous Waste Branch 919 Ala Moana Blvd Room 212, Honolulu Hawaii 96814	ID NUMBER 9-600351
<b>TYPE OF NOTIFICATION</b>	<b>DATE RECEIVED</b>
<input type="checkbox"/> A NEW FACILITY <input type="checkbox"/> B AMENDED <input checked="" type="checkbox"/> C CLOSURE	A Date Entered into Computer _____ B Data Entry Clerk Initials _____ C Owner Was Contacted to Clarify Responses, Comments: _____ _____ _____ _____
0 No. of tanks at facility      0 No. of continuation sheets attached	
<b>INSTRUCTIONS</b>	
Please type or print in ink all items except "signature" in section V. This form must be completed for each location containing underground storage tanks. If more than five (5) tanks are owned at this location, photocopy the following sheets, and staple continuation sheets to the form.	

### GENERAL INFORMATION

Notification is required by Federal law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that store or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records or in the absence of such records, your knowledge, belief, or recollection.

Who Must Notify? Section 9002 of RCRA, as amended, requires that, unless exempted, owners of underground tanks that store regulated substances must notify designated State or local agencies of the existence of their tanks. Owner means--

- (a) in the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for storage, use, or dispensing of regulated substances, and
- (b) in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before discontinuation of its use.
- (c) if the State so requires, any facility that has underground any changes to facility information or tank system status (only amended tank information needs to be included).

**What Tanks Are Included?** Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing: 1. gasoline, used oil or diesel fuel, and 2. industrial solvents, pesticides, herbicides or fumigants

**What Tanks Are Excluded?** Tanks removed from the ground are not subject to notification. Other tanks excluded from notification are:

- 1. farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
- 2. tanks used for storing heating oil for consumptive use on the premises where stored;

- 3. septic tanks;
- 4. pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
- 5. surface impoundments, pits, ponds, or lagoons;
- 6. storm water or waste water collection systems;
- 7. flow-through process tanks;
- 8. liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
- 9. storage tanks situated in an underground area (such as a basement, cellar, mineworking, drift, shaft, or tunnel) if the storage tank is situated upon or above the surface floor.

**What Substances Are Covered?** The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in Section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

**Where To Notify?** Send completed forms to:

**Department of Health  
 Solid and Hazardous Waste Branch  
 919 Ala Moana Blvd., Room 212  
 Honolulu, Hawaii 96814**

**When To Notify?** 1. Owners of underground storage tanks in use or that have been taken out of operation after January 1, 1974, but still in the ground, must notify by May 8, 1986. 2. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use. 3. If the State requires notification of any amendments to facility, send information to State agency immediately.

**Penalties:** Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty not to exceed \$10,000 for each tank for which notification is not given or for which false information is submitted.

<b>I. OWNERSHIP OF TANK(S)</b>			<b>II. LOCATION OF TANK(S)</b>		
Owner Name (Corporation, Individual, Public Agency, or Other Entity)  County of Hawaii			If required by State, give the geographic location of tanks by degrees, minutes, and seconds. Example: Lat. 42, 36, 12N, Long., 85, 24, 17W  Latitude _____ Longitude _____		
Street Address  25 Aupuni St., Rm. 202			(if same as section I, mark box here <input type="checkbox"/> ) Facility Name of Company Site Identifier, as applicable  Old Hilo Wastewater Treatment Plant (Pua Pump Station)		
City Hilo	State HI	Zip Code 96720	Street Address 1087 Kalaniana'ole St.		
County Hawaii			City Hilo	State HI	Zip Code 96720
Phone Number (include Area Code) (808) 961-8338			County Hawaii		Municipality

**Notification for Underground Storage Tank**

**III. TYPE OF OWNER**

- Federal Government     Commercial  
 State Government     Private  
 Local Government

**IV. INDIAN LANDS**

Tanks are located on land within an Indian Reservation or on other trust lands.  
 Tanks are owned by native American nation, tribe, or individual

Tribe or Nation: \_\_\_\_\_

**V. TYPE OF FACILITY**

Select the Appropriate Facility Description

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Gas Station           | <input type="checkbox"/> Railroad               | <input type="checkbox"/> Trucking/Transport                                   |
| <input type="checkbox"/> Petroleum Distributor | <input type="checkbox"/> Federal - Non-Military | <input type="checkbox"/> Utilities  |
| <input type="checkbox"/> Air Taxi (Airline)    | <input type="checkbox"/> Federal - Military     | <input type="checkbox"/> Residential  |
| <input type="checkbox"/> Aircraft Owner        | <input type="checkbox"/> Industrial             | <input type="checkbox"/> Farm   |
| <input type="checkbox"/> Auto Dealership       | <input type="checkbox"/> Contractor             | <input checked="" type="checkbox"/> Other (Explain) <u>former county WWTP</u> |

**VI. CONTACT PERSON IN CHARGE OF TANKS**

Name	Title	Address	Phone Number (Include Area Code)
Peter J. Boucher	Chief, Wastewater Div.	25 Aupuni St., Rm. 202, Hilo, HI 96720	(808) 961-8338

**VII. FINANCIAL RESPONSIBILITY**

- I have met the financial responsibility requirements in accordance with 40 CFR Subpart H

Check All that Apply

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Self Insurance | <input type="checkbox"/> Guarantee        | <input type="checkbox"/> State Funds                          |
| <input type="checkbox"/> Commercial Insurance      | <input type="checkbox"/> Surety Bond      | <input type="checkbox"/> Trust Funds                          |
| <input type="checkbox"/> Risk Retention Group      | <input type="checkbox"/> Letter of Credit | <input type="checkbox"/> Other Method Allowed - Specify _____ |

**VIII. CERTIFICATION (Read and sign after completing all section)**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

Name and official title of owner  
or owner's authorized representative (Print)

Signature



Date Signed

1/11/99

**Paperwork Reduction Act Notice**

EPA estimates public reporting burden for this form to average 30 minutes per response including time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch (2136), U.S. Environmental Protection Agency, 401 M Street, Washington D.C. 20460, marked "Attention Desk Officer for EPA." This form amends the previous notification form as printed in 40 CFR Part 280, Appendix I. Previous editions of this notification form may be used while supplies last.

# Notification for Underground Storage Tanks

## IX. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location.)

Tank Identification Number	Tank No.	Tank No.	Tank No.	Tank No	Tank No
	1				
1. Status of Tank (mark only one) Currently In Use Temporarily Out of Use Permanently Out of Use Amendment of Information	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
2. Date of Installation (mo./year)	unknown				
3. Estimated Total Capacity (gallons)	750				
4. Material of Construction (mark all that apply) Asphalt Coated or Bare Steel Cathodically Protected Steel Epoxy Coated Steel Composite (Steel with Fiberglass) Fiberglass Reinforced Plastic Lined Interior Double Walled Polyethylene Tank Jacket Concrete Excavation Liner Unknown Other, Please specify  Has tank been repaired?	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <hr/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <hr/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <hr/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <hr/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <hr/> <input type="checkbox"/>
5. Piping (Material) (mark all that apply) Bare Steel Galvanized Steel Fiberglass Reinforced Plastic Copper Cathodically Protected Double Walled Secondary Containment Unknown Other, Please specify	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
6. Piping (Type) (mark all that apply) Suction: no valve at tank Suction: valve at tank Pressure Gravity Feed Has Piping Been Repaired?	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

## Notification for Underground Storage Tanks

Tank Identification Number	Tank No.	Tank No.	Tank No.	Tank No.	Tank No.
	1				
7 Substance Currently or Last Stored in Greatest Quantity by Volume					
Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diesel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gasohol	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, Please specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
Hazardous Substance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CERCLA name and/or	_____	_____	_____	_____	_____
CAS number	_____	_____	_____	_____	_____
Mixture of Substances	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Please specify	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____

### X. TANKS OUT OF USE, OR CHANGE IN SERVICE

1. Closing of Tank					
A. Estimated date last used (mo./day/year)	1992				
B. Estimated date closed (mo./day/year)	12/17/98				
C. Tank was removed from ground	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
D. Tank was closed in ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E. Tank filled with inert material	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Describe	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
	_____	_____	_____	_____	_____
F. Change in Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Site Assessment Completed	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Evidence of a leak detected	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

# Notification for Underground Storage Tanks

## XI. CERTIFICATION OF COMPLIANCE (COMPLETE FOR ALL NEW AND UPGRADED TANKS AT THIS LOCATION)

Tank Identification Number	Tank No.	Tank No.	Tank No.	Tank No.	Tank No.
<b>1. Installation</b> A. Installer certified by tank and piping manufacturers B. Installer certified or licensed by the implementing agency C. Installation inspected by a registered engineer D. Installation inspected and approved by implementing agency E. Manufacturer's installation checklists have been completed F. Another method allowed by State agency. Please specify.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>2. Release Detection (Mark all that apply)</b> A. Manual tank gauging B. Tank tightness testing C. Inventory Controls D. Automatic tank gauging E. Vapor monitoring F. Groundwater monitoring G. Interstitial monitoring double walled tank/piping H. Verify monitoring/secondary containment I. Automatic line leak detectors J. Line tightness testing K. Other method allowed by implementing agency. Please specify.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>3. Spill and Overfill Protection</b> A. Overfill device installed B. Spill device installed.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

OATH: I certify the information concerning installation that is provided in section XI is true to the best of my belief and knowledge.

Installer

Name \_\_\_\_\_ Signature \_\_\_\_\_ Date \_\_\_\_\_

Position \_\_\_\_\_ Company \_\_\_\_\_

STATE OF HAWAII - DEPARTMENT OF HEALTH - UNDERGROUND STORAGE TANK  
 CONFIRMED RELEASE NOTIFICATION

STATE USE ONLY

Facility ID: 9-600351      Release ID: 990108      Date Sent:      Date Received:

GENERAL INFORMATION AND INSTRUCTIONS

This form should be completed immediately and only after reporting a confirmed release by telephone within 24-hours to the Hawai'i DOH UST Section. Completion of this notice will serve to fulfill part of the notification requirements of 40 CFR §280.61. Please type or print in ink all items except "Signature" in Section III. This form must be completed for each UST release occurrence. Completed form must be mailed to: Department of Health, Solid and Hazardous Waste Branch, 919 Ala Moana Boulevard, Suite 212, Honolulu, Hawai'i 96814

I. REPORTING PARTY AND FACILITY INFORMATION

24-Hour Reporting Party Name, Title, & Affiliation:  
 Duncan Walker, President  
 Walker Consultants, Ltd.

Facility Name & Address:  
 Old Hilo Wastewater Treatment Plant (Pua Pump Station)  
 1087 Kalaniana'ole St., Hilo, Hawaii Island

Facility Contact Person, Affiliation, & Address:  
 Peter J. Boucher, Wastewater Division, Department of Public Works, County of Hawaii  
 25 Aupuni St., Rm. 202, Hilo, Hawaii 96720

Facility Information: (Check only one item)

<input type="checkbox"/> Gas Station	<input type="checkbox"/> Aircraft Owner	<input type="checkbox"/> State Government	<input type="checkbox"/> Commercial	<input type="checkbox"/> Utilities
<input type="checkbox"/> Petroleum Distributor	<input type="checkbox"/> Auto Dealership	<input type="checkbox"/> Federal Non-Military	<input type="checkbox"/> Industrial	<input type="checkbox"/> Other
<input type="checkbox"/> Airline	<input checked="" type="checkbox"/> County Government	<input type="checkbox"/> Federal Military	<input type="checkbox"/> Truck/Transportation	

II. RELEASE INFORMATION (Circle all that apply in Items A-H)

A. Source of the Release:    Piping                      Tank(s)                      Spill                      Overfill

If "Tank(s)" list tank sizes:

B. Method of Discovery & Confirmation:    Closure                      Monthly Release Detection                      Tightness Test                      Site Check

Other (Specify):

C. Estimated Quantity of Substance Released:                      5 Gallons                      Unknown

D. Type of Substance Released:    Unleaded Gas                      Leaded Gas                      Diesel                      Used or Waste Oil                      Hazardous Substance

Other (Specify):

E. Immediate Hazards:    Explosion                      Fire                      Vapor Exposure                      Recoverable Free Product                      Drinking Water Threat

Other (Specify):    none

F. Release Impact:    Surface Water                      Ground Water                      Soil                      Air

G. Migration Pathways:    None                      Utility Conduits                      Subsurface Drains                      Sewer Lines                      Unknown

Other (Specify):

H. Actions Taken:    Evacuated Nearby Area    Removed UST Contents    Recovered Free Product    Excavated Soils    Ground Water Recovery

Other (Specify):    Removed UST.

III. UST OWNER OR OPERATOR CERTIFICATION (Read and sign after completing all sections to the extent possible)

I certify under penalty of law that I have examined and am familiar with the information submitted in this notice, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true and accurate.

Name, Title, & Company:  
 Wastewater Division, Department of Public Works, County of Hawaii

Signature:       Date: 1/11/99

**Walker Consultants, Ltd.**  
Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**APPENDIX C**  
**WORK ORDER/TIME TICKET,**  
**DISPOSAL INFORMATION / DISPOSAL RECEIPT,**  
**AND**  
**NON-HAZARDOUS WASTE MANIFEST**





# WORK ORDER/TIME TICKET

INDUSTRIAL SERVICES  
 GROUP  
 Western Region

Cust. Name <i>D. L. Downing</i>	PSC Job No. <i>6037-12</i>	Page <i>1</i> of <i>1</i>
Cust. P.O.	Current Date <i>7/25</i>	Day of Week <i>Thurs</i>

Job Location <i>Area base station</i>	Cust. Contact/Phone <i>708-441-745-6707</i>	Shift	Day <input checked="" type="checkbox"/>	Night <input type="checkbox"/>	Complete <input checked="" type="checkbox"/>	Incomplete <input type="checkbox"/>
Services Performed <i>cut pipe and gas free (1) des. 4, 5, 7</i>						

*Alan Downing*  
 Customer Authorized Signature

*Richard Under*  
 Time Ticket Prepared By

PSC Supervisor Approval

Employee Name	Labor Class	Start	Lunch	Finish	Payroll	OFFICE USE ONLY		
						S.T.	O.T.	D.T.
<i>1</i> <i>ALAN WOOD</i>	<i>Field Sup</i>	<i>0800</i>	<i>1</i>	<i>1100</i>	<i>1300</i>			
<i>2</i> <i>WALTER BAKER</i>	<i>Field Sup</i>	<i>0800</i>	<i>1</i>	<i>1100</i>	<i>1400</i>			
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								

Equipment	Qty	Hour	Unit	Sub/Rent/Disposal/Other	Qty	Hour	Unit	Accessories	Qty	Unit
Pickup/Gear Trk/Van	<i>1</i>	<i>2</i>	<i>2</i>	<i>Air fare Rd trip</i>	<i>1</i>			Gas Tech Meter	<i>1</i>	<i>2</i>
Pickup/Gear Trk/Van								Supplied Air Egress Sys.		
Pickup/Gear Trk/Van								30 Min. Scott Air Pack		
Vac Truck <i>75</i> Bbl	<i>1</i>	<i>2</i>	<i>330</i>					Respirators: Full Half		
Truck Tractor								Cartridges		Pair
Tanker 120 Bbl				<i>Product stored in poly tank @ Philp Suc Gard to be shipped @ later date</i>				Raingear		
B-10 Vac Truck								Tyvek		
Guzzler (Loadout)								Gloves PVC/Leather	<i>2</i>	
HB, 10,000 (Combo)				<i>Diesel fuel 600 gals</i>				Plastic Sheeting		
Bundle Blast Roto Jet				<i>Rusa + c 30 gals</i>				Poly Bags <i>X S L</i>	<i>2</i>	
Sewer Jet (Harben)								Cleaning Rags	<i>3</i>	Lbs
Steamer				Manifest # <i>WW003046</i>				Duct Tape		
Air Comp <i>125</i> CFM	<i>1</i>	<i>1</i>	<i>103</i>	Truck Wash-out	NONE	<i>L</i>	<i>M</i>	Cleaner	<i>2</i>	Gals
Air Comp (Fresh air)				Hose Type	Diameter	Length	Qty	Tripod w/ winch		
D/D Pump				<i>Vac hose</i>	<i>2</i>	<i>35</i>		Safety Harness		
Pressure Washer				<i>9.10.5</i>	<i>3/4</i>	<i>50</i>	<i>2</i>	Absorbent Pads		

Please print or type  
 (Form designed for use on a 12-pitch typewriter.)

**NON-HAZARDOUS  
 WASTE MANIFEST**

1. Generator's US EPA ID No. Manifest Document No. 2. Page 1 of **WW003046**

3. Generator's Name and Mailing Address  
**C/O HILO WASTE WATER**  
**D.L. DOWNING**  
**157 HOLOMUA ST**  
**HILO HAWAII**

T/S 26927  
 JOB # 6357-12

4. Generator's Phone (808) 935-6707

5. Transporter 1 Company Name  
**PHILIP SERVICE OF HAWAII LTD**  
 6. US EPA ID Number  
**HID980880884**

A. Transporter's Phone  
**808-682-3033**

7. Transporter 2 Company Name  
 8. US EPA ID Number

B. Transporter's Phone

9. Designated Facility Name and Site Address  
**PHILIP SERVICE OF HAWAII LTD**  
**91-410 KOMOHANA ST**  
**KAPOLEI HAWAII 96707**  
**HI8000000907**

C. Facility's Phone  
**808-682-3600**

11. Waste Shipping Name and Description

12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol
001	TT	00030	G
001	TT	00600	G

a. MATERIAL NOT REGULATED BY DOT  
 DIESEL SLUDGE/DIESEL TANK CLEANING Rinseate

b. Residual Diesel material Not Regulated

c.

d.

D. Additional Descriptions for Materials Listed Above  
**Profile # DW100PS**

E. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information  
**24 HOUR EMERGENCY RESPONSE # 808-682-3033**  
**CIOR D Test < 0.250**

16. GENERATOR'S CERTIFICATION: I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Printed/Typed Name  
**David Yamamoto**

Signature  
 Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials  
 Printed/Typed Name  
**ABEL WOOD**

Signature  
 Month Day Year  
**1/21/98**

18. Transporter 2 Acknowledgement of Receipt of Materials  
 Printed/Typed Name

Signature  
 Month Day Year

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of waste materials covered by this manifest except as noted in Item 19.  
 Printed/Typed Name  
 Signature  
 Month Day Year

GENERATOR

TRANSPORTER

FACILITY

**Walker Consultants, Ltd.**  
Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**APPENDIX D**  
**PID FIELD SCREENING AND SAMPLE COLLECTION METHODS**

## APPENDIX D

### PID FIELD SCREENING AND SAMPLE COLLECTION METHODS

#### Photo Ionization Detector Calibration and Field Screening

The Photovac Microtip photo ionization detector (PID) was calibrated prior to the start of work using a 100 ppmv (parts per million, volumetric) hexane gas standard; "zero air" calibration was accomplished at an up-wind location which had no olfactory evidence that volatiles were present, and which was remote from the USTs, motor vehicles and other volatile organic compound (VOC) sources.

For the splits of the samples sent to the analytical laboratory, the field PID screening was accomplished by placing the sample split in a plastic bag, which was then sealed and set aside for approximately one-half hour to allow for any VOCs in the sample to migrate into the bag's headspace. The bag was then opened slightly, and the PID tube was inserted into the bag and the VOC concentration was measured. This headspace measurement method is considered better than the glass-jar method recommended in the DOH *Technical Guidance Manual*, because removal of the glass jar lid for PID measurement may result in substantial losses of VOCs. Soil sample headspace PID measurements were recorded. The sidewalls and bottom of the UST-removal excavation, and the excavated soil were screened at various locations by holding the end of the PID tube near the excavation and stockpile surfaces.

#### Soil Sample Collection

Soil samples were collected in precleaned, thin-walled brass sleeves, which had 2.5-inch outside diameters and were 3 inches long. The sample sleeves and plastic end caps were washed prior to use using Alconox detergent, followed by successive potable and distilled water rinses. One end of each sleeve was first covered with a Teflon sheet and fitted with a plastic end cap. Where possible, the open end of each sleeve was then hand driven into the soil to fill the sleeve. Where the sleeve could not be hand driven, it was then filled with soil through its open end using the sleeve as a scoop to fill the sleeve. Care was taken to fill each sleeve completely to prevent the presence of headspace in the sleeve, and the open end was then covered with a Teflon sheet and fitted with a plastic end cap.

For the soil samples from the excavated, unimpacted stockpile, the sampling locations were chosen at random by the drawing of lots, based on an imaginary sampling grid, which was laid out on the stockpile. Sampling procedures were otherwise the same as are described above.

#### Sample Storage and Chain-of-Custody Procedures

Immediately after collection of the samples, the soil sample sleeves were properly labeled. The soil sample sleeves were then immediately placed in chilled ice chests and were maintained in a chilled condition until analyzed. Chain-of-Custody records were completed in the field and accompanied the samples to the analytical laboratory.

**Walker Consultants, Ltd.**  
Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalamiana'ole Avenue, Hilo, Hawaii Island  
County of Hawaii, Department of Public Works, Wastewater Division  
April 1999

**APPENDIX E**  
**SOIL SAMPLE ANALYTICAL RESULTS,**  
**LABORATORY QA/QC DATA,**  
**AND**  
**CHAIN-OF-CUSTODY RECORDS**

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

Walker Consultants, Ltd.

Attention: Duncan Walker

P.O. Box 4998

Hilo HI 96720

Tel: (808)966-7481 Fax: (808)966-6509

# APCL Analytical Report

Service ID #: 801-987024

Collected by: Duncan

Collected on: 12/17/98

Received: 12/18/98

Extracted: 12/21-28/98

Tested: 12/22-30/98

Reported: 01/04/99

Sample Description: Soil from 1087 Kalanian Aole Ave., Hilo

Project Description: 98-1406 Old Hilo Waste Water Treatment

## Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				SP1	98-07024-2
<b>Benz. Tolu. Xylen. Ethylbenz. (BTXE)</b>					
Dilution Factor				1	
Benzene	8020	µg/kg	5	N.D.	
Ethylbenzene	8020	µg/kg	5	N.D.	
Toluene	8020	µg/kg	5	N.D.	
o-Xylene	8020	µg/kg	5	N.D.	
m/p-Xylene	8020	µg/kg	5	N.D.	
<b>Semi-volatile, PAH</b>					
Dilution Factor				1	
Acenaphthene	8270	µg/kg	39 (a)	N.D.	
Benzo(a)pyrene	8270	µg/kg	69 (a)	N.D.	
Fluoranthene	8270	µg/kg	74 (a)	N.D.	
Naphthalene	8270	µg/kg	34 (a)	N.D.	

Component Analyzed	Method	Unit	PQL	Analysis Result			
				P-2 98-07024-1	SP1 98-07024-2	SP2 98-07024-3	T-F-9 98-07024-4
Dilution Factor				1	1	1	1
Diesel	M8015E	mg/kg	10	9J	10	7J	N.D.
Dilution Factor				1	1	1	1
Motor oil	M8015E	mg/kg	10	19	25	30	12

PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit.

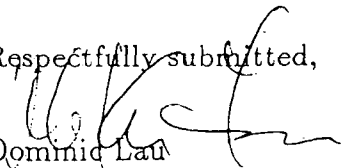
"-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

(a) MDL reported.

Respectfully submitted,

  
 Dominic Lau  
 Laboratory Director  
 Applied P & Ch Laboratory

# APCL QA/QC Report

Submitted to  
Walker Consultants, Ltd.  
Attention: Duncan Walker  
P.O. Box 1998  
Hilo HI 96720  
Tel: (808) 966-7431 Fax: (808) 966-6509

Service ID #: 801-987024 Received: 12/18/98  
Collected by: Duncan Tested: 12/22-30/98  
Collected on: 12/17/98 Reported: 1/ 8/99  
Sample description:  
Soil from 1087 Kalanian'aole Ave., Hilo  
Project: Old Hilo Waste Water Treatment Plant 788-1406

## Analysis of Soil

801-987024QC

Component Name	Analysis Batch #	CCV (µg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	Limit %Diff
<b>BTXE</b>												
Benzene	80G15158	100	86	N.D.	µg/kg	20.0	98	92	90	1	67-136	35
Toluene	80G15158	100	91	N.D.	µg/kg	80.0	87	83	80	3	66-124	31
o-Xylene	80G15158	100	97	N.D.	µg/kg	19.0	101	84	82	2	74-135	40
m-Xylene	80G15158	200	97	N.D.	µg/kg	82.0	93	73	70	3	78-123	32
p-Xylene	80G15158	100	99	N.D.	µg/kg	27.0	97	76	73	4	74-136	41

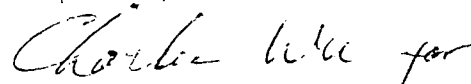
Component Name	Analysis Batch #	CCV (mg/L)	CCV %Rec	M-Blank	Conc. Unit	SP Level	LCS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit %Rec	Limit %Diff
<b>TPH: Diesel</b>												
Diesel	80G15073	1000	89	N.D.	mg/kg	50.0	105	130	120	7	50-149	36
Motor Oil/Lubrication	80G15073	1000	99	N.D.	mg/kg	-	-	-	-	-	-	-

# APCL QA/QC Report

Sample Name	Analysis Batch #	CCV	CCV	M-Blank	Conc. Unit	SP Level	ICS %Rec	MS %Rec	MSD %Rec	MS/MSD %RPD	Control Limit	
		(mg/L)	(%)								%Rec	%Diff
Semi-volatile, PAH												
Benzo(a)anthracene	98G5138	60.0	93	N.D.	µg/kg	3330	63	35	38	8	19-114	32
Benzo(b)fluoranthene	98G5138	60.0	93	N.D.	µg/kg	1670	74	40	42	5	25-117	31
Benzo(k)fluoranthene	98G5138	60.0	91	N.D.	µg/kg	-	-	-	-	-	-	-
Benzo(a)pyrene	98G5138	60.0	86	N.D.	µg/kg	-	-	-	-	-	-	-
Benzo(e)pyrene	98G5138	60.0	93	N.D.	µg/kg	-	-	-	-	-	-	-
Benzo(g,h)perylene	98G5138	60.0	88	N.D.	µg/kg	3330	61	38	41	8	25-123	33
Benzo(i)perylene	98G5138	60.0	91	N.D.	µg/kg	-	-	-	-	-	-	-
Acenaphthene	98G5138	60.0	91	N.D.	µg/kg	1670	60	43	44	2	25-117	27
Acenaphthylene	98G5138	300	92	N.D.	µg/kg	-	-	-	-	-	-	-
Fluorene	98G5138	300	89	N.D.	µg/kg	3330	71	39	42	7	25-124	33
Fluoranthene	98G5138	60.0	87	N.D.	µg/kg	-	-	-	-	-	-	-
Dibenz(a,h)anthracene (DBA)	98G5138	60.0	92	N.D.	µg/kg	-	-	-	-	-	-	-
Benzo(a)pyrene (DOPA)	98G5138	60.0	91	N.D.	µg/kg	-	-	-	-	-	-	-
Chrysene	98G5138	-	-	N.D.	µg/kg	3330	69	35	40	6	25-110	33
1,2,3,4-tetrahydronaphthalene	98G5138	-	-	N.D.	µg/kg	1670	73	43	46	6	25-124	33
1,2,3-trimethylbenzene	98G5138	-	-	N.D.	µg/kg	1670	71	40	42	5	27-121	32
1,2,4-trimethylbenzene	98G5138	-	-	N.D.	µg/kg	1670	72	37	40	7	25-116	31
1,2,4,5-tetramethylbenzene	98G5138	-	-	N.D.	µg/kg	3330	55	44	44	1	25-123	33
1,2,3,4-tetrahydronaphthalene	98G5138	-	-	N.D.	µg/kg	1670	80	64	64	0	26-123	32

Notation: CCV - Initial Calibration Verification  
 CCV - Continuation Calibration Verification  
 ICS - Lab Control Spike  
 MS - Matrix Spike  
 MSD - Matrix Spike Duplicate  
 ICS - Interference Check Standard  
 MD - Matrix Duplicate  
 N.D. - Not detected or less than PQL

CCB - Continuation Calibration Blank  
 M-blank - Method Blank  
 SP Level - Spike Level  
 %Rec - Recovery Percent  
 %RPD - Relative Percent Differences  
 %Diff - Control Limit for %RPD  
 ICP-SD - ICP Serial Dilution  
 N.A. - Not Applicable

Respectfully submitted,  
  
 Kevin Xie, Ph. D.,  
 QA Director  
 Applied P & Ch Laboratory





# Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710  
Tel: (909) 590-1828 Fax: (909) 590-1498

# Chain of Custody

Please Print in pen Page 1 of 1

Client: WCL Contact: DUNCAN WALKER Tel #: 808-266-7481 Fax #: 808-266-6507  
Address: POB 4998 City: HILO State: HI Zip code: 96720

Bill to: WCL  
Project Name/Code: OLD HILO WINDMILL TREATMENT PLANT Job # \_\_\_\_\_ P.O. # \_\_\_\_\_  
Project Address: 1007 KALONIAN AVE, HILO APCL Quotation # 98-146  
Due Date:  Regular  Rush: 5 days \_\_\_\_\_ hours Sampled by: DUNCAN WALKER

Field Sample ID No.	Sample Description	Date Time Collected		Sample Matrix	Preservation	# of Containers	Analysis Items										Remarks	
							TPH	Pb	Cd	Cu	Zn	Mn	Fe	Co	Ni	Cr		Mo
SP1	Stockpile Soil	12/27/98	0935	Soil	—	1	X	A										} RUN SAMPLE w/ INITIAL TEST FOR BTEX/PAHs
SP2	Stockpile Soil	12/27/98	0940	Soil	—	1	X	A										
T-F-9	UST, Fuel (Soil) @ ~9'	12/27/98	0952	Soil	—	1	X	A										
P-2	Process PIPET @ ~2'	12/27/98	1000	Soil	—	1	X	A										
FOR 202A																		

QC Requirement:  Regular;  QA/QC Report;  WIP;  Raw Data;  Extended Raw Data  CLP;  ACE  AFCEE  NEESA (E, C or D);  Other \_\_\_\_\_ (Please specify)

Sample Disposal:  Return  Disposal by APCL  Hold for \_\_\_\_\_ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.

Sample Conditions:  Intact;  Broken. Cooler Seal:  Intact;  Broken;  None. Tag # \_\_\_\_\_ Temperature:  Room  Cold (\_\_\_\_\_ °C).

Relinquished by Duncan Walker Date/Time 12/17/98 1100 Received by \_\_\_\_\_ Date/Time /

Relinquished by \_\_\_\_\_ Date/Time / Received by David Walker Date/Time 12/18/98 1000

APCL USE ONLY Service # \_\_\_\_\_ Note: \_\_\_\_\_

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken

Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710

Tel: (909) 590-1828 Fax: (909) 590-1498

Submitted to:

Walker Consultants, Ltd.

Attention: Duncan Walker

P.O. Box 4998

Hilo HI 96720

Tel: (808)966-7481 Fax: (808)966-6509

# APCL Analytical Report

Service ID #: 801-987024

Collected by: Duncan

Collected on: 12/17/98

Received: 12/18/98

Extracted: 12/21-28/98

Tested: 12/22-30/98

Reported: 01/04/99

Sample Description: Soil from 1087 Kalanian Aole Ave., Hilo

Project Description: 98-1406 Old Hilo Waste Water Treatment

## Analysis of Soil Samples

Component Analyzed	Method	Unit	PQL	Analysis Result	
				SP1	98-07024-2
<b>Benz. Tolu. Xylen. Ethylbenz. (BTXE)</b>					
Dilution Factor				1	
Benzene	8020	µg/kg	5		N.D.
Ethylbenzene	8020	µg/kg	5		N.D.
Toluene	8020	µg/kg	5		N.D.
o-Xylene	8020	µg/kg	5		N.D.
m/p-Xylene	8020	µg/kg	5		N.D.
<b>Semi-volatile, PAH</b>					
Dilution Factor				1	
Acenaphthene	8270	µg/kg	39 (a)		N.D.
Benzo(a)pyrene	8270	µg/kg	69 (a)		N.D.
Fluoranthene	8270	µg/kg	74 (a)		N.D.
Naphthalene	8270	µg/kg	34 (a)		N.D.

Component Analyzed	Method	Unit	PQL	Analysis Result			
				P-2 98-07024-1	SP1 98-07024-2	SP2 98-07024-3	T-F-9 98-07024-4
Dilution Factor				1	1	1	1
Diesel	M8015E	mg/kg	10	9J	10	7J	N.D.
Dilution Factor				1	1	1	1
Motor oil	M8015E	mg/kg	10	19	25	30	12

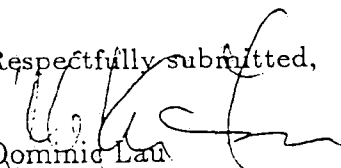
PQL: Practical Quantitation Limit. MDL: Method Detection Limit. CRDL: Contract Required Detection Limit

N.D.: Not Detected or less than the practical quantitation limit. "-": Analysis is not required.

J: Reported between PQL and MDL.

Listed Dilution Factors (DF) are relative to the method default DF. All unlisted DFs are 1.0

(a) MDL reported.

Respectfully submitted,  
  
 Dominic Lau  
 Laboratory Director  
 Applied P & Ch Laboratory



# Applied P & Ch Laboratory

13760 Magnolia Ave. Chino CA 91710  
Tel: (909) 590-1828 Fax: (909) 590-1498

# Chain of Custody

Please Print in pen Page 1 of 1

Client: WCL Contact: DUNCAN WALKER Tel #: 808-266-2481 Fax #: 808-966-6507  
Address: POB 4998 City: HILO State: HI Zip code: 96720

Bill to: WCL  
Project Name/Code: OLD HIDE WASTE TREATMENT PLANT Job # \_\_\_\_\_ P.O. # \_\_\_\_\_  
Project Address: 1087 KALONIA AVE, HILO APCL Quotation # 98-1406  
Due Date:  Regular  Rush: 5 days \_\_\_\_\_ hours Sampled by: Duncan Walker

Field Sample ID No.	Sample Description	Date Collected	Time Collected	Sample Matrix	Preservation	# of Containers	Analysis Items										Remarks	
							TPH	BTEX	PAHs	PCBs	DDTs	Chlorides	Ammonia	Nitrate	Nitrite	Phosphate		Sulfate
SP1	Stockpile Soil	12/27/98	0935	Soil	-	1	X	A										} RUN SAMPLE w/ 171-1725 TPT & D FOR BTEX/PAHs
SP2	Stockpile Soil	12/27/98	0940	Soil	-	1	X	A										
T-F-9	UST, Fuel (So) @ ~4'	12/27/98	0950	Soil	-	1	X	A										
P-2	Product Pipe @ ~2'	12/27/98	1000	Soil	-	1	X	A										
A 202A																		

QC Requirement:  Regular;  QA/QC Report;  WIP;  Raw Data;  Extended Raw Data  CLP;  ACE  AFCEE  NEESA (E, C or D);  Other \_\_\_\_\_ (Please specify)  
Sample Disposal:  Return  Disposal by APCL  Hold for \_\_\_\_\_ days after receiving date. If not specified, samples will be discarded 45 days after samples are received.  
Sample Conditions:  Intact;  Broken. Cooler Seal:  Intact;  Broken;  None. Tag # \_\_\_\_\_ Temperature:  Room  Cold (\_\_\_\_ °C).

Relinquished by Duncan Walker Date/Time 12/17/98 1100 Received by \_\_\_\_\_ Date/Time 1  
Relinquished by \_\_\_\_\_ Date/Time 1 Received by Daniel McKeen Date/Time 12/18/98 1000

APCL USE ONLY Service # \_\_\_\_\_ Note: \_\_\_\_\_

Clients understand that all terms described in the proposals, quotations for this project, and/or the general terms provided in the current APCL price schedules will be followed. APCL reserves the right to terminate its service or withhold delivery of any reports, if in APCL's sole discretion the terms of the project have been broken.

Hawaii DOH UST Checklist for Final Release Response Reports

Please Provide the following information:

Facility ID number assigned by DOH: 9-502439

Leak ID number: 990108

Facility name and address: Old Hilo Wastewater Treatment Plant  
 1087 Kalaniana'ole Avenue  
 Hilo, Hawaii Island  
 TMK No. 2-1-11:04

Facility contact name, address and phone number: Mr. Peter J. Boucher, Wastewater Division  
 Department of Public Works, County of Hawaii  
 25 Aupuni Street, Room 202  
 Hilo, Hawaii 96720  
 (808) 961-8338

Title and date of submitted final report: Underground Storage Tank Closure Report  
 Old Hilo Wastewater Treatment Plant  
 1087 Kalaniana'ole Avenue  
 Hilo, Hawaii Island

Date submitted: April 1999

Report prepared by (name, address, phone): Walker Consultants, Ltd.  
 P.O. Box 4998  
 Hilo, Hawaii Island, Hawaii 96720  
 (808) 966-7481

CHECKLIST FOR CLOSURE, RELEASE RESPONSE, & REMEDIAL ACTIONS

I. STATUS OF SITE AND RECOMMENDATIONS (check one):

	√	a. No further action requested - Tier 1, DOH-recommended soil and groundwater action levels adhered to.
		b. No further action requested - Tier 2, site-specific soil action levels generated and adhered to (required documentation submitted).
		c. No further action requested - Tier 3, risk assessment prepared and adhered to (required documentation submitted).

Check the appropriate box (Option blocked out if not acceptable).

Yes	No	NA	II. FACILITY INFORMATION	Ref #
<b>A. Contacts:</b>				
√			a. Facility name, address, telephone number, and DOH identification number listed.	1
√			b. Name, title, address, and telephone number of facility owner listed.	1
√			c. Name, title, address, and telephone number of responsible party listed.	1
<b>B. Site Description:</b>				
√			a. Site location and surrounding area described, including nearby surface water bodies and the location of populations that could be affected by the release, if any.	1
√			b. Vicinity map, topographic map, and site plan map (to scale) provided.	1
√			c. Future intended use of site discussed.	1
<b>III. UST INFORMATION</b>				
<b>A. UST System Description:</b>				
√			a. Amended Notification Form included (EPA Form 7530).	1
√			b. Map showing former locations of USTs removed from site and/or UST systems closed in place provided.	1
√			c. Complete description of UST system provided (number of USTs, age, construction, capacity, storage history, piping, etc.).	1
√			d. Results of release-detection testing performed on the closed USTs summarized.	1
<b>B. UST System Closure Information:</b>				
√			a. Procedures followed to remove UST system or close in place described.	1
√			b. Date UST(s) and associated piping excavated and removed or closed in place noted.	1
√			c. Bottom depth of UST(s) noted.	1
√			d. Integrity of UST(s) and associated piping on removal described (photos included).	1
√			e. Type and extent of fill material originally enclosing UST(s) described.	1
√			f. Type, source, and volume of material used to backfill UST excavation described. Description and results of compaction testing (if any) provided.	1
<b>C. UST Cleaning:</b>				
√			a. Actions taken to inert system (e.g., displacement, evacuation) and monitor lower explosive limit (LEL) during UST system removal described.	1
√			b. Procedures followed to clean UST(s) and associated piping noted.	1
√			c. Product, sludge, and rinsate removed from UST(s) properly recycled, reused, or disposed of (include manifests, and determination of hazardous waste characteristics as per 40 CFR Part 261). Hazardous Waste Section of DOH notified if more than 27 gallons of hazardous waste was left on site.	1
√			d. Type, volume, and treatment/disposal method for other investigation derived waste generated during UST system cleaning activities described.	1
<b>D. UST System Disposal:</b>				
√			a. UST(s) and associated piping removed from site properly disposed of, reused, or recycled. Copy of the disposal/recycled certificate or manifests showing name of company, disposal date, and place tanks and pipings were taken to provided.	1

Yes	No	NA	IV. INITIAL RELEASE RESPONSE/CONFIRMATION	Ref #
√			a. Confirmed Release Notification Form submitted to DOH.	1
√			b. Source, cause, estimated duration and quantify (if known), and discovery date of the release discussed.	1
√			c. Degree and extent of soil and/or groundwater contamination on initial removal/investigation of UST(s) described.	1
√			d. Location and results of field screening tests described and included on a site map(s) and a cross section(s) as necessary.	1
√			e. Actions taken to prevent further migration of released substance described (e.g. source removed, soil excavated, free product recovery, etc.).	1
		√	f. Methods and results of free product, treatment, and disposal discussed.	--
√			g. Status of excavation(s)(left open, backfilled, etc.) described.	1
V. STOCKPILED SOIL				
√			a. Design and management procedures for soil stockpiles described (including design of stockpile cell, volume of stockpile, segregation of soils, etc.)	1
VI. SITE INVESTIGATION/CHARACTERIZATION				
A. Local Geology, Hydrogeology, and Well Information:				
√			a. Local and regional geology characterized.	1
√			b. Important geologic and/or manmade preferential migration pathways delineated and described.	1
√			c. Local and regional hydrogeology characterized in accordance with HDOH guidelines (1992, 1995b and any updates). (Including known or estimated depth to uppermost aquifer, water quality and status of aquifer, groundwater flow direction, etc.)	1
√			d. Nearby groundwater extraction wells denoted and well usages described if groundwater impacted or potentially impacted.	1
√			e. Surface water bodies within 1/4 mile of the site noted and characterized.	1
√			f. Approximate annual rainfall for site discussed.	1
B. Soil and Groundwater Sampling Procedures:				
√			a. Field screening instrument type(s), calibrations, and sampling procedures described.	1
√			b. Field screening results summarized and sample locations and depths noted.	1
√			c. Procedures, equipment, and methods of taking soil and groundwater samples for laboratory analysis clearly described. Sampling methods followed TGM or other DOH approved guidelines.	1
		√	d. Monitoring well(s) design described and included on boring log(s).	--
		√	e. Method used for monitoring well development (e.g. surging, overpumping, etc.) and purging prior to groundwater sample collection, volume of water removed, and results of field measurements for standard water quality parameters (i.e., turbidity, temperature, pH, specific conductance, etc.) described.	--
√			f. Samples to be tested for TPH-gasoline, TPH-diesel, VOCs, HVOCs and volatile PAHs minimally disturbed and not composited.	1
√			g. Confirmatory soil samples for vadose-zone impact not taken below groundwater interface.	1
√			h. Sample preservation, documentation, and shipping information provided (including copy of Chain of Custody form(s)).	1

Yes	No	NA	VI. SITE INVESTIGATION/CHARACTERIZATION (Cont.)	Ref#
√			i. Methods for chemical analyses denoted (8015M, 8010, etc.)	1
√			j. Holding times met and laboratory QA/QC within acceptable range.	1
√			k. Formal laboratory reports including in appendix. (Chromatograms required only if requested by DOH.)	1
C. Soil Investigation:				
√			a. Site map showing all soil sample locations presented (location of closed UST system(s) included).	1
√			b. Summary of all laboratory analysis results presented in table form (including sample ID number, laboratory reporting limits, depth at which sample was taken, target cleanup criteria, etc.).	1
√			c. Lateral and vertical extent and magnitude of impacted soil determined in accordance with HIDOH guidelines (1992, 1995a, 1995b, and any updates). Extent of contamination described in text and clearly denoted on site map(s) drawn to scale. Vertical extent of impact denoted on map (use isopachs if necessary) drawn to scale and/or in cross sections. Sample locations included on map(s) and, if applicable, on cross sections(s).	1
D. Groundwater/Surface water Investigation:				
		√	a. Site map showing groundwater sample locations and depths presented (location of closed UST system(s) included). Surface water sampling results included if applicable. Potentiometric surface contour maps illustrating water level measurements at monitoring well locations, groundwater gradient(s) and general direction(s) of groundwater flow across site included. Tidal influence, if any, on groundwater gradient and flow direction at site discussed.	--
		√	b. Extent and magnitude of impacted groundwater and utility of impacted or potentially impacted groundwater determined in accordance with HIDOH guidelines (1992, 1995a, 1995b, 1995c, and any updates). Extent of contamination described in text and clearly denoted on site map(s) drawn to scale. Sample locations included on map(s).	--
		√	c. Vertical extent of solvent or other dense, nonaqueous-phase-liquids (DNAPLs) contamination defined and depicted on map (use isopachs if necessary) drawn to scale and/or representative cross section(s) through site.	--
VII. REMEDIAL ACTIONS				
√			a. Extent and depth of all excavations clearly denoted on map drawn to scale. Locations of confirmatory samples noted. Volume and type of excavated material described in text.	1
√			b. Design and results of treatment/disposal methods clearly described and supported by confirmatory laboratory analyses.	1
√			c. Final disposition of remediated media described. Manifests and/or bills of lading for all contaminated media remediated offsite provided in appendix.	1
√			d. Type, source, and volume of backfill material described. (Include compaction test results, if any).	1
		√	e. Generation of site-specific Tier 2 soil action levels followed guidelines set forth in DOH document "Risk-Base Corrective Actions and Decision Making at Sites With Contaminated Soil and Groundwater (HIDOH, 1995a)." Tier 3 risk assessment followed guidance set forth in DOH TGM (HIDOH, 1992), above noted document, USEPA document "Risk Assessment Guidance for Superfund (EPA/540/1-89)," and additional procedures as otherwise directed or approved by DOH. Tier 3 risk assessment summarizes all previous work at the site and is a "stand alone" document.	--
√			f. All contaminated media that exceed Tier 1, 2, or 3 action levels applied to the site have been remediated.	1

Yes	No	NA	VII. REMEDIAL ACTIONS (cont.)	Ref#
		√	g. Monitoring wells not to be reused in the future properly sealed and decommissioned.	--
√			VIII. REPORT SIGNED AND DATED	1

REMARKS:

BIBLIOGRAPHY OF SUPPORTING DOCUMENTS:

- Underground Storage Tank Closure Report  
Old Hilo Wastewater Treatment Plant  
1087 Kalanianaʻole Avenue  
Hilo, Hawaii Island

SIGNATURES:

FACILITY RESPONSIBLE PARTY: *ML* Date: 7/20/99  
 Title: Wastewater Division Chief

PREPARER OF REPORT: *Dew* Date: 4/22/99  
 Title: President, Walker Consultants, Ltd.