



October 17, 2001

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Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, HI 96813

UFC. OF ENVIRONMENTAL
QUALITY CONTROL

Subject: Notice of Determination: Finding of No Significant Impact (FONSI), UH-
Hilo Pacific Aquaculture and Coastal Resources Center

TMKs: 3-2-01-011:004, 3-2-01-09:1 and 41, 3-2-2-56:56, Hilo, Hawaii

Dear Ms. Salmonson:

The University of Hawai'i at Hilo (UHH) is the proposing and accepting agency for the above referenced project. UHH reviewed and responded to the comments received from your office related to the development of the Pacific Aquaculture and Coastal Resources Center (PACRC) during the 30-day public comment period which began on March 23, 2001. UHH has determined that this project will not have any significant environmental effects and has issued a Finding of No Significant Impact (FONSI). Please publish this notice in the November 8, 2001 issue of *The Environmental Notice*.

We have enclosed four copies of the final EA which includes reasons supporting this determination. This is in addition to OEQC Bulletin Publication Form and Project Summary submitted to your office by Sharon Ziegler-Chong via email on October 17, 2001. Please call Ms. Ziegler-Chong at 808-933-0706 if you have any questions.

Sincerely,

Bill Chen
Acting Vice Chancellor for Academic Affairs

Enclosures

cc: Kevin Hopkins, PACRC
Sharon Ziegler-Chong, PACRC

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FINAL ENVIRONMENTAL ASSESSMENT

2001-11-08-HI-FEA-

**UHH PACIFIC AQUACULTURE AND
COASTAL RESOURCES CENTER**

**Kalaniana'ole Avenue and Pua Avenue, and UH-Hilo Farm Laboratory
Hilo, Hawaii**

**TMKs: 3-2-01-011:004
3-2-01-09:1 and 41
3-2-02-56:56**

Prepared by

UH-Hilo Pacific Aquaculture and Coastal Resources Center

October, 2001

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1.0 APPLICANT

The applicant for the development of the Pacific Aquaculture and Coastal Resources Center (the Center) is the University of Hawai'i at Hilo (UHH). The Center is to be located on two sites. A coastal facility in Keaukaha is to be developed at the location of the decommissioned Old Hilo Wastewater Treatment Site (OHWTS) (TMK 3-2-01-011:004) and the 9-acre parcel adjacent to that site (TMK 3-2-01-09:1 and 41). An inland facility will be located on a 6-acre parcel of the UHH Farm Laboratory (TMK 3-2-02-56:56). All parcels involved are owned by the State of Hawai'i and have been allocated to UHH via Executive Order from the Governor. According to §343-5 of the Hawaii Revised Statutes (HRS), the preparation of an environmental assessment (EA) is required for the use of state lands and county funds. Additionally, while several environmental assessments, environmental site assessments, and an environmental impact study have been completed separately for all areas to be included in the proposed center, the main federal funding agency, the Economic Development Administration (EDA) is requiring the applicant to compile a consolidated environmental assessment that will encompass all sites under one document. This document consolidates information from those existing documents and additional correspondence and research, as well as comments received from the State of Hawai'i Office of Environmental Quality Control as part of the draft environmental assessment review process.

2.0 APPROVING AGENCY

The approving agency for a determination of significance for this Environmental Assessment is the University of Hawai'i at Hilo.

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 – see Exhibit 1 in Appendix
- US Fish and Wildlife Service – see Exhibits 2a, 2b, 2c and 2d in Appendix

State of Hawaii:

- Department of Lands and Natural Resources
 - Historic Preservation Division – see Exhibits 3a and 3b in Appendix
 - Division of Aquatic Resources – see Exhibit 4 in Appendix
 - Forestry and Wildlife Division
 - Land Division
 - Commission on Water Resource Management
- Department of Business, Economic Development, and Tourism
 - Office of Planning – see Exhibit 5 in Appendix

Department of Agriculture
Aquaculture Development Program - see Exhibit 6 in Appendix

County of Hawaii:
Department of Public Works
Planning Department

Community:
Keaukaha Community Association – see Exhibits 7a and 7b in Appendix

4.0 PROJECT OBJECTIVE AND NEED

The Pacific Aquaculture and Coastal Resources Center (the Center) is being developed by the University of Hawai'i at Hilo (UHH) on two sites. The coastal component will involve the conversion of the decommissioned Old Hilo Wastewater Treatment Plant (TMK 3-2-01-011:004), and development of facilities on the adjacent parcels to the west of that site in Keaukaha (TMK 3-2-01-09:1 and 41). The inland component will be located in Panaewa at the UHH Farm Laboratory (TMK 3-2-02-56:56) (see Figures 1, 2 and 3 for locations).

The primary goal of the Center 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 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 rates. Although the area is rich with natural, human, cultural and educational resources, including infrastructure, many of these resources are currently underutilized. One opportunity for the community to revitalize itself is the development of the Center. Hilo is one of the few places in the world where warm seawater, cold seawater and freshwater are readily available. 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 nearby. Advanced telecommunications and transportation capabilities, schools, housing and other amenities are readily available. Joined with these resources, the Center will benefit the local communities and university through training, demonstration and research activities.

The Center's programs will support the University's aquaculture and marine science programs and provide extension services to commercial aquaculture, fisheries and eco-tourism industries. Technologies developed and tested at the Center will be disseminated to similar coastal areas and communities throughout the Pacific. Facilities will also be available for collaborative research. An advisory board which is to provide guidance for the Center includes Center partners, the University and the UH Sea Grant College Program, in addition to the County of Hawaii, the Keaukaha Community Association, the Department of Land and Natural Resources, the Hawaii Aquaculture Development Program, and the Hawaii Island Economic Development Board.

The development of the Center will be accomplished through several phases. This Environmental Assessment is for the first phase which focuses on establishment of aquaculture research, training and demonstration facilities at the Center. At the coastal site, most buildings and facilities at the old treatment plant will be converted with basic renovation into classrooms, laboratories, offices, hatchery facilities and aquaculture tanks. Greenhouses and aquaculture tank farms for demonstration and research purposes will be constructed on approximately 9 acres of the adjacent parcels. The remaining area which borders the shoreline will be maintained for public access and recreation.

This coastal site will serve as the Center's main base for administration, teaching, research and demonstration activities and will focus on culture of a variety of species, including non-native freshwater ornamental and native marine ornamental fish, native pearl oysters, moi (threadfin), and mullet. In Panaewa, a quarantine and laboratory facility will be developed adjacent to the existing aquaculture facility at the UHH Farm Laboratory and will be utilized as a teaching and demonstration center for integrated aquaculture-agriculture systems, pond-based culture and hatchery systems for freshwater fish. Indoor closed system quarantine facilities with effluent disinfection will be built on this inland site to ensure freshwater or marine species brought into the Center are disease-free. Only those native and non-native aquatic species that have undergone review and have received approval from appropriate agencies will be cultured. In future phases, the Center's facilities and activities will be increased in the areas of coastal resources management and training as funds become available.

5.0 GENERAL DESCRIPTION OF THE PROPOSED ACTION

5.1 Technical Characteristics

Technical characteristics of the proposed coastal and inland sites for the Pacific Aquaculture and Coastal Resources Center are as follows.

Keaukaha - 6 ha (12 acre) coastal site

Phase 1 development in Keaukaha will consist of the demolition and renovation of the existing wastewater treatment plant such that it is safe to use for aquaculture and the development of basic infrastructure on that site and the adjacent parcel to the west. See Figure 4 for the proposed site layout. This will include: roads, fences, parking, wells, primary water and air distribution lines, and demonstration/teaching facilities for ornamental fish and pearl oyster culture. In general, renovation of existing tanks will include stripping existing facilities of all machinery and piping (except for those drain lines to be utilized by the facility), cleaning the concrete and sealing it. Upon completion of Phase 1, the Keaukaha facility will include the following components.

- A 2275 ft² renovated building containing a water quality laboratory, offices, a locker room and showers, and handicap accessible public restrooms and storage.
- A 1142 ft² covered open-air classroom with two offices. (Note: this building was formerly used for chlorination.)
- Two renovated pump/machinery buildings (1152 and 1176 ft²) which will contain pumps, blowers, emergency generator, and storage space.
- Two 85 ft diameter concrete tanks, each with a maximum depth of 12 ft and a volume of 375,000 gallons (former clarifier tanks). These will be covered with netting to prevent entry of waterfowl. These tanks can be used as water reservoirs or culture tanks for pearl oysters (in suspended trays) depending upon need.
- Two 60 ft diameter concrete tanks (former digester tanks), each with a maximum depth of 25 ft and a volume of 422,000 gallons. These tanks can be used as water reservoirs or culture tanks for pearl oysters (in suspended trays) depending upon need. Net covers will be utilized to prevent entry of waterfowl.
- Two 3840 ft² hatchery greenhouses for demonstration of pearl oyster culture and implantation and fish culture. Two 320 ft² environmentally controlled chambers, constructed from ocean-going shipping containers, will be located inside each greenhouse for algae culture, hatchery operations and laboratory space. These greenhouses will each also contain 70 small tanks of various sizes. Greenhouses will be 16' in height.
- A series of outdoor 15' diameter tanks with bird netting covers.
- Approximately 42,500 ft² paved road to expand the interior road system and provide separate entrances and exits and off-street parking for 36 cars (including 3 handicap spaces) and two buses.
- A 14" diameter shallow well (approximately 30 ft deep) to provide 500 gpm of fresh (or slightly brackish) water. Intake from this well will be sterilized with a UV sterilization unit that will put out at least 15,000 MWS/cm² to remove any major bacterial contamination.
- A 14" diameter well drilled to a depth of 300 ft to provide 500 gpm of sea water.

- A 2080 ft² sedimentation tank with ≤ 100 micron belt filters will discharge filtered wastewater offshore through the existing 4800' city sewer outfall.
- A 1350 ft deep well to access cold (6°C) seawater, utilizing an existing bore hole from a previous drill project in 1992 on TMK 3-2-1-09-1 and -41.

More details regarding the renovation of the existing Old Hilo Wastewater treatment facilities are available in the Final Environmental Assessment: Old Hilo Wastewater Treatment Plant (M&E, 1998).

Panaewa - 4 ha (8 acre) inland site

Phase I at the UHH Farm Laboratory site will consist of the installation of a well and water distribution system, construction of quarantine facilities and conversion of the existing hatchery building into a fish health laboratory. Upon completion of Phase 1, the Panaewa facility will include the following components. See Figure 5 for the proposed site layout.

- A 1200 ft² hollow-block building renovated into a fish health laboratory by the addition of ceilings, insulation, and air conditioning.
- Indoor, closed system quarantine facilities developed from ten 40 ft shipping containers. Containers will be equipped with tanks and facilities for holding any life stage of aquatic species for quarantine purposes. Four 18 ft diameter HDPE tanks adjacent to the shipping containers will be used to disinfect effluent prior to discharge into storage ponds as described below.
- A 250 ft deep well and water distribution system to deliver at least 300-500 gpm fresh water. This well will also service the entire UHH Farm for irrigation to replace the current use of potable county water for this purpose.
- Eight earthen 2600 ft² ponds lined with plastic. Two will be used as clear water reservoirs, four will be used either as reservoirs or fish ponds, and two will be for wastewater treatment. All will be covered with bird netting for avian control.

5.2 Economic Characteristics

The project cost for this phase is estimated to be in the range of \$3.3 to 3.5 million, much of which will be spent on labor and for contracts with contractors and suppliers. Contractors will be encouraged to utilize local labor pools and resources for the project. Several funding sources are making this project possible.

County of Hawaii

The funds initially designated by COH for demolition and landscaping of the OHWTP (\$700,000) are being 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. Activities still required after exhaustion of these funds will be supported through other grant sources as listed below. These County funds are being administered by the County and this activity is currently underway as per the Environmental Assessment and FONSI in 1999.

State of Hawai'i

A total of \$929,000 of appropriated State of Hawai'i funds will be used to support the development of the Center and serve as state match for the project's federal funds. These funds are being transferred to the University of Hawai'i, to be administered by the UHH Research Corporation of the University of Hawai'i (RCUH) office.

University of Hawai'i

The University of Hawai'i at Hilo (UHH) and the University of Hawai'i Sea Grant College Program is providing \$120,000 in match for the project's federal funds in the form of salary time of administrative personnel and researchers.

Economic Development Administration (EDA)

The Economic Development Administration (EDA) is providing \$1,991,000 as a construction grant for the facility. This includes funds for renovation and construction of facilities, wells and distribution systems, and roads. These funds will be administered by the UHH RCUH office.

5.3 Timeline

This renovation and construction phase must be completed by June, 2004 to comply with the start and end dates of the Economic Development Administration (EDA) grant. However, UH-Hilo hopes to complete the majority of the project much sooner, due to the deterioration of those structures to be renovated at the coastal Keaukaha site.

5.4 Social Characteristics

A primary impact of the Center will be to provide a focus for the sustainable development of aquaculture in east Hawaii. This Center has been identified as an important component of the County of Hawaii Overall Economic Development Program for facilitating development on Hawaii Island. The community will gain an aquaculture center in the place of the abandoned sewage treatment plant and an underutilized coastal parcel. Benefits resulting from the development of this center include:

Benefits to the local community

- Community members will have the opportunity to receive training in various aspects of aquaculture. The Center will be a source of information and guidance for the development of small and medium scale aquaculture farms. Emphasis will be on local species, such as moi, mullet, milkfish; pearl oysters; and freshwater and native marine ornamental fish.
- Jobs will be created in the local community through construction and renovation and operation of the Center, plus any aquaculture farms which start up as the result of the Center's activities.
- Small-scale demonstration facilities will be constructed at the Center for training purposes. 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. In general, only the minimum number of fish needed for training and research will be kept on-site. The Center is not intended to be a production facility.

- Information related to the sustainable development of coastal resources will also be available to the local community.
- The community and general public will gain improved public access to the Puhi Bay coastline area via the access road and parking provided by the Center.

Benefits to the University of Hawaii

- Teaching facilities for the UHH undergraduate programs in aquaculture and marine science will be substantially expanded. Currently, wet lab capabilities at UHH are severely limited.
- Research facilities of the UHH for aquaculture and marine science will be dramatically improved. The Center will enable the UHH to conduct laboratory studies on locally important fishes and shellfish.
- It will become possible for the University personnel to conduct cold-water aquaculture research in cooperation with researchers at the National Environmental Laboratory of Hawaii Authority.
- Agriculture and aquaculture research and demonstration capabilities at the UHH Agriculture Farm will be greatly enhanced through the construction of a well for irrigation and earthen ponds.
- Aquaculture research and demonstration capabilities of the Hawai'i Sea Grant Extension Service will be enhanced.

Benefits to the state

- Demonstration, training and research services provided by the Center to the Keaukaha and surrounding communities will also be available to other communities throughout the State.
- The Center's technical services and resources will be available to state and federal agencies involved in fisheries management.
- Quarantine for aquatic organisms will be available through Center facilities in Panaewa on a contract basis.
- Five to ten permanent jobs will be created at the Center. Contract research will also result in at least two to four short-term 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 with Sea Grant and other partners, coastal development activities including aquaculture in the US-affiliated Pacific will be linked with the Center.
- The Center will conduct aquaculture feasibility studies on potential culture species in cooperation with Center for Tropical and Subtropical Aquaculture, the Hawaii Aquaculture Association, the Pacific Regional Aquaculture Extension Service, and other Pacific aquaculture efforts.
- The technologies developed and tested at the Center will be transferable to other coastal areas throughout the Pacific.

- 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.

5.5 Environmental Characteristics

Creation of the Pacific Aquaculture and Coastal Resources Center will positively impact the environment, particularly within the coastal component of the Center. As part of the renovation of the treatment plant, decrepit building will be removed and those that remain will be renovated, painted and maintained. The only structures to be built during this phase are three of four greenhouses that will be built utilizing a lava rock decorative stub wall to blend these structures into the rest of the facility. On the adjacent coastal properties, the thick underbrush will be removed (although large trees will be retained on the site) and the area will be landscaped with mainly native plants, improving both the viewplane toward the Puhi Bay area and the natural ecosystem integrity. The entire facility will be secured by extending the existing chainlink fence surrounding the treatment plant around the entire facility. Odor problems with the old sewer facility will hopefully be minimized with the cleaning of the digestors and clarifiers. Once clean and in use with net covers, those open tanks will present less risk to native waterfowl than in their abandoned state.

The current public access will also be improved by the proposed project. A public access road will be on the northwest side of the site outside of the facility fence, providing access and parking for the public all the way to the coast during daylight hours. During the night, this area will be open to public access on foot, but closed to vehicular traffic. Parking, restroom facilities, trash removal will be maintained in the public area by UHH.

The non-potable well project of the Panaewa component will enable the UHH Laboratory Farm to discontinue its reliance on the county water system for irrigation. This will "free" potable water for higher uses. Additionally, the quarantine facility of that inland site will enhance the island's capability of evaluating the pathological health of aquatic eggs, larvae, and broodfish brought into the facility and area for culture. And finally, 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 parcels comprising the proposed Pacific Aquaculture and Coastal Resources Center. The coastal component incorporates three tax map keys located on makai side of Kalanianaʻole Avenue on Puhi Bay in the Keaukaha section of Hilo on the island of Hawaii. The sites identified on Figure 2 are the approximate 4-acre Old Hilo Wastewater Treatment Site (Tax Map Key 3-2-01-11:4) and the adjacent 9.369 acre parcels (3-2-01-09:1 and 41). Access to these sites is through driveways on Kalanianaʻole Avenue. Figure 3 shows the tax map key location of the UHH Agriculture Farm (Lot 30, TMK 2-2-56:56) in the Waiakea, South Hilo section of the island of Hawai'i. The approximate location of the project components on that site are also shown in Figure 3. Access to the farm is through a gated driveway on Highway 11.

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 along the urban fringe. The former wastewater facility and the adjacent parcels involved in this project lie along the shoreline of Hilo Bay. Land slopes in this area are nearly flat. The UHH Farm Laboratory is located six miles inland of the Keaukaha project component, also on the southeastern slopes of Mauna Loa approximately 280 feet above sea level comprising of nearly level to gently sloping undulating terrain. Rainfall averages approximately 130 inches per year in this area of East Hawaii. 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, and county water lines are available to both sites. Human wastewater facilities on the Keaukaha site are hooked into the county wastewater treatment systems, while the Panaewa site maintains an existing cesspool.

6.4 Land Use Zoning

Keaukaha

The Keaukaha project site contains several zoning categories. The OHWTP and part of the adjacent parcel (TMK 3-2-1-09:01) are as zoned Open, while the remainder (TMK 3-2-1-09:041) is zoned Industrial. All TMKs are government exempt parcels owned by State of Hawaii, and were transferred through Governor Executive Order to UHH. The portion of the Old Hilo Wastewater Treatment Plant (OHWTP) that contains the Pua Street Pump Station has been subdivided from the original parcel and will be retained by the County. Additionally, easements through the OHWTP will be maintained by the county for the existing outfall into the ocean.

The Keaukaha site is located within the County of Hawaii's Special Management Area (SMA). While demolition of structures and renovation of the other structures is exempt from the SMA permitting process, construction of the greenhouses will require a SMA permit prior to construction. The Army Corps of Engineers has already reviewed the project and has indicated

that no Department of Army permit will be required (see Appendix, Exhibit 1), although depending upon the final design, the Center may need to develop an agreement with the Corps to move their easement accessing the breakwall.

The entire Big Island of Hawaii is within the Coastal Zone Management Area. This project was reviewed by the Department of Business, Economic Development and Tourism (DBEDT) Office of Planning in January 2000 and deemed that the proposed use of federal funds for development of this aquaculture research and training facility is consistent with Hawaii's CZM Program (see Appendix, Exhibit 5). Specific areas of the CZM Program that are applicable to this site include permitting development of new industries such as aquaculture farms that involve public participation and education regarding coastal management issues. The research and training facility will assist in the stewardship and sustainable development of marine resources.

Kalaniana'ole Avenue borders the southeast side of the project site located on the coast. The remainder of the site is surrounded by the state Department of Transportation land to the Northwest and Keaukaha Beach Park to the southeast. The nearest residential areas are located across Kalaniana'ole Avenue. The nearest business facility is Texaco Bulk Plant on the Department of Transportation land to the northwest.

Panaewa

The UHH Farm Laboratory is located within the state land use district designated Agriculture (A-3a) and has been used as the UH-Hilo Agricultural Farm since 1984. Extensive level agriculture has focused on sugar, cattle production, and other agricultural crops and livestock. Aquaculture, considered an agricultural use, has been occurring at the site since 1988. UHH has a 50-year lease from the State for the property until 2036.

The UHH Farm Laboratory is situated within the area called Panaewa Agricultural Park. House and farm lots border the site to the northwest, northeast, and southeast of the Farm. Kanoiehua Avenue (Volcano Road) borders the southwest side of the lot. Access to the Farm is via a gated driveway from the highway.

6.5 Soil

Keaukaha

The soil at the project site is classified as a Keaukaha series, extremely rocky muck. 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.

Panaewa

The soils at the Panaewa site are of the Keaukaha and Papai series. The majority of the land is classified as Papai extremely stony muck, 3 to 25 percent slopes while a small section is classified as Keaukaha extremely rocky muck, 6 to 20 percent slopes. Soil permeability of both of these soil types is rapid.

6.6 Hydrology and wells

Aquifer and Hydrological Unit Status

Vast freshwater and saltwater resources exist on the island of Hawai'i and the proposed wells will have negligible impact on those resources.

According to the Aquifer Classification adopted by the State, aquifers underlying the island of Hawaii are classified into nine Aquifer Sectors and twenty-four Aquifer Systems. Aquifer Sectors define a region of the island with strong hydrological similarities, whereas Aquifer Systems define an area within the sector showing hydrological continuity. The proposed well projects are located within the North East Mauna Loa Aquifer Sector. The Keaukaha well site falls within the boundaries of the Hilo Aquifer System, while the Panaewa well site is within the Keaau Aquifer System. Boundaries for the various aquifer sectors and systems can be found on the map in Figure 5.

The North East Mauna Loa Aquifer Sector has an available allocation of 615 million gallons per day (mgd) based on a total sustainable yield of 740 mgd and 125 mgd currently permitted for use by the Commission of Water Resource Management (CWRM). This total is divided between the Hilo Aquifer System with an available allocation of 250 mgd based on a sustainable yield of 347 mgd with a currently permitted use of 97 mgd, and the Keaau Aquifer System with an available allocation of 366 mgd based on a sustainable yield of 393 mgd with a permitted use of 27 mgd.

Records of wells compiled by the Department of Land and Natural Resources indicate six wells are located within a two (2)-mile radius of each proposed well site. Of the six existing wells within the radius of the Keaukaha site, the two Hilo Airport wells (#4202-01 & #4202-02) are unused and the remaining four wells, two owned by Hawaii Electric Company (HELCO) and two by Glover Quarry, are for industrial use. Of the six wells located within the two (2)-mile radius of the Panaewa site, the Kings Landing 3 well (#4002-01) is unused, four are utilized as municipal sources and the Keaau-Shipman well (#3804-01) has an unspecified use category. See map in Figure 6 for locations of existing wells.

Surface Water

Vast ocean resources are immediately adjacent to the Keaukaha site. 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. There are no surface water bodies within at least a mile radius of the Panaewa site.

Contamination Analysis and Vulnerability Assessment

The general surrounding area of the Keaukaha site has been historically residential. The aquifer underlying that area is not considered a drinking water source, as it is located below the underground injection control (UIC) line. Based on the State Department of Health's groundwater contamination map for the island of Hawai'i, no wells in the area have shown contamination. As per the environmental database review done for the Phase I Brownfields Site Investigation Report for part of the Keaukaha parcel, only five of the ten sites within a half

mile of the site showed any evidence of contamination. Cleanup activities at four of those sites were completed prior to 1998.

The Panaewa site is located in an area highly disturbed from its original forest that has been in agriculture use for more than 30 years. Based on the State Department of Health's groundwater contamination map for the State of Hawai'i, no groundwater contamination has been documented in the immediate surrounding area, although drinking wells beyond a 2-mile radius from the site have shown slight levels of atrazine.

The closest landfill to the proposed well sites is the Hilo Landfill located approximately 2 miles from the Keaukaha site.

Individual wastewater systems are not anticipated to have any impact on the project. Although all systems in the Keaukaha area are supposed to be hooked up to the municipal sewer system, little information was available from the County Wastewater Division on the status of existing cesspools and individual systems in the adjacent area. Two cesspools are located on the UHH Laboratory Farm for restrooms at the aquaculture facility and main office, respectively.

6.7 Natural Hazards

Both Sites

The entire island is susceptible to various types of hazards including coastal flooding, tsunami inundation, volcanic activity and earthquakes. Therefore these concerns are related to any construction proposed on this island.

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 and the surrounding area is present at all times. Additionally, 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.

Keaukaha

The coastal component of this project located in Keaukaha 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 7). This means that the area is subject to coastal flooding combined with wave action. Base flood elevations range from 18 to 20 feet on the property.

Coastal Hilo, with its exposure to a crescent shaped bay and orientation towards the Pacific seismic belt is also 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 7 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. Therefore, this proposed coastal facility lies within the inundation zone.

6.8 Archaeological and Historic Sites

None of the existing structures on the properties included in the proposed Center are significant historic structures. The Historical Preservation Office of the State Department of Land and Natural Resources has reviewed all sites included within the project and have determined that the Center will have no effect on any significant historic sites, based on the past history of these areas (see Exhibits 3a and 3b in the Appendix).

6.9 Flora and Fauna

Keaukaha

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, 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 on the site.

While the treatment plant site is cleared and landscaped with lawn, the adjacent property is overgrown with vegetation. A botanical study done in 1992 in relation to the environment assessment for the digging of the 400 meter pilot hole project on this site indicated that it consisted almost exclusively of introduced or alien species. Only a few native species, such as hala (*Pandanus tectorius*), hau (*Hibiscus tiliaceus*), koali 'awania (*Ipomoea indica*), and ka'e'e (*Mucuna gigantea*) were located on the site and these are all common to coastal areas in the Hawaiian islands. No threatened or endangered species were found. Additionally, the U.S. Fish and Wildlife reviewed the Keaukaha project site as part of this environmental review process, and found no records of threatened or endangered species occurring directly within the site (see Exhibit 2b in Appendix). Therefore, this project should not have any significant negative impact on any botanical resources.

Panaewa

The Environmental Impact Statement conducted in 1980 included an extensive review of the flora and fauna resources of the Panaewa site. While the site was probably a complete lehua-tree fern forest at one time, it was at that time highly disturbed. Since that time, the site has been extensively utilized in small-scale agriculture and pasture. U.S. Fish and Wildlife Service also reviewed the Panaewa site as part of this review process and determined that there is no record of any threatened or endangered species directly within the project site (see Exhibit 2d in Appendix).

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 property boundaries. There are no major earth moving operations associated with this project. The dust, noise and traffic are expected to be the main construction related impacts. However, these nuisances are temporary and contractors will be instructed to utilize abatement measures.

7.2 Traffic and Noise Impacts

Routine operations at the Center are not expected to materially effect the existing level of traffic and noise in the area. The Panaewa portion of the project will follow the traffic patterns utilized by the University of Hawaii farm. Primary access is via the Hilo - Keaau Highway, a 4 lane divided-highway with a speed limit of 55 mph. Parking at the farm is adequate for at least 50 to 100 vehicles, including buses. However, as the Panaewa site (the aquaculture portion, not the entire UHH Farm) will be closed to the public, except during field days or similar activities, the traffic generated by this part of the project will be negligible (5 or 10 cars per day).

The Keaukaha site is located along a well-traveled road which is the main access to the Keaukaha area of Hilo. After discussing potential traffic problems with the County of Hawaii Traffic Division and with the Port of Hilo (which is adjacent to the site), it was decided to provide off-street parking for at least 35 cars and two buses. An appropriate number of handicap spaces will also be provided. A one-way traffic pattern entering at the office building and existing at the other end of the site will be used. When the Port expands in a few years, the access road to the breakwall park will to be made one-way into the park while the exit will be combined with the exit from the container yard.

The Center's operations will take place 24 hours per day, just as was the case for the Old Hilo and the new Pua Street Pumping Station. The only sustained noise output from this project (after completion of construction), will be from the electric motors powering the blowers. As the blowers will be installed below ground inside closed buildings, impacts outside the project boundaries will be minimal. Additionally, as the blowers to be used in this project will be considerably smaller than those used when the old wastewater treatment plant was operational, the noise levels should be reduced from previous levels.

7.3 Hydrologic Impact Analysis

Keaukaha

The coastal component of the Center will utilize approximately 1.5 mgd combined freshwater and seawater pumped from the wells installed at site and the deep seawater well. The groundwater beneath the project site is the Hilo Aquifer System which has an enormous groundwater flow. Impacts of removing approximately 0.5 mgd from the available freshwater allocation of 250 mgd in the aquifer will be immeasurable. The 1 mgd of saltwater from the other wells on the site will not have any significant impact on the rich seawater resources, since the site is on the shoreline of Puhi Bay. Well construction, pump installation and water use permits will be obtained as necessary.

Panaewa

An important component of the inland facility is the 250 ft deep well and water distribution system capable of delivering between 300-500 gpm (0.43 - 0.72 mgd) fresh water. Studies on the Keaau Aquifer System aquifer indicate a large capacity with a high recharge rate, and therefore, this well will not have a significant impact on the water source. Additionally, construction of this well will eliminate the UHH Laboratory Farm's current dependence on potable water from the county system for irrigation purposes (current use is approximately 25 gpm). Well construction, pump installation and water use permits will be obtained as necessary.

7.4 Watershed and Land Use Analysis

This project has been included in the Hawai'i Island Overall Economic Development Plan, 1998 and it is not expected to have any negative impact on land and water uses on the island. In fact, the Center will be focused on the promotion of the sustainable economic use of those resources. Given the extensive water resources available from both aquifers involved with the Panaewa and Keaukaha components of this project, current and future water uses will not be affected by this project which involves relatively minor amounts of fresh and salt water. Waters from the project wells at the Keaukaha site will be utilized solely for the culture and research of freshwater and marine organisms. Due to unknown levels of bacterial contamination in the freshwater lens due to the possible presence of nearby cesspools, water from the 30 ft freshwater well on that site will be sterilized with a UV sterilization unit with a capacity of at least 15,000 MWS/cm² to remove any major bacterial contamination. At the Panaewa site approximately a third of the well water will be used directly for on-going agriculture projects at the UHH Farm Laboratory. The other two-thirds will go first to the Center's aquaculture facilities and then utilized for irrigation as part of integrated aquaculture-agriculture projects. There will be no potable use of waters from these wells.

7.5 Freshwater and Seawater Effluents

Keaukaha

As one of the Center's aims is to demonstrate sustainable resource use in the coastal zone, the Center plans to utilize extensive wastewater treatment procedures even though they are not mandated by law. This Center component will discharge approximately 1.5 mgd of freshwater and seawater effluent from its tank facilities. The total production of fish and crustaceans by the project will be less than 20,000 lbs per annum which is considerably below the 100,000 lbs per annum which triggers the need for a NPDES permit. Preliminary contacts with the Department of Health (which implements the NPDES program in Hawaii), indicate that wastewater disposal will not be a major problem because the small scale of the project. A former chlorine treatment tank system will be used for both nitrification, denitrification and rotary microscreen filtration (<100 microns) to reduce the nutrient load of the discharge by at least 80%. Solids collected on filters will be removed regularly and transported to the UHH farm for composting and subsequent field fertilization. Current discussions with DOH are for the filtrate to be discharged directly into the active sewage outfall pipeline, which extends 4800 feet into the ocean. All applicable permitting requirements and procedures will be followed for this wastewater discharge.

Panaewa

Wastewater produced in the cultivation of aquatic organisms at Panaewa will be discharged into sedimentation ponds for subsequent use as irrigation water or discharged into a dry-well. Discharge from the quarantine unit of the Panaewa facility will be chlorinated, dechlorinated, and then transferred to the ponds for irrigation.

7.6 Economic Impact

Approximately four million dollars (\$4,000,000) will be brought into the local economy through the renovation and development of the Center. This is a one-time infusion of funds. The recurring Center operations and maintenance, including research and training, will bring six hundred and fifty thousand dollars (\$650,000) per year into the economy.

7.7 Impact to Native Species

Concerns raised by U.S. Fish and Wildlife (See Exhibits 2b and 2d in the Appendix) regarding possible release of alien species through this Center will be addressed through careful management of species selection, effluent treatment, and closed system components (in the quarantine facility).

The main concerns of the U.S. Fish and Wildlife for the Keaukaha site were the potential impact to the nearshore environment of accidental release of alien species and sedimentation from construction, and risk of injury or death of waterfowl from open tanks. As part of the Center design, only native marine species and introduced freshwater species that have undergone the required state review and permitting procedures will be allowed on site in tanks and only after those organisms that have gone through quarantine in the inland facility. In readiness for a natural disaster such as a tsunami, all exotic species will be placed in quick-draining tanks for easy removal from the site. In the event that this procedure would not be possible, it is unlikely any freshwater species would survive a seawater inundation. Additionally, all sediments from construction will remain on site during and following construction and tank effluents will be screened through <100 micron screens to eliminate any eggs or small fish before the filtrate is released into the ocean. Tanks will be covered with bird netting to both reduce threats to native waterfowl and to minimize predation and transfer of aquatic diseases by those birds to tank contents.

The U.S. Fish and Wildlife Service also voiced concerns regarding the potential release of alien species from the quarantine facility at the Panaewa site. In order to prevent such an event, the quarantine facility will be a closed system with treated effluents, thus eliminating the possibility of a release of alien species.

As a result of this review process, the proposed project was reviewed by both the State Department of Land and Natural Resources Division of Aquatic Resources and the Department of Agriculture Aquaculture Development Program. Both offices felt that the current design factors of the project outlined above sufficiently reduced the risk of alien species escape. (See Exhibits 4 and 6 in Appendix.)

8.0 ALTERNATIVES TO THE PROPOSED ACTION

8.1 No Action

The Old Wastewater Treatment Plant is no longer in service, except the Pua Street Pump Station that was subdivided out for continued management by the County. If no action is taken, the buildings and facilities will continue to deteriorate and rust away. The land where the plant is located will be left idle, as the County has already utilized funds originally slated for demolition to partially renovate the site as per the Final EA and negative determination granted in 1999. The coastal properties adjacent to the old treatment plant are unused and overgrown and will remain that way if no action is taken. The Panaewa lot will continue to be utilized for limited aquaculture and agriculture due to the on-going shortage of an irrigation water source.

8.2 Alternate Sites and Actions

An aquaculture research and demonstration center was originally proposed in 1991, as part of UH-Hilo's effort to assist the East Hawai'i community with diversifying the region's economy. This proposed project was for a site close to the current site, but the community decided to target that original site for a different purpose. Currently, there is no comprehensive research or demonstration facility for aquaculture on the East side of Hawaii. The current Panaewa farm site, while potentially an excellent freshwater quarantine facility, does not have the saltwater resources capabilities needed for an aquaculture research and demonstration center. Until now, the University had not been able to locate an adequate coastal site, due to limited money and resources. Without adequate demonstration and research facilities for both fresh- and saltwater aquaculture, this industry will continue at a very limited basis.

As expressed in the EIS for the new Hilo Wastewater Treatment Plant, the structures in the Old Hilo Wastewater Treatment Plant were to be demolished and the site to be converted into a community park. The proposed center is an alternative to that initial plan, which will positively impact the economy of the area. Conversion of the old plant into the Center was chosen by the community, county, and the University as the best option for the project site. This project effectively redirects the county funds originally designated for the demolition of the plant and focuses on merging them with local, state, and federal resources and efforts into the creation of this new center to serve the area and the broader Pacific. The design for the proposed aquaculture facility targets converting as much of the existing infrastructure of the OHWTP as possible and linking with existing facilities at the Panaewa site into the goals of the Center.

Selection of an alternative site will have negative economic consequences. The funds originally designated for demolition of the plant are an important financial source for building the Center at the project property and the existing buildings and structures are important components of the Center. Additionally, the County has already expended money previously available for demolition on the old treatment plant's renovation. If the project is not implemented, the County will have no resources to revert to the original plan of demolition.

Members of the local community are also supportive of the Center being developed at the existing sites. The Keaukaha Community Association has been involved with the discussions leading up to submitting proposals for funding for this phase of the Center and they will

maintain two members on an Advisory Board of project partners. See Exhibits 7a and 7b in the Appendix for correspondence relating to community support for the Center. Public notices published in both the local Hawaii Tribune Herald and in the Honolulu Advertiser in November 1999 resulted only in telephone inquiries of interest in the Center.

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

- The County funds originally designated for demolition are already being used to prepare the site for conversion and renovation to the Center as per the 1998 Environmental Assessment. In addition, funding from other sources such as UHH is also available for the Center development.
- The Center will greatly enhance UHH's research and teaching capabilities related to aquaculture, marine science and coastal resources.
- Joined with the resources available in the area, the Center will benefit the local Hawaiian community, the University of Hawaii, the surrounding community and other coastal areas.
- The development of the Center poses no major technological or logistical problems. Sewage plants have been successfully converted into aquaculture facilities in several locations in the USA. The basic design characteristics of primary sewage plants and intensive aquaculture facilities are very similar, thus facilitating the conversion from the former to the latter. Summary details of this process are contained in the Final Environmental Assessment for the wastewater plant conversion (M&E Pacific, 1998).
- The feasibility of obtaining both seawater and freshwater from wells in Keaukaha was considered in detail in a groundwater study completed in 1991 for a very similar area only 0.5 mile from the current project site.
- Preliminary contacts with the Department of Health (which implements the NPDES program in Hawaii), indicate that wastewater disposal will not be a major problem because the small scale of the project. The total production of fish and crustaceans by the project will be less than 20,000 lbs per annum which is considerably below the 100,000 lbs per annum which triggers the for a NPDES permit.
- All facilities proposed for Panaewa are quite simple and easily constructed. The freshwater well at Panaewa poses no major problems because similar County of Hawaii Department of Water Supply wells already function in the adjacent area.

9.0 LIST OF PERMITS

This planning effort recognizes the eventual need of project proposals to obtain proper permits before construction. These may 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)
- Permission from Dept. of Agriculture to build on leased land

County of Hawaii:

- Building 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)
- Grubbing Permit
- Grading Permit

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. The only comments received during the 30-day public review period of the Draft Environmental Assessment were from the Office of Environmental Quality (OEQC) (Exhibit 8a and 8b in Appendix). The requests for further information regarding project wells and the potential for alien organism release have been addressed in this Final Environmental Assessment and below.

It is anticipated that the proposed project will not significantly impact the environment. Therefore, a Finding of No Significant Impact (FONSI) is determined, and an Environmental Impact Statement is not required for this project. This determination is based on the significance criteria listed in §11-200-12 of the Environmental Impact Statement Rules. Specifically, these significance criteria are addressed below:

1. Loss or destruction of natural or cultural resources: All parcels involved with this project are or have been developed in the past. The wastewater treatment plant now sits idle due to the decommissioning of the plant and the adjacent property is also idle. 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, providing access to sustainable resource use in the coastal area, and enhancing access to the coastline for the general public.
2. Curtail the range of beneficial uses: Rather than curtail the range of beneficial uses, this project will improve and expand the use of these parcels to provide educational and employment opportunities and improved public access. Only minimal additional structures will be erected on the sites and several will be demolished.
3. Consistency with environmental policies: The proposed conversion of the wastewater treatment site is consistent with the Environmental Policies established in Chapter 344, HRS.
4. Impact on economic and social welfare: The project 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. Impact on public health: As an educational and research facility, public health will not be adversely affected. Even though the small quantity of discharges would be exempt from NPDES requirements, these will still be treated.
6. Secondary impacts: Creation of this Center will not result in 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. 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. Although not required, the Center will filter the effluent to further reduce nutrient load.
8. Cumulative environmental impacts; The discharges from the proposed facility will not have substantial cumulative environmental effects and will be much less than surrounding non-point sources such as urban runoff. The quarantine facility in Panaewa will ensure that the UHH Farm and the Center do not accidentally bring in any disease or foreign organism through fish and organisms from other areas.
 9. Endangered species: The parcels involved are already developed or highly disturbed 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. Precautionary measures (outlined above) will be taken to avoid any release of alien species into the environment and open tanks will be covered to avoid harming any bird species attracted to the water bodies and to prevent predation on and transfer of disease to cultured species.
 10. Air, water or noise quality: The proposed project will consist mainly 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. Water use from the four wells associated with the project is far below the sustainable yield of the large aquifers present and the abundant ocean water resources. The waste treatment unit will settle and filter organic solids for the Keaukaha site. These solids will be removed for compost on a regular basis and will not accumulate on site and be allowed to degrade air quality. On the Panaewa site, integrated aquaculture-agriculture projects will utilize much of the waste water after settling in project ponds.
 11. Risk of damage due to natural hazards: Components of the project are located in flood areas subject to wave action and tsunamis. All components are 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. As the Center will be responsible for live organisms, measures will be undertaken to account for these risks to avoid release of any non-native animal into the wild if a tsunami or earthquake occurs.
 12. Viewplanes and vistas: The proposed project will have minimal impact on public viewplanes. Part of the Keaukaha site is already landscaped on the street side to disguise the previous nature of the site (that of a wastewater treatment plant) and this landscaping will be extended into the adjacent parcel. The viewplane towards Puhi Bay on the adjacent coastal property will be opened up through removal of underbrush. The Panaewa component will not effect the public viewplane at all, as the Center component is within the UHH Agriculture Farm property.
 13. Energy consumption: Establishment of an education and research facility will consume much less energy than the former wastewater treatment site due to the fact that fewer and smaller pieces of equipment will be utilized. The Panaewa parcel will provide a freshwater well for ongoing agriculture and aquaculture research which presently relies on county water.

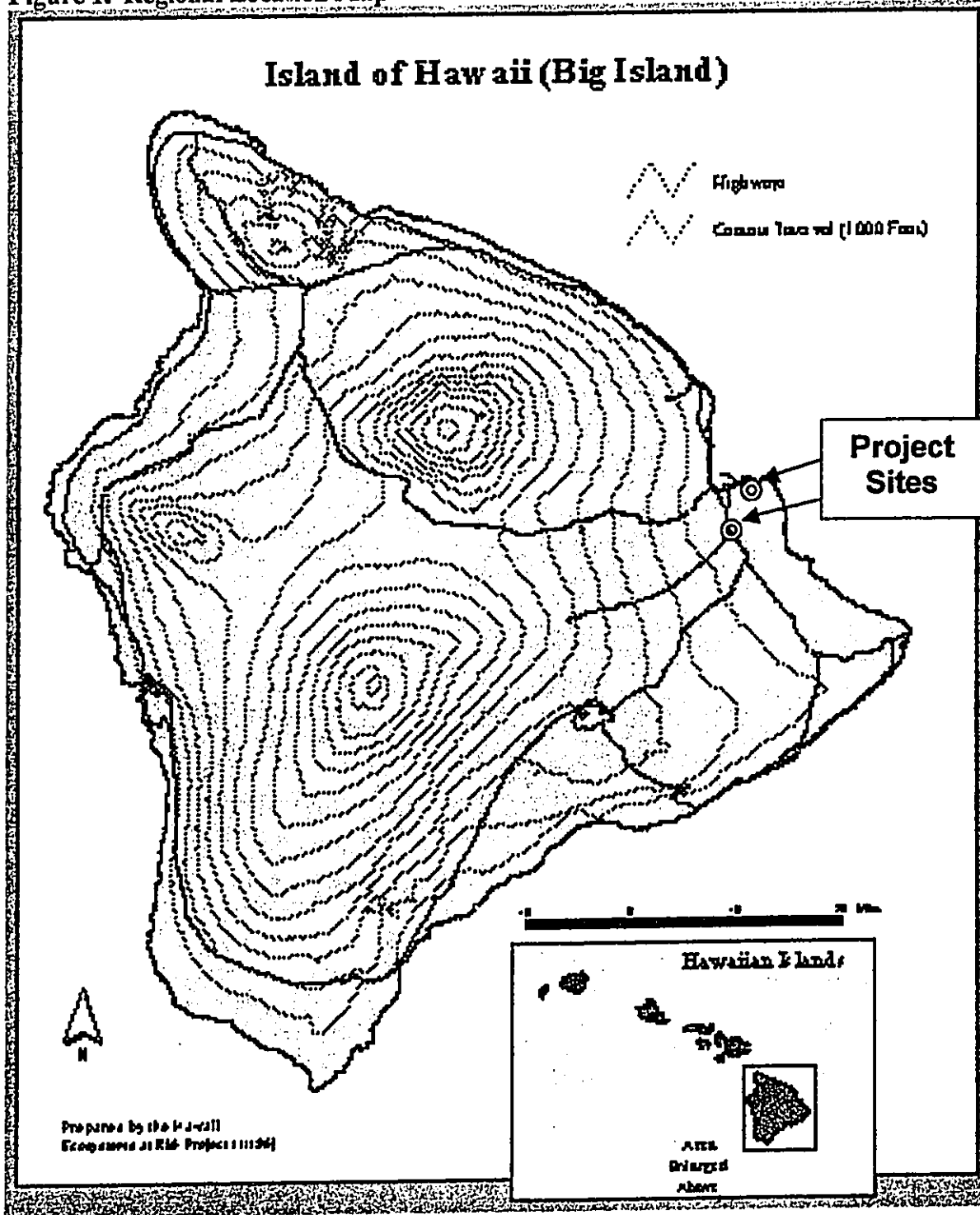
11.0 REFERENCES

Documents reviewed during preparation of this Environmental Assessment:

- Ecology and Environment, Inc., 2000. Phase I Brownfields Site Investigation Report: TMK 3-2-1-09-1 and TMK 3-2-1-09-41
- Environment Impact Study Corp., 1979 Environmental Impact Statement: Panaewa Agricultural Park.
- Federal Emergency Management Agency, 1988. Flood Insurance Rate Map, Hawaii County, Hawaii, Community-Panel Number 885 of 1900.
- Halbig, J.B., 1986. A Baseline Study of Ground Water Geochemistry in the Kawaihae and Hilo Areas on the Island of Hawai'i Prepared by J.B. Halbig et al. for Dept. of Planning and Economic Development, State of Hawaii.
- M&E Pacific, Inc., 1997. Environmental Site Assessment, Phase I: Old Hilo Wastewater Treatment Plant
- M&E Pacific, Inc., 1998. Final Environmental Assessment, Old Hilo Wastewater Treatment Plant Conversion
- Mink and Yuen, Inc., 1991. Groundwater Development for Aquaculture in Keokea, Hawaii. Prepared for the Research Corporation of the University of Hawaii, Honolulu, Hawaii.
- State of Hawai'i Department of Health, 1998. The Groundwater Contamination Maps for the State of Hawai'i, 1998.
- Takasaki, K. J., 1993. Ground water in Kilauea Volcano and adjacent areas of Mauna Loa Volcano, Island of Hawaii. USGS, Open-File Report 93-82.
- Thomas, D.M., et al., 1996. Hydrology of the Hawaii Scientific Drilling Project Borehole KP-1, Part 2. Journal of Geophysical Research, 101(B5): 11,683-11,694.
- University of Hawaii, School of Ocean and Earth Science and Technology, 1992. Final Environmental Assessment and Negative Declaration: Hawaii Pilot Hole Project
- Walker Consultants, Ltd., 1999. Underground Storage Tank Closure Report: Old Hilo Wastewater Treatment Plant

FIGURES

Figure 1. Regional Location Map



This map is a consolidation of two tax map keys (3-2-1-9) and (3-2-1-11)

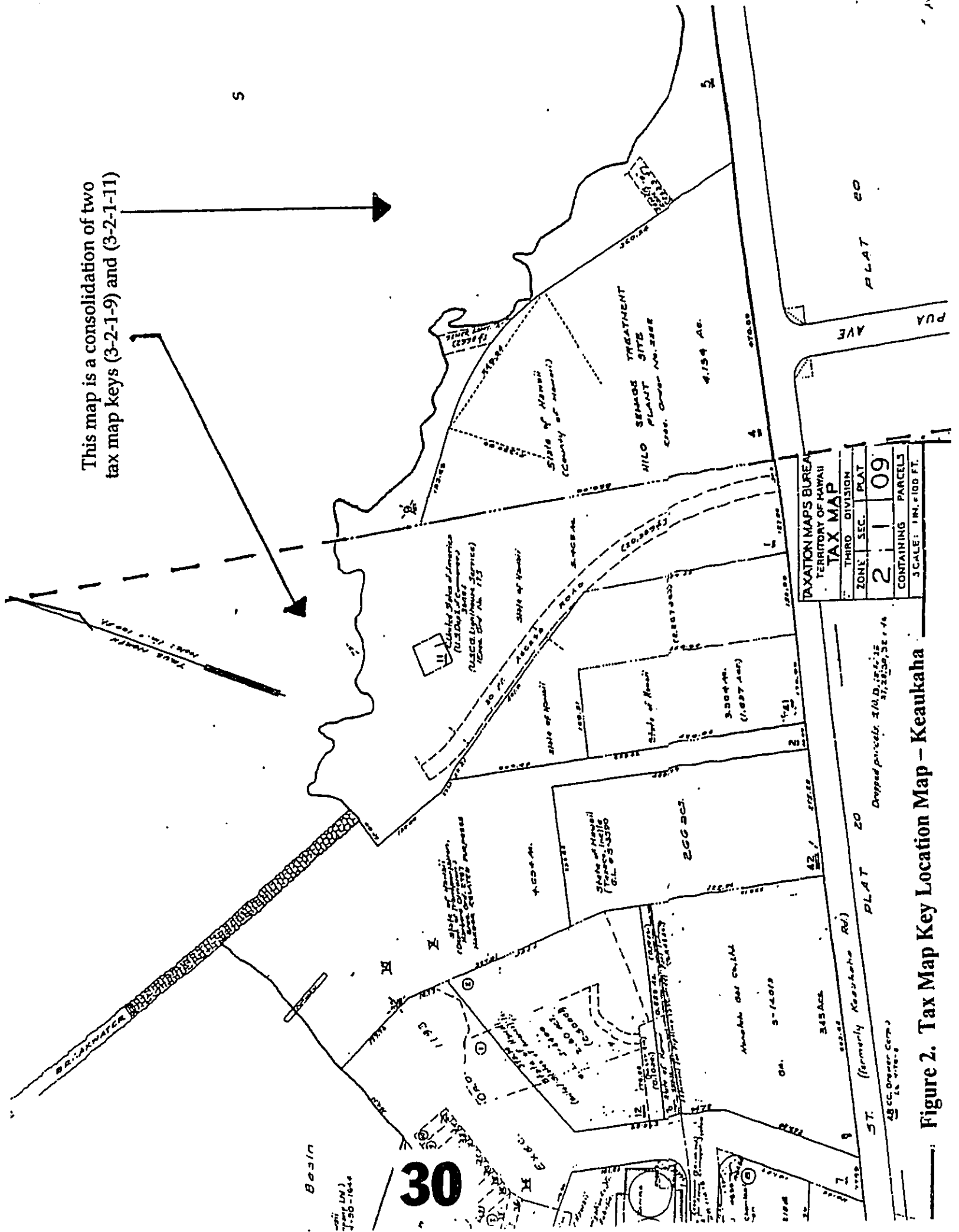
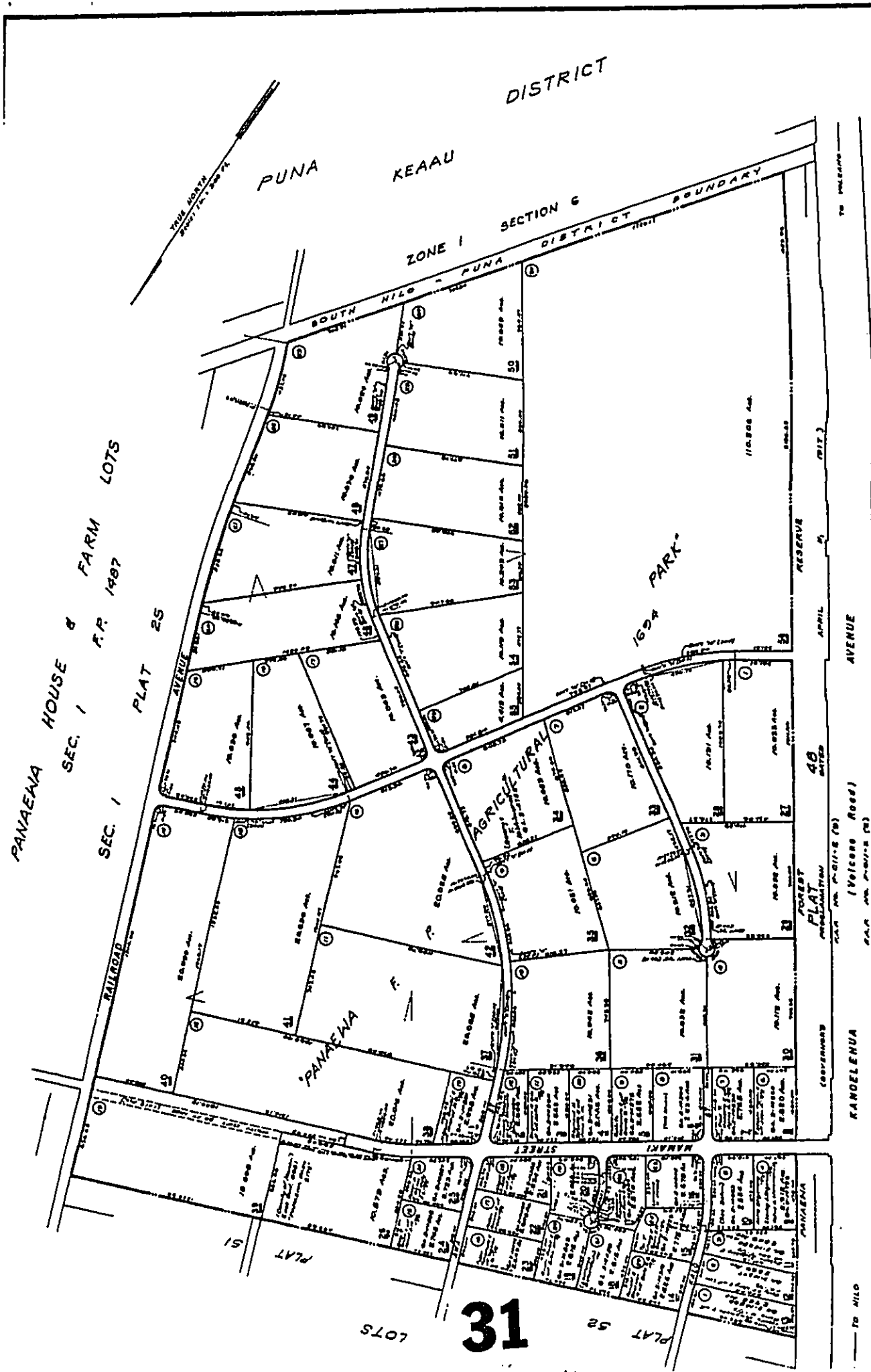


Figure 2. Tax Map Key Location Map - Keaukaha



DEPARTMENT OF TELLING	
PROPERTY RECORDS DIVISION	
TAX MAP	
ZONE	2
SEC.	2
PLAT	56
SCALE 1" = 100' N.T.	

NOTE: All lots shown on this map are subject to change.

3 798

TRICULTURAL PARK - 3 798

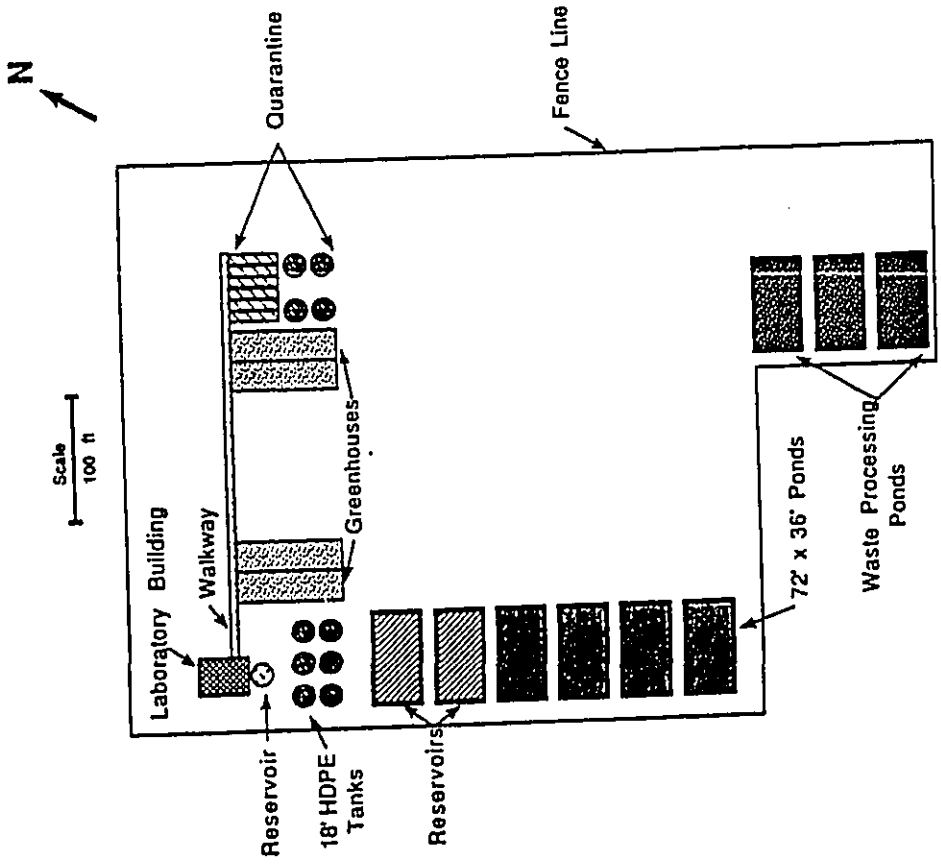
HOUSE LOTS - P.M.O. SERIES - P.M.C. WAIKAE, SOUTH HILO, HAWAII (formerly P.C. 2-2-48)

ZONE 2 SEC. 4

Figure 3. Tax Map Key Location Map - Panaewa

PROPERTY ASSIGNMENT PURPOSES SUBJECT TO CHANGE

Pacific Aquaculture & Coastal Resources Center - Phase 1
 Panaewa Site, Hilo, Hawaii



Pacific Aquaculture & Coastal Resources Center - Phase 1
 Keaukaha Site, Hilo, Hawaii

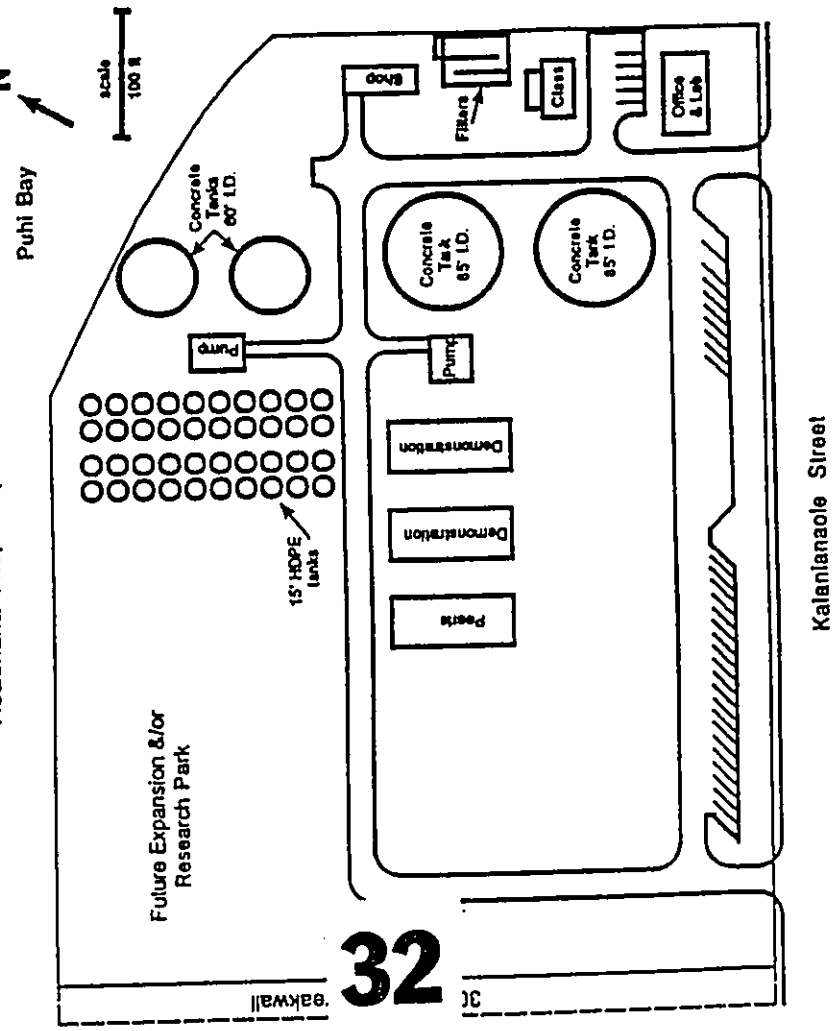
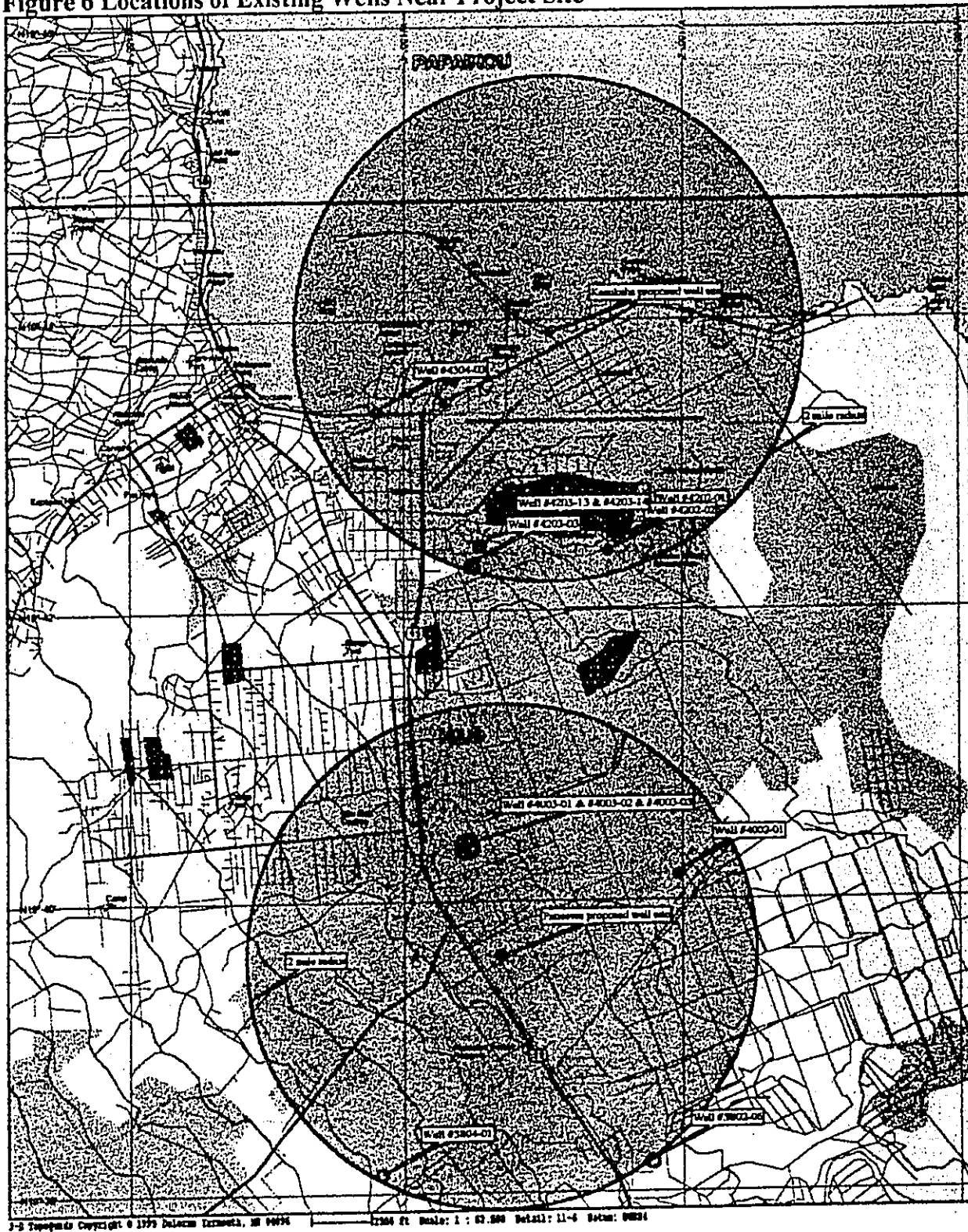


Figure 4. Planned PACRC Facility in Keaukaha and Panaewa

Figure 6 Locations of Existing Wells Near Project Site




NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

HAWAII COUNTY,
HAWAII

PANEL 885 OF 1900
SEE MAP INDEX FOR PANELS NOT PRINTED!



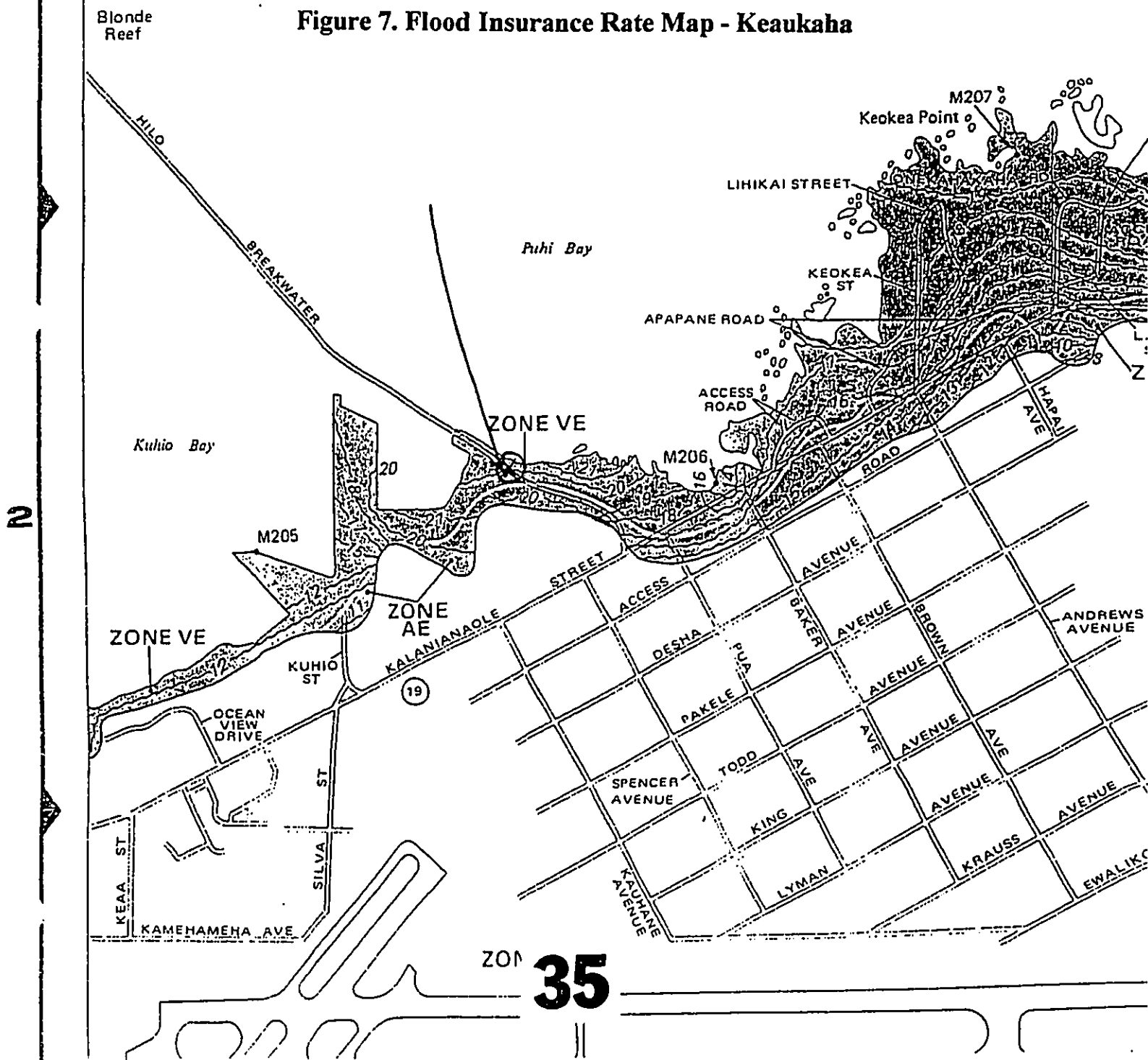
PANEL LOCATION

COMMUNITY-PANEL NUMBER
155166 0885 C

MAP REVISED:
SEPTEMBER 16, 1988

Federal Emergency Management Agency

Figure 7. Flood Insurance Rate Map - Keaukaha



APPENDIX

List of Exhibits:

Exhibit 1	Army Corps of Engineers
Exhibits 2a – 2d	Correspondence with U.S. Fish and Wildlife
Exhibits 3a and 3b	Historical Preservation Office, DLNR
Exhibit 4	Division of Aquatic Resources, DLNR
Exhibit 5	DEBDT Office of Planning, CZM
Exhibit 6	<i>Aquaculture Development Program, DA</i>
Exhibits 7a and 7b	Keaukaha Community Association
Exhibits 8a and 8b	Comments Received from OEQC During 30-day Public Comment Period and Response



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

REPLY TO
ATTENTION OF

November 2, 1999

Exhibit 1

Civil Works Technical Branch

Ms. JoAnn Smith
Economic Development Administration
Jackson Federal Building, Room 1856
915 Second Avenue
Seattle, Washington 98174

Dear Ms. Smith:

Thank you for the opportunity to review and comment on the Proposal for the Pacific Coastal Resources Center, Hilo, Hawaii. The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

a. Based on the information provided, a DA permit will not be required for this activity.

b. The flood hazard information provided on page 10 of the Final Environmental Assessment is correct.

Sincerely,

James K. Hatashima
Acting Chief, Civil Works
Technical Branch

Copy Furnished:

Dr. Kevin Hopkins
Professor of Aquaculture
University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720



Exhibit 2a

UNIVERSITY
OF HAWAII
HILO

6 December 1999

Dr. Mick Castillo
U.S. Fish & Wildlife Service
P.O.B. 50088
Honolulu, Hawaii 96850

Re: Pacific Aquaculture and Coastal Resources Center

Dear Dr. Castillo:

I am sorry for the delay in responding to your request for clarification about certain aspects of the Pacific Aquaculture and Coastal Resources Center which is planned for two sites (one coastal, the other, inland) in Hilo, Hawaii. Those aspects (planned release of organisms, control of exotics, quarantine, and tsunami provisions) will be dealt with individually below. As your concerns were related to the coastal site, I will restrict my clarifications to that site.

Planned release of fish

No releases of exotic fishes to the environment are planned. It is probable that endemic species cultivated at the site will be used for cage culture or for stock enhancement programs. For that to occur, each project (i.e., fish cage and stock enhancement projects) will have to undergo review and receive approval from the appropriate agencies (to prevent negative impacts on the viability of wild stocks). Freshwater exotics grown on site would not be released to the wild.

Control measures

All discharge water from the site will be screened through microscreens (approximately 100 micron or less). Furthermore, the discharge is several thousand feet off-shore at a depth of almost 100 ft below sea level. Thus, it would probably be impossible for any freshwater fish escaping the site to survive in the extremely unlikely event that it (the fish) got through the screens.

College of Agriculture

200 W. KAWILI STREET
HILO, HAWAII 96720-4091
PHONE: (808) 974-7393
FAX: (808) 974-7674

An Equal Opportunity/Affirmative Action Institution

Letter to Dr. Castillo re: PACRC

Quarantine

All organisms to be cultured at the Center will first be quarantined at the inland facility. All water discharge from the quarantine unit will be chlorinated and dechlorinated before discharge.

Tsunami provisions

All exotics at the coastal site will be placed in tanks with quick draining provisions so that they can be quickly removed and transported inland with only minimal delay. Given the existing tsunami warning system, there will be sufficient time to carry this evacuation plan in the event of a non-local tsunami.

If you have any further questions or comments, please contact me.

Sincerely,



Kevin D. Hopkins
Professor of Aquaculture

Exhibit 2b



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Pacific Islands Ecoregion
300 Ala Moana Blvd, Rm 3-122
Box 50088
Honolulu, HI 96850

JAN 26 2000

In Reply Refer To: JMC

Ms. JoAnn Smith
Economic Development Administration
Jackson Federal Building, Room 1856
915 Second Ave.
Seattle, WA 98174

RE: Pacific Aquaculture and Coastal Resources Center, Phase 1: Development of Aquaculture Facilities

Dear Ms. Smith:

The U.S. Fish and Wildlife Service (Service) has reviewed a copy of the application for federal assistance that was submitted to your office for the Pacific Aquaculture and Coastal Resources Center, Phase 1: Development of Aquaculture Facilities. The applicant is the College of Agriculture, Forestry and Natural Resource Management, University of Hawaii at Hilo (UHH) in cooperation with the University of Hawaii Sea Grant College Program. An accompanying letter, dated September 20, 1999, from Kevin Hopkins, Professor of Aquaculture at UHH, requested that the Service comment on the proposal and submit those comments to you. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969, the Endangered Species Act of 1973, as amended, the Aquatic Nuisance Species Act of 1995, the Water Quality Improvement Act of 1970, the Invasive Species Executive Order of 1999, and other authorities mandating Service concern for environmental values. Based on these authorities, we offer the following comments for your consideration.

The proposed project includes the conversion of existing facilities at the old Hilo Wastewater Treatment Plant (WWTP) and construction of wells and small demonstration facilities on adjacent lands. Conversion of the WWTP will involve the demolition and removal of most of the mechanical and electrical equipment on site along with the retention and renovation of most of the existing structures.

We have reviewed the information you provided along with information in our files and have found no records of threatened or endangered species occurring directly within the project site. Federally threatened and endangered animals known to occur within the surrounding area include the Dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*), Hawaiian hawk (*Buteo solitarius*), Hawaiian gallinule (*Gallinula chloropus sandwichensis*), Hawaiian coot (*Fulica americana alai*), and Hawaiian hoary bat (*Lasiurus cinereus semotus*). Other federal trust resources within the surrounding area that may be affected by the proposed project include coastal freshwater and brackish ecosystems and coral reef ecosystems in the near-shore marine environment.

The Service is concerned that the proposed project has the potential to impact the near-shore environment through the accidental release of alien species. Invasive species are of particular concern in Hawaii since

alien introductions have caused greater ecological impacts to both species and habitats in Hawaii than any other place in the world. Studies have documented that biological invasions, particularly in Hawaii, are both unpredictable and irreversible and have the potential to cause severe long-term impacts to local and island-wide ecosystems and habitats. Hawaii's susceptibility to invasive alien species, and the resultant cascading effects, can be attributed primarily to Hawaii's extreme geographic isolation and associated absence of particular groups of species. Many of Hawaii's invasive alien species problems arise from unintentional introductions.

It is our understanding that the only alien species that will be cultivated or displayed at the facility are freshwater species. Based upon discussions with Kevin Hopkins and Sharron Ziegler-Chong, from the UHH Department of Agriculture, Forestry and Natural Resources, and information provided by Kevin Hopkins, we feel that while the potential for introduction of alien freshwater species into coastal freshwater environments exists, the probability of such introductions have been minimized.

In addition to potential impacts from invasive alien species, waterbirds using nearby ponds and watercourses may be attracted to the facility and sustain injury or death from equipment or drowning. To prevent these types of impacts, we recommend that ponds and tanks be managed to prevent birds (e.g. night herons) from falling in by: (1) keeping water levels 18 inches from the rim/shore, and (2) installing netting stretched tightly, across the ponds and tanks. We also recommend that measures be taken to insure that all sediment remain on site during and following construction. Measures to direct and impound runoff will prevent reefs and near-shore resources from impacts related to siltation.

The Service believes that incorporation of these measures into the project will greatly minimize the potential for project-related adverse impacts to fish and wildlife resources. Based upon the incorporation of the forgoing recommendations, and the conscientious application of the environmental controls that have been proposed, the Service would agree that significant project-related impacts are not anticipated.

Thank you for soliciting the Service's comments on this project. If you have questions or comments, please contact Fish and Wildlife Biologist Mick Castillo by telephone at (808) 541-3441.

Sincerely,



Paul Henson
Field Supervisor,
Ecological Services

cc: CZMP, Hawaii
State of Hawaii, OEQC, Hawaii
State of Hawaii, DOH, Clean Water Branch (Lau), Hawaii
State of Hawaii, DLNR, Hawaii
State of Hawaii, DAR, Hawaii
NMFS-PAIO, Honolulu
USEPA, Honolulu
UH, College of Agriculture, Hilo



Exhibit 2c

UNIVERSITY
OF HAWAII
HILO

17 February 2000

Mr. Paul Henson
Field Supervisor, Ecological Services
U.S. Fish and Wildlife Service
P.O. Box 50088
Honolulu, Hawaii 96850

Re: Fish and Wildlife Service comments on Pacific Aquaculture and Coastal
Resources Center, Phase 1

Dear Mr. Henson:

I wish to thank you and your staff for reviewing our proposal. We have no substantive disagreement with your conclusions but request a minor modification of your recommendation regarding water depth below the tank rims (i.e., freeboard). Specifically,

1. In regards to the concern about the potential for introducing freshwater exotic species, we agree with the importance of prevention in minimizing unintended introductions of exotic species. We are pleased that you consider our proposed control measures to be adequate to prevent introductions.
2. Regarding the recommendation to install taut netting across the outdoor tanks to prevent bird access, this is standard operating procedure at most fish farms and was already planned for this facility. I apologize for the oversight in not including this operational procedure in the paperwork submitted for your review. In addition to preventing injury to birds, the nets also prevents predation by the birds on our fish stocks and the minimize the spread of avian-borne parasites.
3. Regarding the recommendation to maintain water levels 18" below the rims, we have no problem with this in our large concrete tanks. However, maintaining an 18 inch freeboard will be difficult in our plastic tanks as the side walls are only 42 inches high. Structural integrity and access would

College of Agriculture

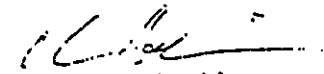
200 W. KAWILI STREET
HILO, HAWAII 96720-4091
PHONE: (808) 974-7393
FAX: (808) 974-7674

An Equal Opportunity/ Affirmative Action Institution

be difficult if we increased the tank height to maintain adequate water depth and provide 18 inch freeboard. We suggest that the water level in these tanks be 12 inches below the surface. This water level, in combination with tank rims 42 inches above ground level and the taut net covers, should prevent any entry of birds into the tanks.

Again, thank you for your assistance.

Sincerely,



Kevin D. Hopkins
Professor of Aquaculture and Project Leader

cc: Ms. JoAnn Smith, EDA



United States Department of the Interior

Exhibit 2d

FISH AND WILDLIFE SERVICE

Pacific Islands Ecoregion
300 Ala Moana Blvd, Rm 3-122
Box 50088
Honolulu, HI 96850

In Reply Refer To: JMC

APR 11 2000

Ms. Gail Fujita
Economic Development Administration
300 Ala Moana Blvd., Room 5108
Box 50264
Honolulu, HI 96850

RE: Panaewa Farm Pacific Aquaculture and Coastal Resources Center, Phase 1: Development of Aquaculture Facilities, South Hilo, Hawaii

Dear Ms. Fujita:

The U.S. Fish and Wildlife Service (Service) has reviewed a copy of the application for Federal assistance that was submitted to your office for the Pacific Aquaculture and Coastal Resources Center, Phase 1: Development of Aquaculture Facilities. The applicant is the College of Agriculture, Forestry and Natural Resource Management, University of Hawaii at Hilo (UHH) in cooperation with the University of Hawaii Sea Grant College Program. This letter has been prepared under the authority of and in accordance with provisions of the National Environmental Policy Act of 1969, as amended (NEPA), the Endangered Species Act of 1973, as amended, the Aquatic Nuisance Species Act of 1995, the Water Quality Improvement Act of 1970, the Invasive Species Executive Order of 1999, and other authorities mandating Service concern for environmental values. Based on these authorities, we offer the following comments for your consideration.

The proposed project includes the construction of a well and water distribution system, a quarantine unit, and the conversion of the existing hatchery building into a pathology laboratory. In later phases, an environmentally controlled hatchery and nursery, and a set of small freshwater ponds will be constructed.

The Service has reviewed both the March 6, 2000, letter from Ms. Sharron Ziegler-Chong of UH Sea Grant Extension Service requesting that we also provide you with comments on the Panaewa site, and portions of a 1979 Environmental Impact Statement (EIS) for the Panaewa Agricultural Park, the area now being considered as the proposed project site. In addition, we have also reviewed the February 17, 2000, letter from Mr. Kevin Hopkins, Professor of Aquaculture at UHH articulating a justification for a 12" freeboard height, combined with taut net tank covers, for lower-volume tanks. We have also reviewed the information you provided along with information in our files and have found no records of threatened or endangered species occurring directly within the project site. Federally threatened and endangered animals known to occur within the surrounding area include the Dark-rumped petrel (*Pterodroma phaeopygia sandwichensis*), Hawaiian hawk (*Buteo solitarius*), and Hawaiian hoary bat (*Lasiurus cinereus semotus*).

The September 1998 Final Environmental Assessment (EA) included in the application document addresses the Old Hilo Wastewater Treatment Plant site only. If there was an EA prepared for the Panaewa farm site, we have no record of it.


Please reference our January 26, 2000, letter to Ms. JoAnn Smith of your agency transmitting our comments on the proposed Hilo Wastewater Treatment Plant site (copy provided). That letter articulated our concern over the potential introduction of alien species into the Hawaiian environment. We reiterate this concern for the Panaewa project. We believe that because Panaewa will be where new non-native species will be for quarantine and research there exists both a potential for escape of quarantine species and a potential for inadvertent introduction of other alien species, including terrestrial plants and invertebrates. We assume that these concerns have been addressed and that there are planned measures to minimize this threat, however, those specific measures are not included in the project description or supporting information. As a point of clarification, a December 6, 1999, letter from Mr. Kevin Hopkins states that any planned wild stock enhancement programs using endemic species cultivated at the site will receive prior review and approval by appropriate agencies. Prior review for cultivation of non-native species should also be addressed.

We agree that measures included in the project design and described in Mr. Hopkins' February 17 letter should, in effect, minimize the potential for injury or death to waterbirds resulting from equipment or drowning. We recommend, however, that measures be taken to insure that all sediment remain on site during and following construction. Measures to direct and impound runoff will prevent coral reefs and near-shore resources from impacts related to siltation.

The Service believes that incorporation of these measures into the project will greatly minimize the potential for project-related adverse impacts to fish and wildlife resources. Based upon the incorporation of the forgoing recommendations, and the conscientious application of the environmental controls that have been proposed, we feel that significant project-related impacts are not anticipated.

Thank you for soliciting the Service's comments on this project. If you have questions or comments, please contact Fish and Wildlife Biologist Mick Castillo by telephone at (808) 541-3441.

Sincerely,


For Paul Henson
Field Supervisor,
Ecological Services

cc: CZMP, Hawaii
State of Hawaii, OEQC, Hawaii
State of Hawaii, DOH, Clean Water Branch (Lau), Hawaii
State of Hawaii, DLNR, Hawaii
State of Hawaii, DAR, Hawaii
NMFS-PAIO, Honolulu
USEPA, Honolulu
UH, College of Agriculture, Hilo

BENJAMIN J. DAYETANO
GOVERNOR OF HAWAII



Exhibit 3a

JANET E. KAWILO

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhewa Building, Room 555
501 Kamehale Boulevard
Kapolee, Hawaii 96707

October 22, 1999

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

Gail Fujita
Economic Development Administration
PJK Federal Building
300 Ala Moana Blvd., Room 5180
P.O. Box 50264
Honolulu, Hawaii 96850

LOG NO: 24245 ✓
DOC NO: 9910MS03

Dear Ms. Fujita:

SUBJECT: National Historic Preservation Act Compliance (Section 106 Review)
Proposed Pacific Aquaculture and Coastal Resources Center
Keaukaha, South Hilo, Hawaii Island
TMK: (3)2-1-09: 1 and 41 and TMK: (3)2-01-11:4

Thank you for the opportunity to review this project.

We have no record in our files of any significant historic properties in the subject parcels. Extensive land alteration has occurred in the past on these parcels. The old Hilo wastewater treatment plant is located in parcel 4, and parcels 1 and 41 were staging areas during the construction of the Hilo breakwater. Because of this past use, we believe that the proposed Pacific Aquaculture and Coastal Resources Center will have "no effect" on significant historic sites.

If you have further questions please call Pat McCoy at 692-8029 (Honolulu), or Marc Smith at 933-0482 (Hilo).

Aloha,


TIMOTHY E. JOHNS
State Historic Preservation Officer

MS:jk

c: Sharon Ziegler-Chong, University of Hawaii Sea Grant Extension Service, 200 W. Kawili Street, Hilo, HI 96720

EDUARD J. GAYETANO
GOVERNOR OF HAWAII



TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DEPUTIES
JANET E. KAWALO
LIMNEL NISHIOKA

Exhibit 3b

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

January 11, 2000

Gail Fujita, EDA
PLK Federal Building
300 Ala Moana Blvd., Room 5180
Honolulu, Hawaii 96850

LOG NO: 24710 ✓
DOC NO: 0001MS02

Dear Ms. Fujita:

**SUBJECT: National Historic Preservation Act Review (Section 106)- Pacific
Aquaculture and Coastal Resources Center (PACRC)
Panaewa, South Hilo, Hawaii Island
TMK: (3)2-2-56:56**

Thank you for the opportunity to review this project. The subject parcel has been used for many years as an agricultural area. Because of this past use we believe there are no historic properties affected in the project area. If you have further questions please call Pat McCoy at 692-8029 (Honolulu), or Marc Smith at 933-0482 (Hilo).

Aloha,

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

DON HIBBARD, Administrator
State Historic Preservation Division

MS:jk

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET
HONOLULU, HAWAII 96813

October 1, 2001

Exhibit 4

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY DIRECTOR
JANET E. KAWELO

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

Ms. Sharon Ziegler-Chong
Sea Grant Extension Agent
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, HI 96720-4091

Dear Ms. Ziegler-Chong:

Subject: Draft EA for the UHH Pacific Aquaculture and Coastal Resources Center (PACRC)

We understand that the following components have been incorporated into the design of the proposed UHH Pacific Aquaculture and Coastal Resources Center (PACRC), to address concerns related to the inadvertent release of unwanted alien species:

- 1) No marine exotics will be cultured at the Keaukaha site. Exotic freshwater species will be cultured—but only those that have been approved by the State of Hawaii's Department of Agriculture, Plant Quarantine Branch.
- 2) Effluent will be filtered by microfilters.
- 3) At the Panaewa site, effluent will be used to irrigate fields, which are located over a base of fractured lava. No overflow will reach any surface waters, which are located several miles away.
- 4) All tanks will be covered with bird netting to reduce the threat of transfer of organisms via birds to other water bodies.

We have no objection to the proposed facility, provided all the components listed above are implemented. Thank you for providing us with the opportunity to review the subject document.

Sincerely,

A handwritten signature in cursive script, appearing to read "W. Devick".

WILLIAM S. DEVICK, Administrator
Division of Aquatic Resources



Exhibit 5

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

**BRADLEY J. MOSSMAN
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING**

OFFICE OF PLANNING

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

Telephone: (808) 587-2848
Fax: (808) 587-2824

Ref. No. P-8433

January 18, 2000

Ms. Sharon Ziegler-Chong
University of Hawaii
Sea Grant Extension Service
200 W. Kawili Street
Hilo, Hawaii 96720

Dear Ms. Ziegler-Chong:

**Subject: Hawaii Coastal Zone Management (CZM) Program Federal Consistency
Review for a Federal Grant to Develop the Pacific Aquaculture and Coastal
Resources Center, Hilo, Hawaii**

The Hawaii CZM Program has reviewed the proposal to develop the Pacific Aquaculture and Coastal Resources Center with facilities and programs at the Old Hilo Wastewater Treatment Plant and adjacent land in Keaukaha, and an aquaculture quarantine facility at the UH-Hilo Agricultural Farm in Panaewa, with \$1.7 million in federal funds from the Economic Development Administration. We concur that the proposed use of federal funds is consistent with Hawaii's CZM Program.

CZM consistency approval is not an endorsement of the project nor does it convey approval with any other regulations administered by any State or county agency. Thank you for your cooperation in complying with Hawaii's CZM Program. If you have any questions, please call John Nakagawa of our CZM Program at 587-2878.

Sincerely,

David W. Blane
Director
Office of Planning

c: Planing Department, County of Hawaii

BENJAMIN J. CAYETANO
Governor



State of Hawaii
DEPARTMENT OF AGRICULTURE
Aquaculture Development Program
1177 Alakea Street, #400
Honolulu, Hawaii 96813

Exhibit 6

JAMES J. NAKATANI
Chairperson, Board of Agriculture

LETITIA N. UYEHARA
Deputy to the Chairperson

E-mail Address: aquacult@aloha.com
Website: <http://www.aloha.com/~aquacult>

Tel: (808) 587-0030
Fax: (808) 587-0033

September 24, 2001

Ms. Sharon Ziegler-Chong
UH Sea Grant Extension Service
Pacific Aquaculture and Coastal Resources Center
University of Hawaii at Hilo
200 W. Kawili Street
Hilo, Hawaii 96720

Dear Ms. Ziegler-Chong:

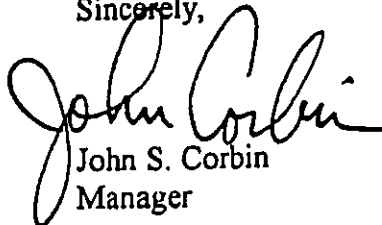
Thank you for sharing the Draft Environmental Assessment for the Pacific Aquaculture and Coastal Resources Center (PACRC). I am very familiar with this project and have visited both the Keaukaha site and the Panaewa site several times.

You desire comments on the possibility of inadvertent releases of unwanted alien species. This is of course a legitimate concern and a critical element of responsible approach to aquaculture development in Hawaii. I understand the PACRC has incorporated the following considerations concerning the issue of exotic species:

- 1) No exotic marine species will be cultured at the Keaukaha site. Approved exotic freshwater species will be cultured at this location; however, the coastal location and filtration of effluents will prevent escape and establishment.
- 2) Freshwater exotic species will be cultured at the Panaewa site. However, it is noted that the nearest surface waters are several miles away and effluent disposal will be through irrigating nearby crops.
- 3) All tanks in both locations will be covered with netting to prevent bird predation.

In lieu of the above precautions, I believe the risk of exotic species escape is minimal at both PACRC locations. Thank you for the opportunity to comment.

Sincerely,


John S. Corbin
Manager





UNIVERSITY
OF HAWAII
HILO

30 March 1998

Ms. Winona Hai Kelley, President
Keaukaha Hawaiian Homelands Community Association
135 Lyman Avenue
Hilo, HI 96720

Dear Ms. Kelley:

I wish to thank you and the Keaukaha Hawaiian Homelands Community Association for the hospitality which has been shown to all of the University of Hawaii personnel involved in the planning of the Pacific Aquaculture and Coastal Resources Center (PACRC) which is to be located at the old Hilo Wastewater Treatment. In response to the well-founded concerns expressed by members of the Association, I wish to formally state the following:

1. The PACRC will not encroach upon the fishing and gathering rights of native Hawaiians, particularly in the Puhi Bay area. We are aware that Puhi Bay is held in trust by the Department of Hawaiian Homelands for the use of its beneficiaries. If the PACRC proposes any project(s), such as off-shore fish cages, for Puhi Bay and adjacent waters, the approval and active participation of the Hawaiian Community in the project(s) must be obtained before implementation. All proposals, grant applications, and other documents relating to the development of the PACRC will contain statements to this effect.
2. All documents relating to the development of the PACRC will be available for examination by the Association.
3. The PACRC, when operational, will undertake routine monitoring of Puhi Bay waters for bacteria and other pollutants. A report of the test results will be available upon request by the Association.

College of Agriculture

200 W. KAWILI STREET
HILO, HAWAII 96720-4091
PHONE: (808) 974-7393
FAX: (808) 974-7674

4. Community groups may have access to PACRC classroom facilities for community meetings when those facilities are not being used for University classes and meetings. In order to prevent confusion, procedures to coordinate this will have to be developed.
5. A major function of the PACRC will be to provide educational opportunities to the community. Tours of the facility and training programs will be available, particularly for local schools.
6. Concerns about parking and traffic congestion will be addressed before the project is implemented.
7. We clearly recognize the need for local community support and participation in order for the PACRC to function effectively. We hope that this need will be met by your organization. Therefore, a seat on the Board of Directors of the PACRC is reserved for a representative of the Keaukaha Hawaiian Homelands Community Association.

As we proceed in the planning and development process, we would like to formalize the relationship between your group and the PACRC. To do so, we request a letter from your association indicating your support for the project and the name of your representative to the PACRC Board of Directors.

Along the ongoing development of PACRC facilities at the site of the old wastewater treatment plant, a project has been suggested to test fish cages approximately 1/2 mile offshore of Phi Bay. One of the proponents of that project, Dr. Charles Helsley, the UH Sea Grant Director, would like to present the proposal to your association for discussion and, if the group so decides, participation in the project. Suggested dates for the presentation are 21 or 28 April. Please let us know which date is preferable or suggest another.

Again, let me thank you for your interest and support. I look forward to many years of working together with your organization in the sustainable and culturally appropriate development of our island.

Sincerely,



Kevin Hopkins
Professor of Aquaculture

September 23, 1999

Sharon Ziegler-Chong
Extension Agent
Sea Grant Extension Service
School of Ocean and Earth Science and Technology
200 W. Kawili Street
Hilo, Hawaii 96720

Aloha Ms. Ziegler-Chong,

As the newly elected President of the Keaukaha Community Association, I am prepared to submit this letter of support for the proposed conversion of the Old Hilo Wastewater Treatment Plant, into what you are now calling the Pacific Aquaculture and Coastal Resources Center (PACRC), however with some minor reservations, which I believe can be worked out, amicably.

May I take this opportunity to share with you a brief bit of history about the area in question, so as to enhance your perspective of the native Hawaiian community, from which this support is being solicited.

That area was once a part of a bigger parcel that now makes up the Keaukaha Beach Park, including Puhī Bay, as identified in the Hawaiian Homes Commission Act, 1920.

In the early 1960's the County of Hawaii needed to install sewers to start a clean up of the bayfront area of Hilo. The sewerlines were installed, however the site, Hilo Wastewater Facility was selected, not with the input of the then community of Keaukaha, but by political means, although the native Hawaiians were never included in the decision making, not hooked-up to the sewers, this community had to endure over twenty five (25) years of foul odors and raw sewage spills into their swimming bay. Around the same time, the back portions of our community was being cut up and residents being relocated to what is now called Panaewa, because of the airport expansion. I do hope you understand the reluctance on the part some in this community, to fully embrace an idea, that some people, along with government, advocates is a "good thing", these Native Hawaiians, do not fully buy into the idea, unless they can see "real benefits" to the community.

I do hope we are being asked to provide a community representative, to sit on the PACRC board, so as to have a fair representation and look out for the best interest of our community, rather than a token native Hawaiian, to satisfy a requirement of operation of the new facility. Please do not construe this document as one of being adversarial, but rather

one of needing to inform and set the record straight on the plight of native Hawaiians in the past and into the future, where a genuine need is to makaala (be watchful), and mindful to the abuses and uses of lands having the status of Hawaiian Home lands, by other than the beneficiaries.

Along with this letter of community support, I would like to in the interim, since you are tentatively targeting the end of September for a first meeting of the PACRC board, to submit the name of:

Mr. Mike John
1268 Kalaniana'ole Ave
Hilo, Hawaii 96720
(808) 935-3269

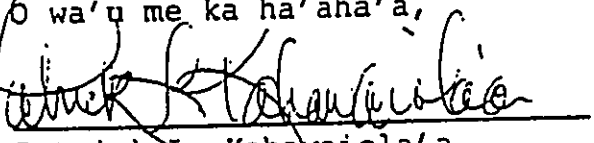
who accepted to serve in the absence of our representative;

Ms. Melissa Moniz
155 Andrews Ave
Hilo, Hawaii 96720

who is undergoing some medical treatments on O'ahu.

Thank you again for your inclusion of this community association into your project. We look forward to your successful completion and on-going partnership with the Keaukaha Community Association and PACRC.

O wa'u me ka ha'aha'a,


Patrick L. Kahawaiola'a
Keaukaha Community Association
260 King Ave
Hilo, Hawaii 96720

BENJAMIN J. CAYETANO
GOVERNOR



Exhibit 8a

GENEVIEVE SALMONSON
DIRECTOR

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

April 17, 2001

Dr. Kevin D. Hopkins, Interim Director
Pacific Aquaculture and Coastal Resources Center
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, Hawai'i 96720-4091

Dear Dr. Hopkins:

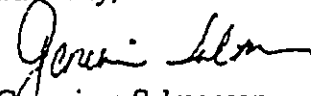
Subject: Draft EA for the UHH Pacific Aquaculture and Coastal Resources Center, Hawai'i

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

1. The project proposes to develop several wells to supply water for the aquaculture activities. Please review the attached "Guidelines for Assessing Water Well Development Projects" and include the pertinent information requested in the guidelines in the final environmental assessment.
2. Please consult with the State Water Commission on the proposal to drill wells on the site.
3. There is a potential for alien organism to be released from this project into the environment. Please consult with the State Department of Agriculture and the Aquatics Division of DLNR to ensure that the highest standards are followed to avoid or minimize any inadvertent releases of unwanted alien species.
4. The draft environmental assessment includes response letters dated December 6, 1999 to Dr. Mike Castillo and March 30, 1998 to Ms. Winona Hai Kelley. If available, please include the initial comment letters from Dr. Castillo and Ms. Kelley in the Final EA.

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

Sincerely,


Genevieve Salmonson
Director



UNIVERSITY
OF HAWAII
HILO

October 16, 2001
Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
236 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Ms. Salmonson,

Thank you for your comments in regards to the Draft Environmental Assessment for the Pacific Aquaculture and Coastal Resources Center (PACRC) with the University of Hawaii at Hilo (UHH). The Final Environmental Assessment will include the following sections and points to address your comments.

1. As per your request, the Final Environmental Assessment will include pertinent information regarding the project's wells. Hydrology and Wells, Hydrologic Impact Analysis and Watershed and Land Use sections have been added to the final document. As a result of compiling this information, one design change was made to the project: a UV sterilization unit will be installed on the intake from the shallow 30 foot well on the Keaukaha site, to ensure contaminant-free freshwater for the facilities. The State Water Commission was consulted on the proposal to drill wells (R. Imata, October 16, 2001). They had no comments on this process other than making sure that we were aware of the need for well construction, pump installation and water use permits.
2. In regards to the potential for alien organism release from this project, we feel that appropriate measures have been incorporated into the project to greatly minimize the chance of any potential release. The State Department of Agriculture and the Aquatics Division of DLNR agreed that our design and operation plans sufficiently address this concern (see Exhibits 4 and 6 in the Final Environmental Assessment).
3. You requested the initial comment letter from U.S. Fish and Wildlife to which we responded on December 6, 1999 (Exhibit 2a in Final Environmental Assessment). No such letter exists. The December 6 letter was sent in response to telephone conversations with Dr. Mick Castillo of the Hawaii office of the U.S. Fish and Wildlife. The January 26, 2000 correspondence was the first written document received from the U.S. Fish and Wildlife regarding this project.

Pacific Aquaculture & Coastal Resources Center

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4. You also requested the initial comment letter from Ms. Winona Hai Kelley to which we responded on March 30, 1998. No such letter exists. The March 30 letter was written to address questions generated during an August 19, 1997 presentation to the Keaukaha Community Association.

Please let us know if you have any additional comments in regards to this project.

Sincerely,



Kevin D. Hopkins, Interim Director
Pacific Aquaculture and Coastal Resources Center
University of Hawai'i at Hilo