

FINAL ENVIRONMENTAL ASSESSMENT

KAPOHO BAY FISHPOND RESTORATION PROJECT
KAPOHO, PUNA, HAWAI'I ISLAND, HAWAI'I

FEBRUARY 2008



Prepared for:
Department of Land and Natural Resources
State of Hawai'i
Department of Conservation and Coastal Resources
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Preface

This Environmental Assessment has been prepared in support of an application for a Conservation District Use Application Permit for the proposed restoration of the historic “nameless” fishpond at Kapoho Bay, Hawai‘i Island. The project proposes to restore, rebuild and maintain this historic Hawaiian fishpond. The fishpond is owned by a private party and is zoned Conservation Lands (sub-zone: Resource). As such, this Environmental Assessment has been prepared in accordance with Chapter 343, Hawai‘i Revised Statutes and in accordance with the following rules and regulations:

1. Chapter 343, Hawai‘i Revised Statutes, and the Environmental Impact Statement Rules, Chapter 200, Department of Health, Hawai‘i Administrative Rules; and
2. Chapter 13-5-2, Hawai‘i Administrative Rules, Conservation District.

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1. PROJECT INFORMATION

1.1 PURPOSE OF THE REQUEST

This Environmental Assessment has been prepared in support of an application for a Conservation District Use Permit (CDUP) in order to allow for revitalization of the historic “nameless” fishpond at Kapoho by the Applicant. The project is located at Kapoho Bay, in Kapoho Ahupua‘a, Puna District, Hawai‘i Island. The fishpond is considered submerged lands that are privately owned. The fishpond is identified by Tax Map Key (TMK) number 1-4-02: portion of 36. The proposed project requires work to be conducted within areas zoned State Conservation Lands. As such, this assessment has been prepared in accordance with Chapter 343, Hawai‘i Revised Statutes.

1.2 PROJECT PROFILE

Proposed Project:	Repair, Restore and Maintain “Nameless” Fishpond at Kapoho Bay.
Zoning:	Conservation, sub-zone: Resource (R).
Project Area:	Approximately 4.3 acres, wall length about 1,246 ft. long.
Access:	Private Property. The fishpond and all the shoreline surrounding it are owned by the Applicant.

1.3 LAND OWNER

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1.4 APPLICANT

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1.5 CONSULTANT

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1.6 ACCEPTING AGENCY

Agency: State of Hawai'i Department of Land and
Natural Resources
Division of Conservation & Coastal Lands
Address P.O. Box 621, Honolulu, Hawai'i 96809
Phone/Fax: Phone: (808) 587-0377

2. PROJECT DESCRIPTION

2.1 PROJECT BACKGROUND

Hawaiian fishponds (*loko i 'a*) and fishtraps are unique cultural resources and food production systems developed and refined by pre-Western and post-Western contact Hawaiians. Although practically every culture has practiced aquaculture to some degree, the ancient Hawaiians and their extensive system of fishponds are cited as one of the premier examples of successful fish farming in the world. Nowhere is there found such a diversity and profusion of aquacultural devices as in prehistoric Hawai'i. Fish, crustaceans, shellfish, and seaweed were some of the products of the totally indigenous aquacultural system.

The ancient Hawaiian fishponds were part of the complex, integrated and sustainable farming system that ran within each land division (watersheds in effect), *ahupua 'a*, which divided the islands into self-sufficient and sustainable wedge-shaped units that extended from the mountains to the sea.

There are two general types of fishponds, saltwater and freshwater, with six main styles. The salinity of the water served as an important element determining type of construction as well as what types of food that could be raised and their level of productivity.

Observing that brackish water conditions—the nutrient-rich combination of fresh and salt water—were the most productive, the Hawaiians generally constructed the fishponds by building a rock wall across entrances to bays or indentations of the shoreline next to the mouth of a stream, near freshwater springs or in the sea enclosing anywhere from an acre to 523 acres of water. In other instances the fishponds were constructed from two points along the shoreline, in the shape of a half-circle. The massiveness of some of the ponds

clearly suggests that pond building was intensive, lengthy and costly in terms of material, manpower, feeding, housing, etc. Archaeological studies reveal that the highest frequency of fishpond wall lengths are between 1,200 and 2,000 feet—the average wall containing 33,719 cubic feet of stacked rocks and coral fill. Historical accounts (Kamakau 1976) note that, “Making of the large fishponds required the labor of more than 10,000 men.”

The six main styles of fishponds as identified by Kikuchi (1973) include:

Type I: *Loko Kuapā*: A fishpond of littoral water whose side or sides facing the sea consist of a stone or coral wall usually containing one or more sluice gates.

Type II: *Loko Pu ‘uone*: An isolated shore fishpond usually formed by the development of barrier beaches building a single, elongated sand ridge parallel to the coast and containing one or more ditches and sluice gates.

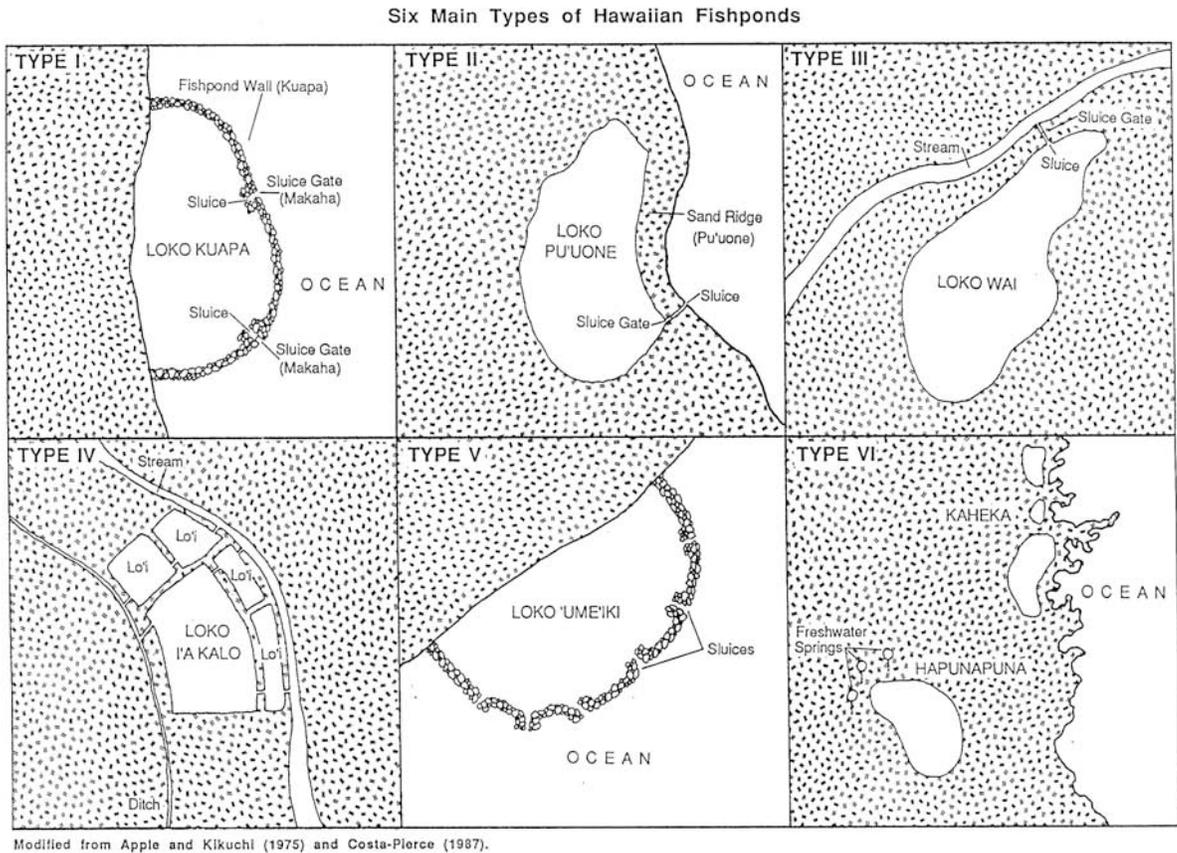
Type III: *Loko Wai*: An inland freshwater fishpond which is usually either a natural lake or swamp, which can contain ditches connected to a river, stream, or the sea, and which can contain sluice gates.

Type IV: *Loko I ‘a Kalo*: An inland fishpond utilizing irrigated taro plots.

Type V: *Loko ‘Ume ‘iki*: A fishtrap which is similar to a Type I: *loko kuapā* and has various combinations of inward and outward leading lanes.

Type VI: *Kāheka* and *Hāpunapuna*: A natural pool or holding pond. These fishponds are also referred to as anchialine ponds. They have no surface connection to the sea, contain brackish water and show tidal rhythms. Many have naturally occurring shrimp and mollusks.

Figure 1 - Six Main Styles of Hawaiian Fishponds (DHM Planners, Inc 1989).



The style of fishponds constructed is closely related to the topographical features of an area. For instance Moloka'i and O'ahu contain the highest number of *loko kuapā* in the state (48% and 30%, respectively) due to the deep bays and presence of shallow fringing reefs that protect the walls from high surf. Hawai'i island has few *loko kuapā* (14%) but the largest number of *loko pu'uone* (50%), *kāheka/hāpunapuna* fishponds (79%). This is because the island is geologically the youngest of the major islands, with ongoing volcanic activity producing an irregular coastline and lacking a fully developed fringing reef, but with many depressions, lava tubes and freshwater pools.

Not only were the fishponds an integral part of the traditional subsistence economy but they also played a significant role in the spiritual, cultural, and

political lives of the people. To the native Hawaiians there is a direct spiritual connection between man, god(s) and nature. The natural environment of the *‘āina* (land) and *kai* (sea) and all things contained within it are perceived to be sentient, divine and ancestral forms that have extrasensory perception, and interrelate with people as family. Thus to Hawaiians, nature is not only conscience, *ke ea o ka ‘āina* (life-force of the land), but much of it is divine.

Fishponds have declined statewide in importance and value as the result of many contributing factors such as population changes and migration, urban development and environmental factors. Prior to western contact (1778) it is estimated that there were over 480 fishponds statewide with an estimated annual yield of 1,991,520 lb./yr. As recent as 1900, there were 99 fishponds in operation with an estimated annual yield of 682,464 pounds (Cobb 1901). A state-wide inventory in 1990 revealed that of the 488 fishponds, only 25 are considered in excellent condition, 97 good condition, 126 poor condition and 200 fishponds had no existing evidence of surface remains (DHM Planners 1990). On Hawai'i Island it is estimated that 118 fishponds once flourished; today 24 fishpond is considered in excellent condition, 51 in good condition, 32 poor condition and 11 cannot be found (Ibid.).

This regrettable state of the fishponds can be attributed to a number of environmental factors such as lava flows, tsunamis and storms, land erosion (due to deforestation, agriculture and grazing) filling in ponds with silt, mangroves and other vegetation inundation. Other factors include change in land tenure and destruction from urban development.

Despite the current condition of the fishponds many of them are in restorable condition and can be a vehicle for providing employment, economic opportunity, fisheries enhancement, education and cultural values for the people of Hawai'i.

There is a growing movement statewide to restore and reuse these cultural treasures. On Maui, O‘ahu and Moloka‘i, community-based organizations have restored a number of the fishponds and once again are cultivating fish and other products in addition to hosting students and visitors interested in these ancient sustainable aquaculture systems. On Hawai‘i Island, fishponds in North Kohala (mostly tied to adjacent resort development) and in Hilo (Waiakea, Keaukaha) have been successfully restored.

The “Nameless” fishpond at Kapoho Bay is a Type I, *loko kuapā*. The *loko kuapā* are the largest, most numerous of the shoreline fishponds and considered the apogee of the Hawaiian aquacultural devices. Unlike a fishtrap, which is open to sea, the *loko kuapā* was a closed and controlled system utilizing solid walls and the development of sluice gates or *mākāhā*. As William Kikuchi noted (1973), the development of the *mākāhā* was the most distinct feature of the Hawaiian aquacultural system; it makes the fishpond more highly efficient as it allowed water to flow in and out of the pond, but kept the fish in. Thus with the development of the *loko kuapā* style fishpond, the ancient Hawaiians leaped from merely catching and trapping fish to growing fish in what amounted to manmade estuaries controlled at all times of the tide—a very advanced and productive form of aquaculture.

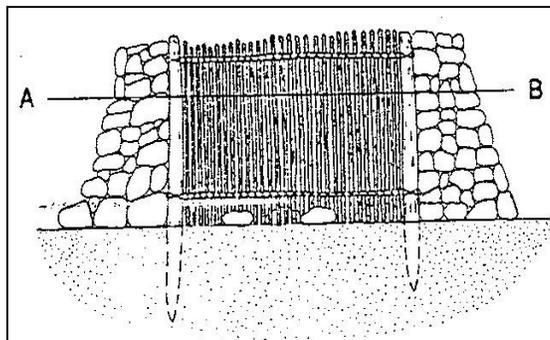


Figure 2:
Side View of *Mākāhā*. Line A-B
Indicates water level (Summers 1964).

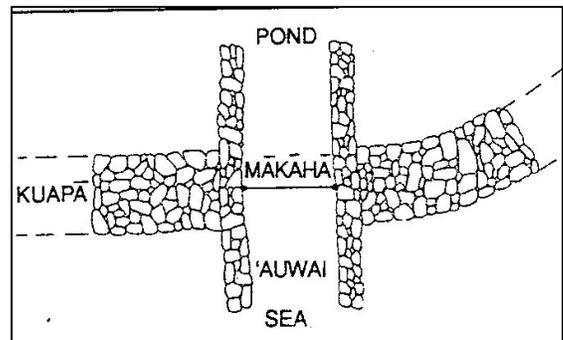


Figure 3:
Top view of ‘auwai o ka *mākāhā*
(Summers 1964).

The *mākāhā* was formed like a lattice, made of sticks vertically aligned and as close as possible, so no fish greater than half an inch in thickness could pass through them, while the water and young fry could pass freely in and out. Traditionally the *mākāhā* were not movable. In post-western contact times, the *mākāhā* evolved to a sluice with double movable grates that permitted trapping a fish between the grates for added convenience.

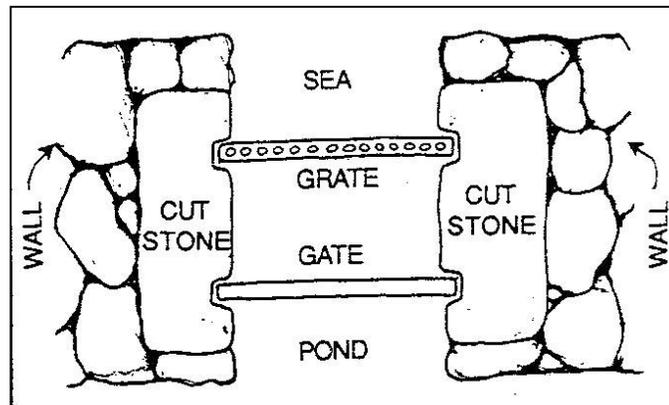


Figure 4: Top view of modern double-grate *mākāhā* (Kelly 1975).

Summers (1964) notes that the location of the *mākāhā* has no correlation to the size of the fishpond. Sluice gates appear to have been placed according to the currents, so to provide for optimum circulation and reducing natural silting (Ibid.).

Kikuchi (1973) surveyed 69 fishponds and found that the number of *mākāhā* ranged from 1 to 7, with 1 and 2 the most frequent number.

The *loko kuapā* wall consisted of basalt, coral boulder and rocks. The walls are double faced with smaller rocks and coral fragments (*'ili 'ili*) used to fill the interior between the inner and outer wall facings. The facing rocks were placed in an interlocking fashion (*ho 'oniho*) to form the two facings of the wall. Kikuchi (1973) noted that fishpond wall lengths varied from 150 feet to 6,300 feet, with the highest frequency between 1,200 and 2,000 feet. The walls of a *loko kuapā* are

not submerged at high tide; the water may approach the top of the wall, but it never covers it completely (Ibid.). Wyban (1995) states that the ancient fishponds have wall facings that are usually one rock thick. A prevalent characteristic of the rock walls was their sloping faces. Kikuchi (1973) notes, that the seaward walls have a larger slope than the inner face. This enabled the wall to withstand wave energy more efficiently. Another technique in the reduction of wave energy is the wall's semi-permeable construction. Fishpond rock walls are solid but porous and do allow for percolation of seawater, allowing wave energy to be absorbed and dissipated.

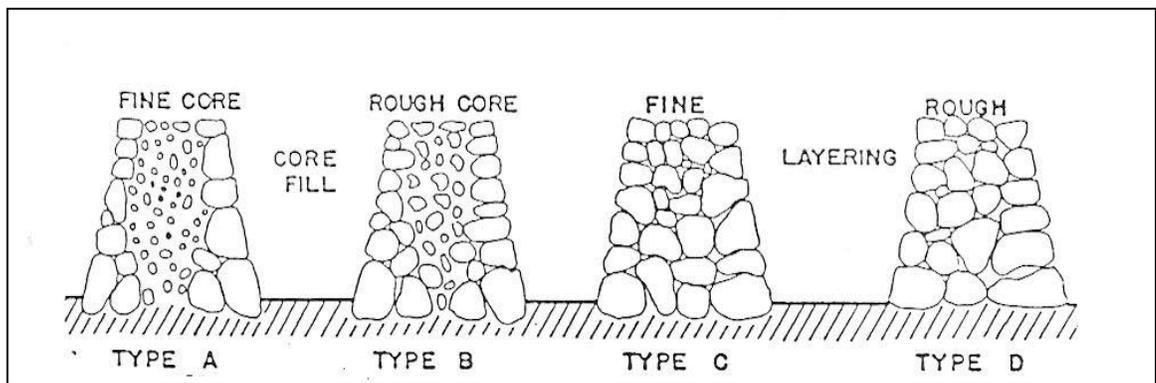


Figure 5: Cross-sections of double-wall construction with fill (Kikuchi 1975).

Hawaiian law has always treated fishponds as private property (Boone v. United States 1989). Hawaii's land laws are unique in that they are based on ancient tradition, custom, practice and usage. In the case of a fishpond, exclusive control of their waters has always been required -- and thus written into Kingdom Law (which continues to this day) -- to insure a productive fishpond.

Fishponds are considered submerged lands and are recognized and treated as having the same rights as fast land (they are associated with a Tax Map Key Number, can be bought and sold, are assessed property taxes, etc). They are the only submerged lands in the State that can be owned by individuals (the State

controls the remainder). In Hawai'i submerged lands are defined as all lands lying between the upper reaches of the waves on the shore and three nautical miles seaward.

In recent years the courts in Hawai'i have only reaffirmed private property rights in regards to fishponds. In two cases the courts ruled that even though the fishpond walls were passable at high tide the submerged lands enclosing them are private property (Boone v. United States, 44 F.2d 1489 [9th Cir. 1991]; Kaiser Aetna v. Unites States [1979]).

2.2 PROJECT PURPOSE

The objective of the proposed project is the repair, restoration and maintenance of “nameless” fishpond at Kapoho for historic and cultural preservation purposes and to serve as a marine sanctuary.

2.3 LOCATION

“Nameless” fishpond at Kapoho is located along the shoreline of Kapoho Bay, Kapoho Ahupua‘a, Puna District, Hawai‘i Island. It is a *loko kuapā* type pond. It is identified as Tax Map Key (TMK) number 1-4-02: portion of 36. Unlike most historic fishponds, this fishpond has no known name attached to it. Long time residents in the area refer to it as “The Old Lyman Pond,” a reference to the Lyman family who constructed the fishpond and had a home on the property for many years. For the purposes of this Environmental Assessment, the “Nameless” fishpond at Kapoho will be referred to as Kapoho Fishpond.

2.4 EXISTING USE

The subject property consists of the fishpond of about four acres in size and surrounding land of about 13 acres. The fishpond has deteriorated;

walls are damaged by the forces of nature and altered by man. The fishpond basin waters *mauka* inland and adjoining land are heavily inundated with mangrove. The fishpond is not actively being used. The land is undergoing improvements based on a SMA Permit dated 2/15/05 and associated building permits that include: mangrove eradication by hand along the shoreline area, landscaping, fencing, a new gate and rock wall entrance, and construction of 1,600 square foot single-family dwelling (A copy of this permit is found in Appendix C).

2.5 LAND USE ZONING

State Land Use Classification: Conservation, sub zone: Resource.

County Zoning: N/A. Conservation Lands fall under State jurisdiction. Adjacent land zoned RS-10 (Single-family Residential).

Special Designations: Shoreline Management Area (SMA). This fishpond is located outside State shoreline boundaries thus SMA rules do not apply.

2.6 ACCESS

The property is apart of the private gated community of Kapoho Beach Lots. Landward access to the fishpond is from the north, as the southern and western portions of the fishpond shoreline are inundated with mangrove. The Applicant owns the fishpond wall, the submerged lands within the fishpond wall and all of the shoreline surrounding it. There is no public access to the fishpond or to the adjacent shoreline from the land. The nearest access path to the shoreline is four houses (100 yards) to the northeast of the subject property. That access lies within the subdivision. The nearest public access to Kapoho Bay is from Lighthouse Road, at the northern end of the bay.

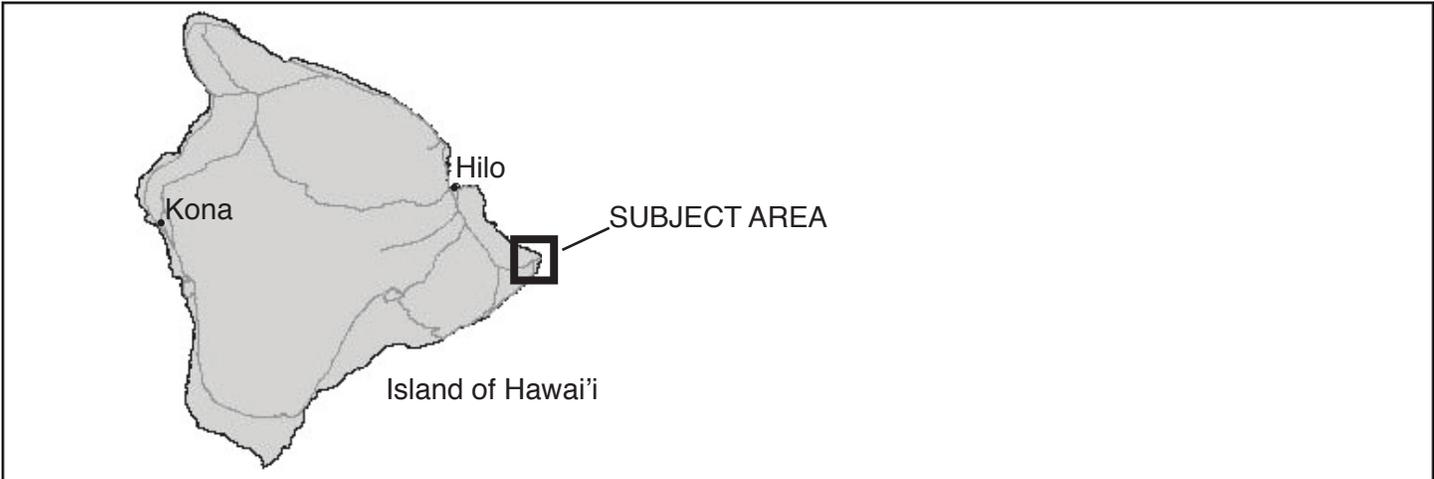


FIGURE 6
REGIONAL LOCATION
 Puna District, Hawai'i Island
 Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

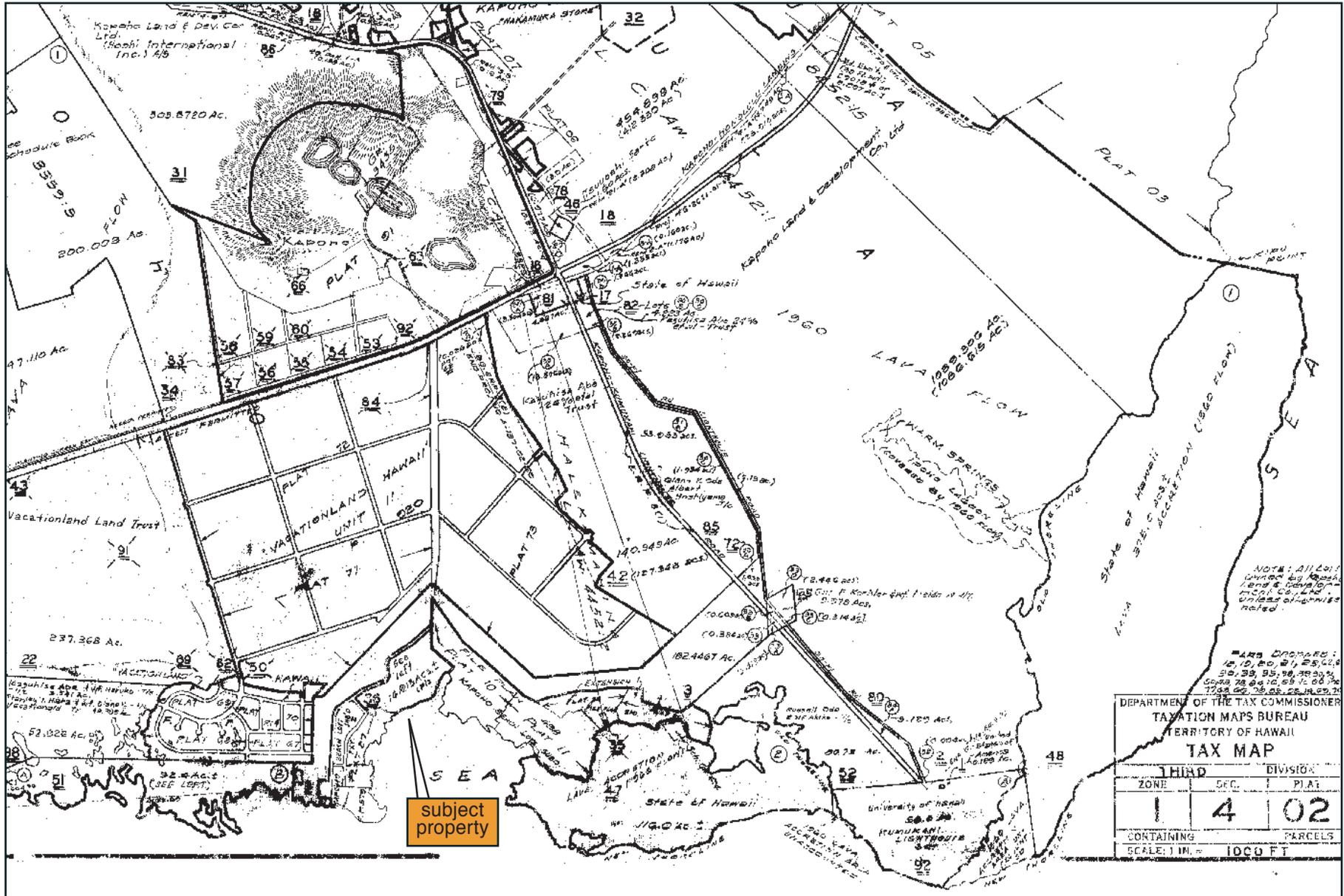


Figures 7 & 8. Aerial View of Southern Kapoho Bay and Close-up of Subject Fishpond at High Tide (Brian Powers/Hawaiian Images Photography).





Figure 9. Aerial View of Kapoho Fishpond Circa 1970. Note intact wall and islets that are now covered in mangrove (Ford 1973).



NOTE: All calls
 United by Special
 Land & Development
 Co. Ltd.
 United otherwise
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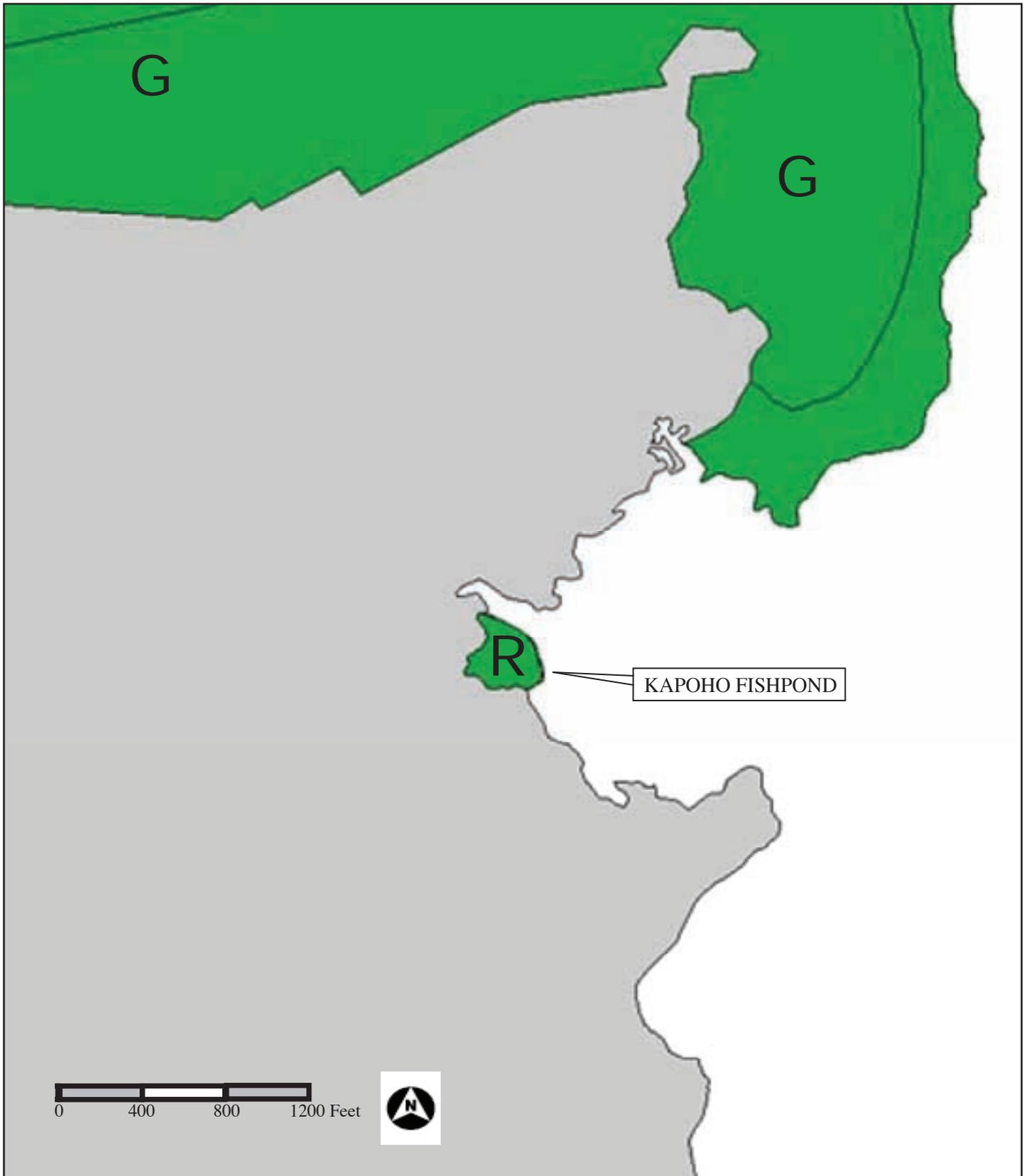


FIGURE 11
 STATE LAND USE DISTRICT BOUNDARIES
 Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i
 Farber & Associates Planning Services 8/2007

KEY	
	CONSERVATION LANDS
	R - Resource
	G - General



FIGURE 12

County of Hawai'i Zoning (SFR - RS-10)

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project

Kapoho, Puna, Hawai'i

Farber & Associates, 8/2007.



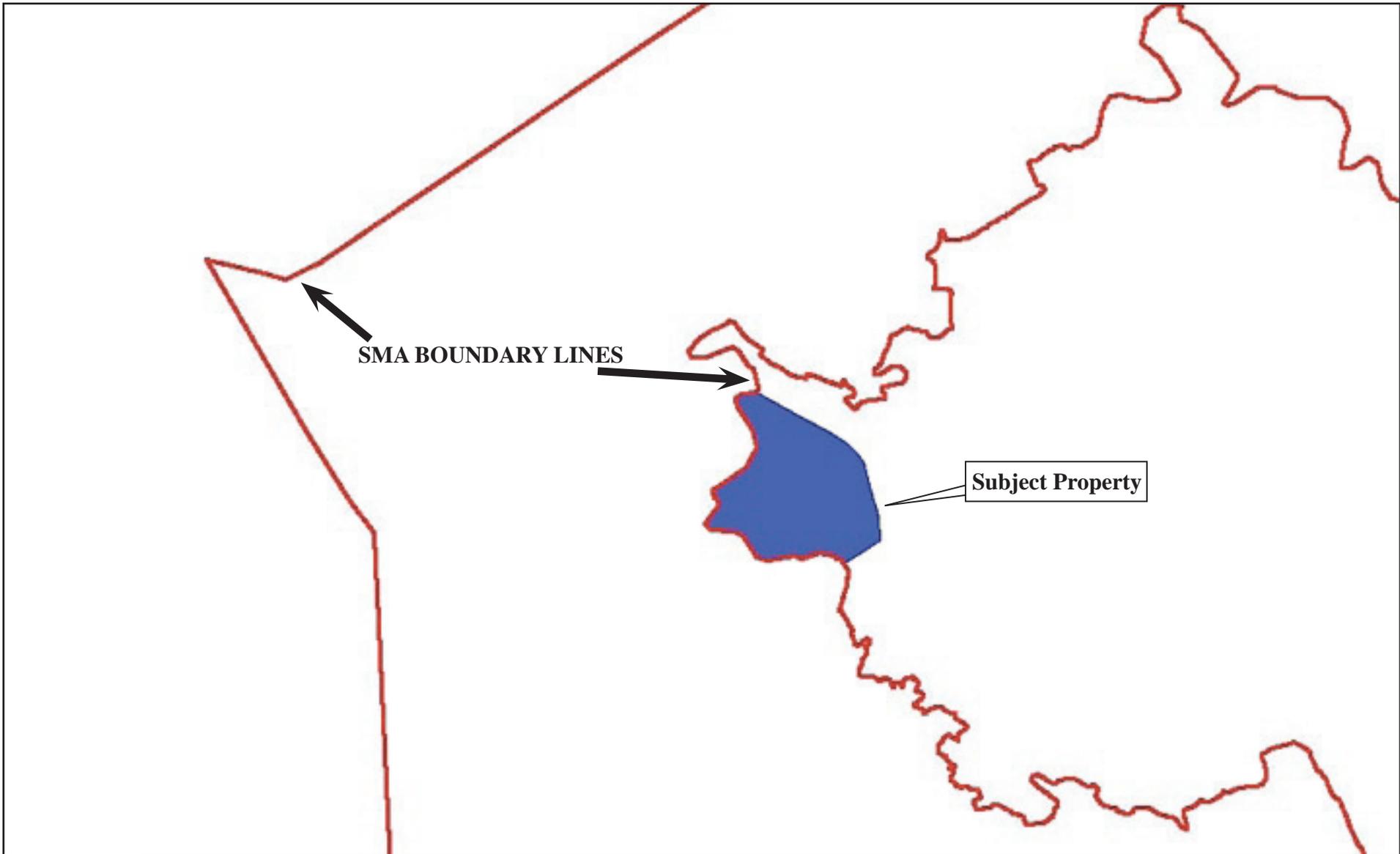


FIGURE 13

Shoreline Management Area (SMA) Boundaries

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project

Kapoho, Puna, Hawai'i

Farber & Associates, 8/2007.



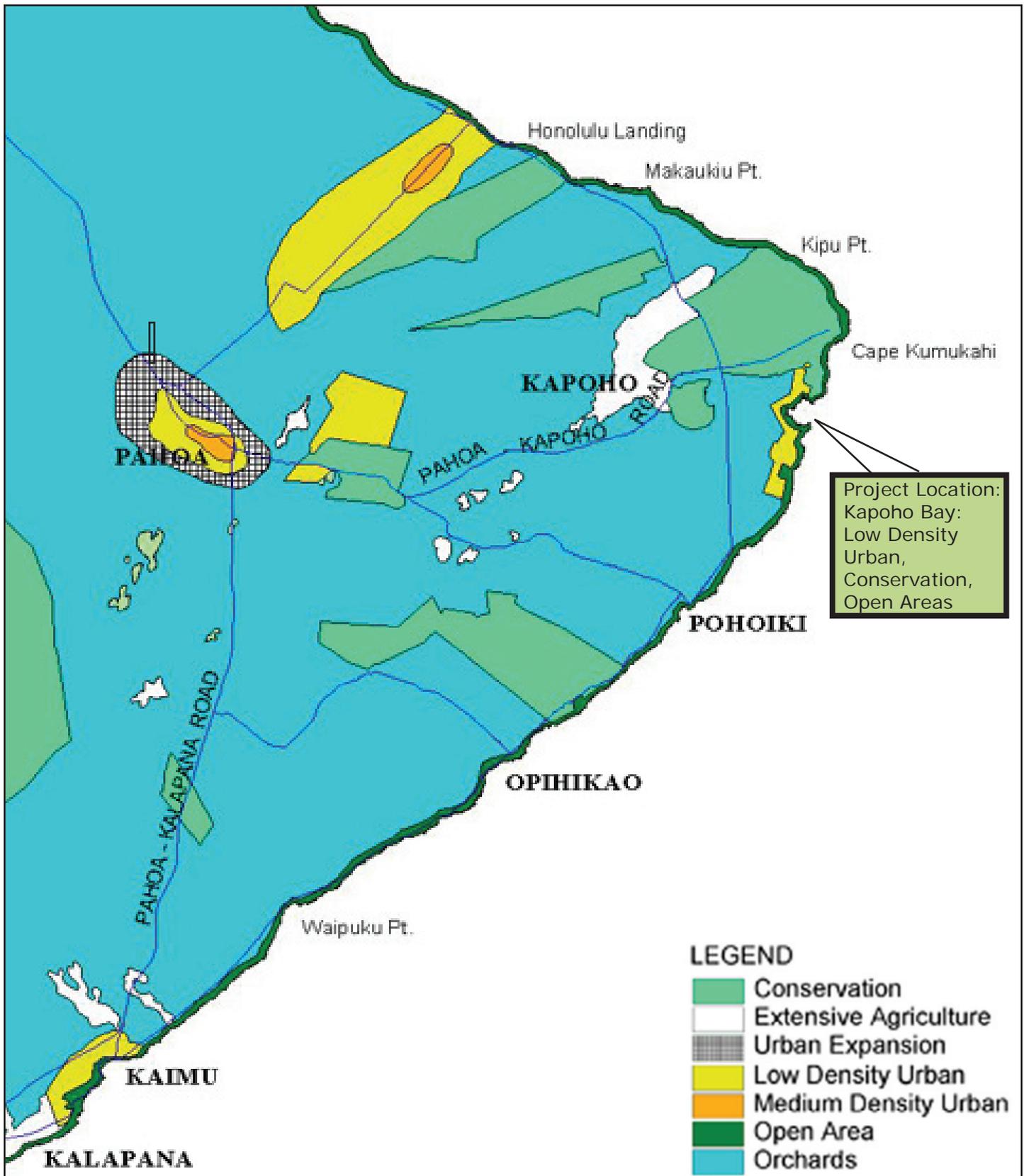


Figure 14
 Land Use Pattern Allocation Guide Map, General Plan
 Source: County of Hawai'i

KAPOHO FISHPOND RESTORATION PROJECT
 Kapoho, Puna, Hawai'i
 Farber & Associates, 8/2007.

3. PROPOSED PROJECT AND ALTERNATIVES CONSIDERED

3.1 PROPOSED PROJECT

The Applicant is proposing to restore and rebuild the historic fishpond at Kapoho Bay.

Restoration and rebuilding involves:

- The repair of the fishpond wall and *mākāhā* (sluice gate);
- Periodic post-repair maintenance of the wall and basin.

The proposed project will produce a continuous fishpond wall approximately 1,250 feet in total length; an average wall height of 6 feet; a base width between 10 and 12 feet tapering to a crown width of 5 to 6 feet. The restoration will follow the original wall alignment. The slope of the outside wall will be approximately 20 degrees, the inside wall slope approximately 15-10 degrees.

The majority of the stones to rebuild the wall are available onsite (on the existing fishpond wall footprint, immediately adjacent to the pond wall and within the fishpond basin). Addition stones to complete the wall will come from local quarries.

The existing *mākāhā* is in excellent shape a result of having been reinforced with concrete. The excellent condition of the *mākāhā* and adjoining walls provide valuable information as to the original wall dimensions and style. This information will be used as the template to replicate how the wall will be rebuilt. The intact *mākāhā* dimensions are 5 feet high, base of about 10 feet wide, crown 5.5 feet wide (see pictures page 35).

Terms Defined. Restore and rebuild refer to the physical aspects of the project proposal and are definitions adapted from Carol Wyban and her plan for the restoration of Kahana Fishpond, O‘ahu (Wyban 1995):

Restore: refers to rebuilding a site to replicate a physical state duplicating a previous period in history.

Rebuild: refers to build and reinforce the physical integrity of a site. Features of the design may differ from those of previous history due to environmental changes within the fishpond and adjoining areas.

Restore and rebuild Kapoho Fishpond will involve the following actions:

1. The physical retrieval, movement and alignment of wall foundation rocks from within the pond basin and along the original wall footprint using manually operated equipment, i.e. 'ō 'ō [spade], cargo nets, floating flatbed pontoon;
2. The manual movement of 'ili 'ili (smaller rocks, pebbles, loose coral) within the fishpond basin;
3. Restore and rebuild the fishpond wall using the existing onsite rock and 'ili 'ili, in the traditional method of dry-stack rock wall construction without mortar, *uhau humu pohaku*. Additional rock needed to complete the wall will come from local quarries and be of the same general size found at the fishpond wall.
4. The existing alignment and wall design will be followed and replicated. Where there is little or no wall footprint or foundation stones, the wall will be rebuilt in similar design and boulder size consistent with archaeological findings and the surrounding fishpond wall.
5. Periodic post-construction maintenance activities include the manual replacement of wall stones dislodged as a result of heavy surf action, and the manual removal mangrove and other invasive species from within and surrounding the fishpond basin.

The proposal takes historical and cultural issues into consideration. To assure authenticity, the Applicant has had an underwater archaeological survey conducted on the pond (see Appendix A: Archaeological Survey), oral histories recorded (see Appendix B: Cultural Impact Assessment) and historic photos of the fishpond have been referenced.

The Applicant is committed to restoring and rebuilding the fishpond in a condition replicating, as closely as possible, a period when the fishpond was a working and productive fishpond. However, recreating the past is not entirely practical due changes in the physical environment.

Due to a series of earthquakes (1954, 1975, 1989) the Kapoho Bay region has sunk, resulting in the intact *mākāhā*, representing the original height of the wall, to be submerged at medium-high tide. People who remember the fishpond before the big earthquakes (particularly before the 1975 episode) clearly remember the wall and *mākāhā* being, “always out of the water, even at the highest of tides.” Thus wall will be rebuilt one-foot higher than the *mākāhā* (the height of the original wall) to compensate for the subsidence.

The wall will be rebuild at a uniform height of six feet, which relative to the tidal range, is about the 2-foot high tide mark. In this region the highest tides top out at about 2.3 feet ht. and average high tides about 2 feet ht. Mean tide level is 1.1 feet.

The majority of rocks to rebuild the wall are found immediately adjacent to the fishpond wall footprint. However, to raise the wall to the proposed uniform height of 6 feet, we estimate a one-foot cap of additional rocks along the length of the wall will be needed. This calculates: 1,250 foot wall length x 5.5 ft. wall width x 1 ft. height = 6,875 cubic ft. (255 cubic yards) of additional rock. The additional rock will be purchased from a local quarry, and will be of the same uniform size as the existing rocks. The rocks will be washed and clean of any excessive dirt and/or debris at the quarry, *before*, being trucked on-site. To minimize stockpiling, rocks will be brought



SITE PLAN

Kapoho Fishpond. Size: 4.3 acres, wall length 1,250 feet.

Purpose: Restore and rebuild the fishpond wall for historic and cultural preservation and to serve as a marine sanctuary (a no fishing zone).

Method: By hand following the existing wall alignment and design, uhaū humu pohaku, the traditional mortarless dry-stack rock wall style.

Dimensions: 6 feet tall, base width 10 -12 feet, crown width of 5 to 6 feet. All rocks to rebuild the wall are available on-site.

On-going maintenance includes manual removal of mangrove from within and surrounding the fishpond basin (green areas).

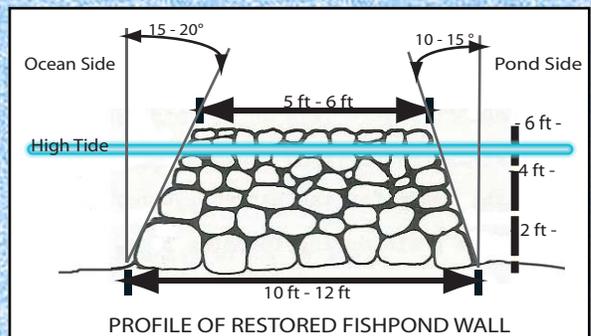


FIGURE 15 - SITE PLAN
 Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

Base Map Source: R.M. Towill Corp.
 Farber & Associates 8/2007

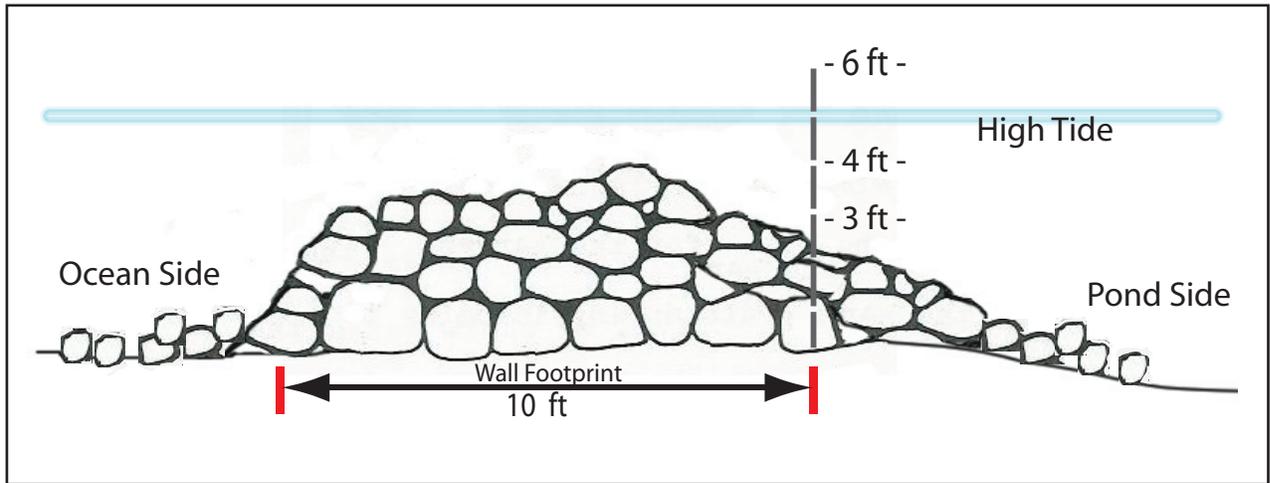


Figure 16. Kapoho Fishpond . Cross-section of Existing Wall.

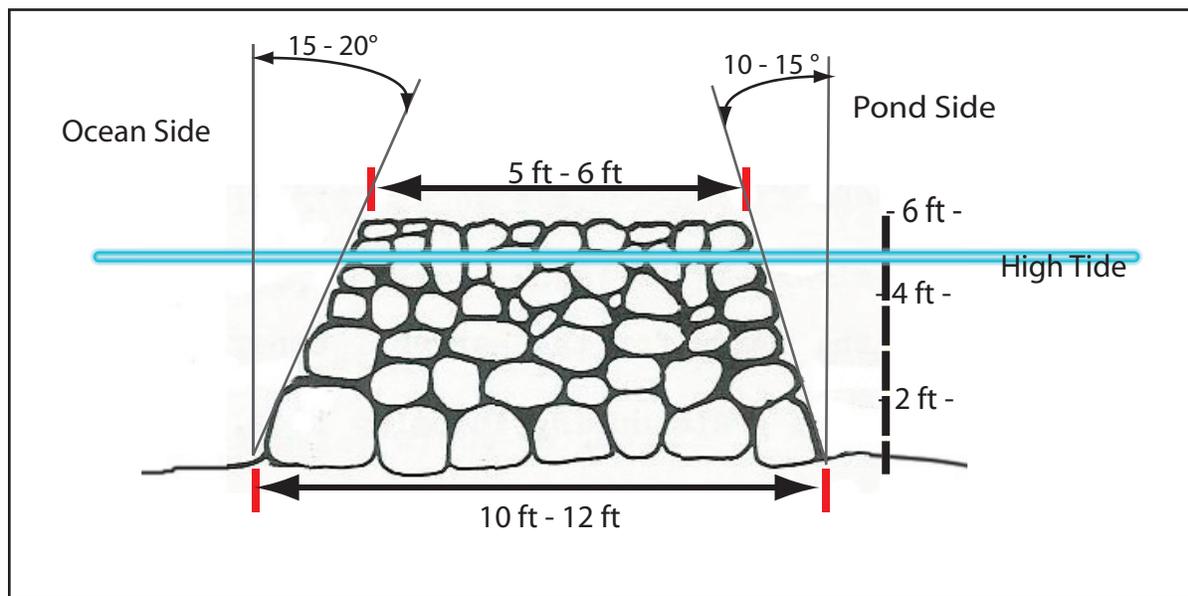


Figure 17. Kapoho Fishpond . Cross-section of Restored Wall.

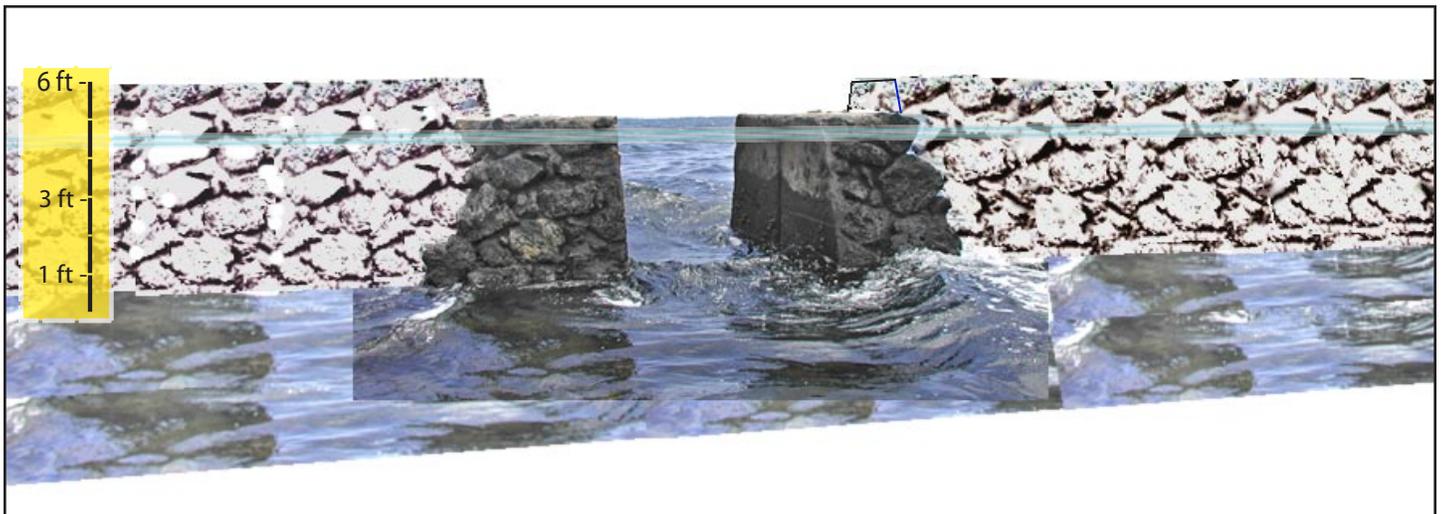


Figure 18. Kapoho Fishpond . Restored Wall at Mākāha Looking Makai. Note that the wall will be rebuilt one foot higher than the existing mākāhā to assure the wall will be exposed at high tide (blue line is approximate high tide).

in as needed, in truckloads of about 16 cubic yards each. The rock will be brought out to the wall via a, non-motorized, 8ft x 12 ft floating pontoon platform and placed on the wall by hand.

3.1.1 WORK SCHEDULE

Restoration work is anticipated to begin once all of the required Federal, State and County permits have been issued. The work is anticipated to take approximately 12 months to complete. Labor will come from a core group of paid experts. There will be minor short-term construction related impacts to the surrounding environment. These impacts and the standard mitigation measures to control these impacts are described in Section 4 (page 29) of this report.

3.1.2 COMMUNITY SUPPORT

Oral histories and interviews have been conducted (see Appendix B: Cultural Impact Assessment). Those asked during the course of the interviews are in agreement that a rebuilt fishpond would be a positive for the Puna area as there are relatively few historic and cultural resources in the area.

3.2 ALTERNATIVES CONSIDERED TO PROPOSED ACTION

The restoration of Kapoho Fishpond as proposed in this Final Environmental Assessment is the most appropriate action for this site. Alternatives considered during the planning of this project include:

1. Alternative reconfiguration – restore the fishpond wall following the existing footprint and *mākāhā* “as is;”
2. Alternative Use - Restore the fishpond for aquaculture use;
3. Alternative Purpose – Restore the fishpond for commercial purposes;

4. No Action Alternative – no alteration or modification to Kapoho Fishpond.

3.2.1 Alternative configuration

Restore the fishpond wall following the existing footprint and wall dimensions based on the original *mākāhā*. This alternative would restore the wall to a height of approximately 5 feet, which would result in the wall being submerged at medium-high tide. To function properly, *loko kuapā* styled fishpond walls were designed to be above water at all but the most extreme (spring) high tides. Thus, for all the effort of restoring the wall, this alternative would result in the fishpond not functioning in the manner in which it was originally designed. The proposed wall configuration is a reasonable compromise between creating a functioning fishpond with a protected body of water for fish and other aquatic life to develop and grow and the resources in terms of rocks and manpower to rebuild the wall. Fishpond walls were never absolutely sealed; they were designed to be somewhat porous, to relieve the pressure of tides and surf action and to allow the movement of some aquatic life to pass in and out.

3.2.2 Alternative Use

Restore the fishpond for intense aquaculture use. Kapoho Fishpond, relatively speaking, does not have the potential production capacity to be a viable aquaculture facility. Most traditional Hawaiian fishponds such as this are considered extensive aquaculture systems whereby they require minor inputs in terms of maintenance and oversight and have low fish yields over a relatively large body of water – they are a step above the production yields of natural fisheries. The fishpond is seen as an amenity for the owner and as a sanctuary (a no fishing zone) for marine life that would help restock the depleted fisheries of Kapoho Bay.

3.2.3 Alternative Purpose

Restore the fishpond for commercial purposes. Reusing the site as a commercial

venture through reuse as an aquaculture facility, tourist site or recreational venture. Such an alternative would be antithetical to this area and its existing land use zoning of single-family residential.

3.2.4 No Action Alternative

No alteration or modification. This fishpond is presently deteriorated; due to the forces of nature, alterations by man and general neglect which have damaged the walls. This is atypical of the coastal fishponds found throughout the state that have not been maintained. Yet, relative to many of the coastal fishponds, the wall is intact and restorable. While the walls have deteriorated, the outline (footprint) of the pond is clearly visible, the *mākāhā* is in excellent condition and most of the rocks needed to rebuild are within the general vicinity of the original wall and on the subject property. Restoring this pond now is a comparatively reasonable undertaking in terms of costs, time, organizational capacity, labor, materials and environmental impacts.

The No-Action alternative will result in the further deterioration of the fishpond wall. With a No-Action alternative, the eventuality of time- the tides and currents, storm and human activity in this dynamic ocean environment would further deteriorate this pond, making the probability of it ever being restored less likely. It will contribute to the loss of the site's cultural and archaeological value. Furthermore, with No-Action, the integrity of the wall will be lost to future generations and makes any future revitalization efforts increasingly unlikely due to the increased costs to restore because of the additional deterioration. Thus ultimately, no action is to knowingly destroy this historic and cultural resource.

4. DESCRIPTION OF THE EXISTING ENVIRONMENT, POTENTIAL IMPACTS AND MITIGATING MEASURES

4.1 Physical Environment

4.1.1 Land Use

Existing Conditions.

Location. The subject fishpond is located at Kapoho Bay, which is immediately south of Cape Kumukahi, the easternmost point on Hawai'i Island. It lies within the district of Puna. The Puna area is characterized as rural, set amid the Puna Rainforest, costal strand and volcanic activity with a patchwork of agriculture lands and single-family home subdivisions. Kapoho Bay is 29 miles (20 nautical miles) south east of Hilo, the county seat and nine miles from the small town of Pahoā.

Kapoho Bay is reached via the Kapoho-Kalapana "Red" Road (county route 137) the two-lane principal road along the Big Island's southeastern coast.

The Kapoho area is unique in the Hawaiian Islands. The area lies within the very active East Rift Zone of Kilauea volcano. In January 1960, volcanic activity destroyed the village of Kapoho and Koa'e, created 3 miles of new shoreline and half a square mile of new land was added to Cape Kumukahi. Seismic conditions within the Zone have resulted in both episodic and continuous subsidence at Kapoho, estimated at about 0.08 to 1.7 centimeter per year (Brooks 2006).

The subject property is just *makai* (seaward) of the former village of Kapoho within the subdivision of Kapoho Beach Lots, a gated community of single family homes developed in the 1950's. The land is zoned Single Family Residential R-10, with many unimproved vacant lots. The homes are a mix of

permanent residents, second homes and vacation rentals. The homes in the area are situated atop a low lava flow that in many places is barely above sea level and is pitted with many saltwater filled depressions. Many of the larger pools are backyard fishponds and swimming holes. Some of these ponds are fed by fresh geothermically heated springs, and two of the most popular public ponds, Champagne Pond and Millionaires' Pond, are famous for their year-round water temperatures of 90 and 98 degrees, respectively. The subject property is south of these ponds, toward Kapoho point. The fishpond occupies the inner southern portion of the bay.

Property Description. The subject property consists of the fishpond enclosing about four acres of water and surrounding land of about 13 acres. The fishpond is sited on the southeastern corner of the parcel on an inshore-submerged *pahoehoe* lava platform that has been historically modified as a *loko kuapā* (solid wall) styled fishpond. The fishpond has deteriorated; walls are damaged by the forces of nature and altered by man. The fishpond basin waters *mauka* inland and the adjoining land are heavily inundated with mangrove. This shoreline fronting the fishpond is irregular with numerous inlets and small islands.

The land portion of the subject property is undergoing improvements based on a SMA Permit dated 2/15/05 and associated building permits and includes: mangrove eradication by hand primarily along the northern shoreline area, landscaping, fencing, a new gate and rock wall entrance, and construction of 1,600 sq. ft. single-family dwelling (A Copy of this permit is in Appendix C).

Fishpond Description. The fishpond is delineated on its *makai* (seaward) side by a deteriorating 1,246-foot long wall that encloses about 4.3 acres of water, depths of which range from 3 to 5 feet. The first 75 feet of the wall, from the north curving around to the south, is in poor to fair condition, a broad flattened wall with rocks scattered along both sides of the original fishpond wall's

footprint at a width of about 27 feet. The next portion of the wall to the *mākāhā* is in good condition with a width of just over 5 feet at the crown and about 10 feet at the base. Wall height is about 3 feet at the low water marking. The facing on seaward portions of the rock wall here are in good condition. Rocks are scattered about 3 feet out from the footprint on both sides. The opening in the wall is an intact *mākāhā* of basalt rocks reinforced with concrete. The *mākāhā* has a base width of about 10 feet tapering on both sides to a crown width of 5.5 feet. It is 5 feet high. The height of the wall on both sides of the *mākāhā* is about 3 feet. From the *mākāhā*, the remaining southern portion of the wall is in poor condition with rocks scattered along the footprint of the wall and on portions of the reef and rock outcroppings. This condition can be attributed to the fact that this portion of the wall lies furthest *makai*, seaward, and closest to edge the reef flat, thus it is exposed to more wave energy and currents relative to the rest of the wall. The wall footprint ends into a thick grove of mangrove.

The entire fishpond wall and *mākāhā* are submerged at medium-high to high tide. For the wall, much of this condition can be attributed to the ocean waves and storm surges that the fishpond are exposed to, and as a result, have scattered the wall stones. As for the intact concrete-reinforced *mākāhā*, the probable explanation for its submerged state is due to the episodic and continuous subsidence along this area of the East Riff Zone. For instance the November 1975 earthquake caused coastal subsidence as high as 3.5 meters at Keahou landing to .24 meters at Kapoho (Hwang 2007). Continuous subsidence at Kapoho is estimated at about 0.08 to 1.7 centimeter per year (Ibid.).

The fishpond bottom is solid *pahoehoe* type lava. There appears to be no sediment or soil within in the fishpond basin.

Note that there are numerous submerged remains of other wall alignments adjacent to the relatively intact main fishpond wall (these remains can be seen in the aerial picture, figures 7 and 8, page 13). This indicates the probability that the existing fishpond wall alignment has been modified over time and or may

have been apart of a larger complex of fishponds.

Construction. Where the wall is in fair condition, particularly along the outer wall face, construction is of a double layer angular basal facing. The inner wall facing is less intact. However, in both cases the rocks used for the pond wall facings are about 15-27 inches in diameter. The wall fill contains both similarly large boulders and many smaller stones and cinders.

Access. The Applicant owns the fishpond wall, the submerged lands within the walls and all the shoreline surrounding it. Access to the fishpond is from the north, as the southern and western portions of the fishpond shoreline are inundated with mangrove. There is no public access to the fishpond or adjacent shoreline from the land. The subject property is in the private gated community of Kapoho Beach Lots.

Potential Impacts and Mitigating Measures.

The proposed restoration of Kapoho Fishpond will not change the existing land use of the site. The property use will remain primarily as a single-family residence. The fishpond will be used passively, not as an aquaculture venture, but as a marine sanctuary and nursery for the larger (over fished) waters the adjacent Kapoho Bay. The *mākāhā* will not be gated to allow for the free movement of marine animal sea life into and out of the fishpond.

The fishpond will physically change from a derelict and deteriorating historic fishpond with damaged walls and extensive mangrove inundation to that of a rebuilt and restored fishpond wall and basin and the shoreline around the fishpond cleared of mangrove. The fishpond will be a marine reserve helping rejuvenates the nearly fisheries stocks and be a cultural resource, a source of historic preservation and cultural pride.

The adjacent land uses as will not be affected by the proposed project. As the property is developed, primarily a private single-family residence, access to the

Three Views of Fishpond Wall Moving from North to South at Low Tide.



Fig 19. Beginning of Fishpond Wall at Northern End Where it Meets the Shore-line.



Figure 20. Next Portion of Wall Moving South. This section of the wall is the best preserved. Note the uniformity of the outer wall line.



Figure 21. Wall with Mākāhā in the Background. This Section of wall is exposed to high wave energy thus many of the wall stones are found inside the fishpond basin. The horizontal rock formation in the background right before the makaha is exposed reef.



ROCK WALL DETAILS

Fig 22. Outside Wall Facing. Note wall angle and alignment relatively intact.

Most of the fishpond wall is 3 to 4 feet high. The wall is proposed to be restored and rebuilt at a uniform height of 6 feet.



Figure 23, left, Inside Wall Facing. Inside wall alignment much less defined than outer wall. Many of the rocks have tumbled off the wall and are in the fishpond basin due to storm surges and wave action.

Figure 24, right, Wall Footprint, Outside. Numerous wall rocks are scattered about three feet on both sides the fishpond wall. These rocks will be reused to repair the wall.



MĀKĀHĀ DETAILS



Fig 25. Mākāhā at Low Tide. Note at high tide mākāhā is completely submerged.



Figure 26. Detail of Northern Mākāhā.



Figure 27. Detail of Southern Mākāhā.



Fig 28. View of Fishpond Waters Looking West from the Makaha. Note extensive mangrove infestation in the foreground. Applicant's home is just barely visible on the far right.



Figure 29. Interior of Fishpond Basin, North West Corner. The peninsula in the foreground has been cleared of heavy mangrove infestation. The fishpond wall is just visible in the background (arrows).



Figure 30. Back of Fishpond. Fishpond basin west end. Percolating springs are visible in this area of the fishpond basin. Note western property line delineated by chain link fence (right above gentleman's hat).



Figure 31, above, View of Mākāhā and Southern Portion of Fishpond Wall. Inside wall footprint is discernible as an arch containing the calm waters of the fishpond basin (yellow line). The southern terminus of the wall is at the edge of the mangrove (arrow).

Figure 32, below, View from the Southern Terminus of the Wall towards the mākāhā. Wall is in poor condition due to exposure to heavy wave energy and currents.



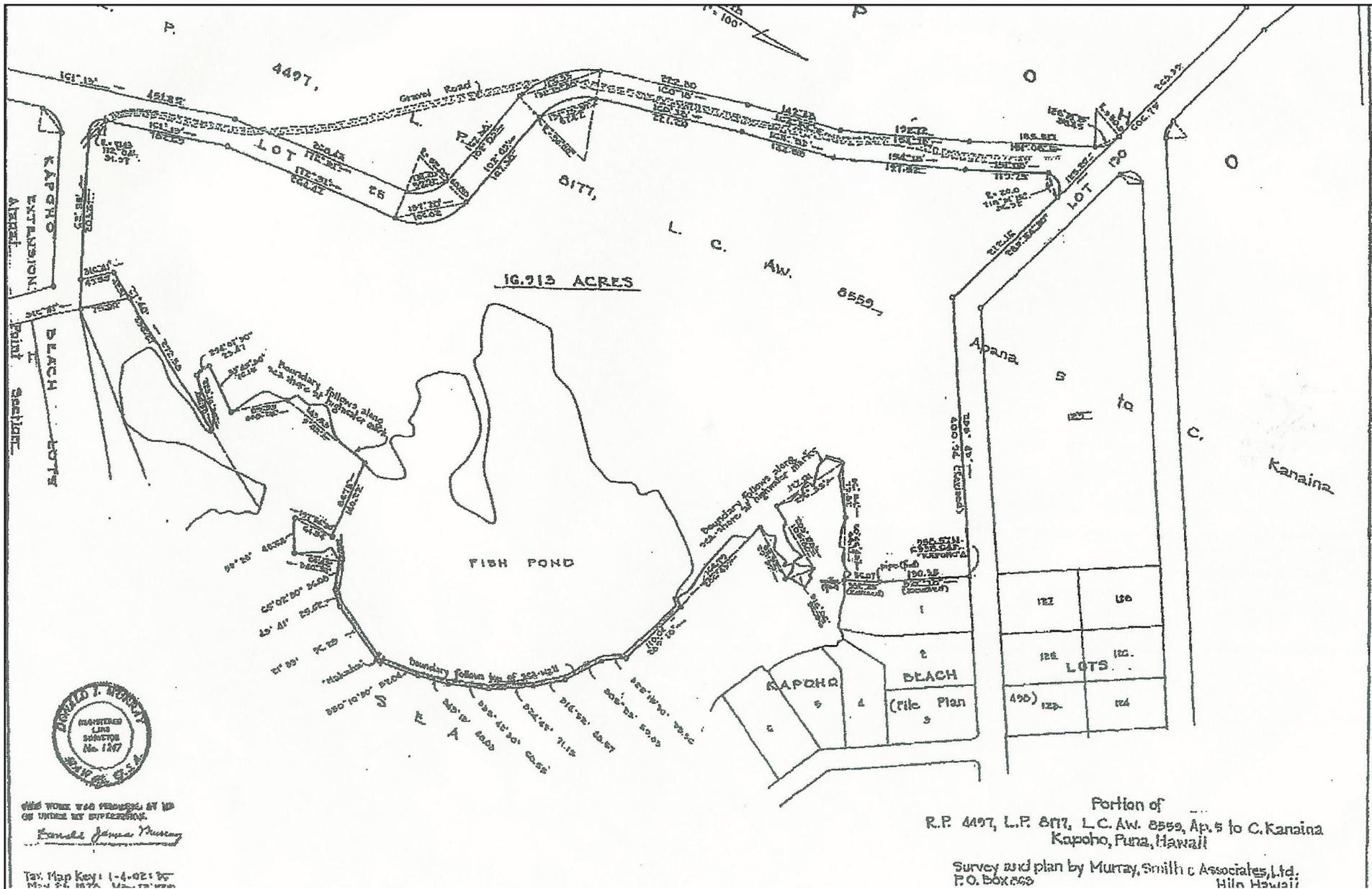


Figure 33
 Land Survey TMK: 1-4-02-36
 Source: Murray, Smith & Associates. Ltd. Hilo, Hawaii.
 Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

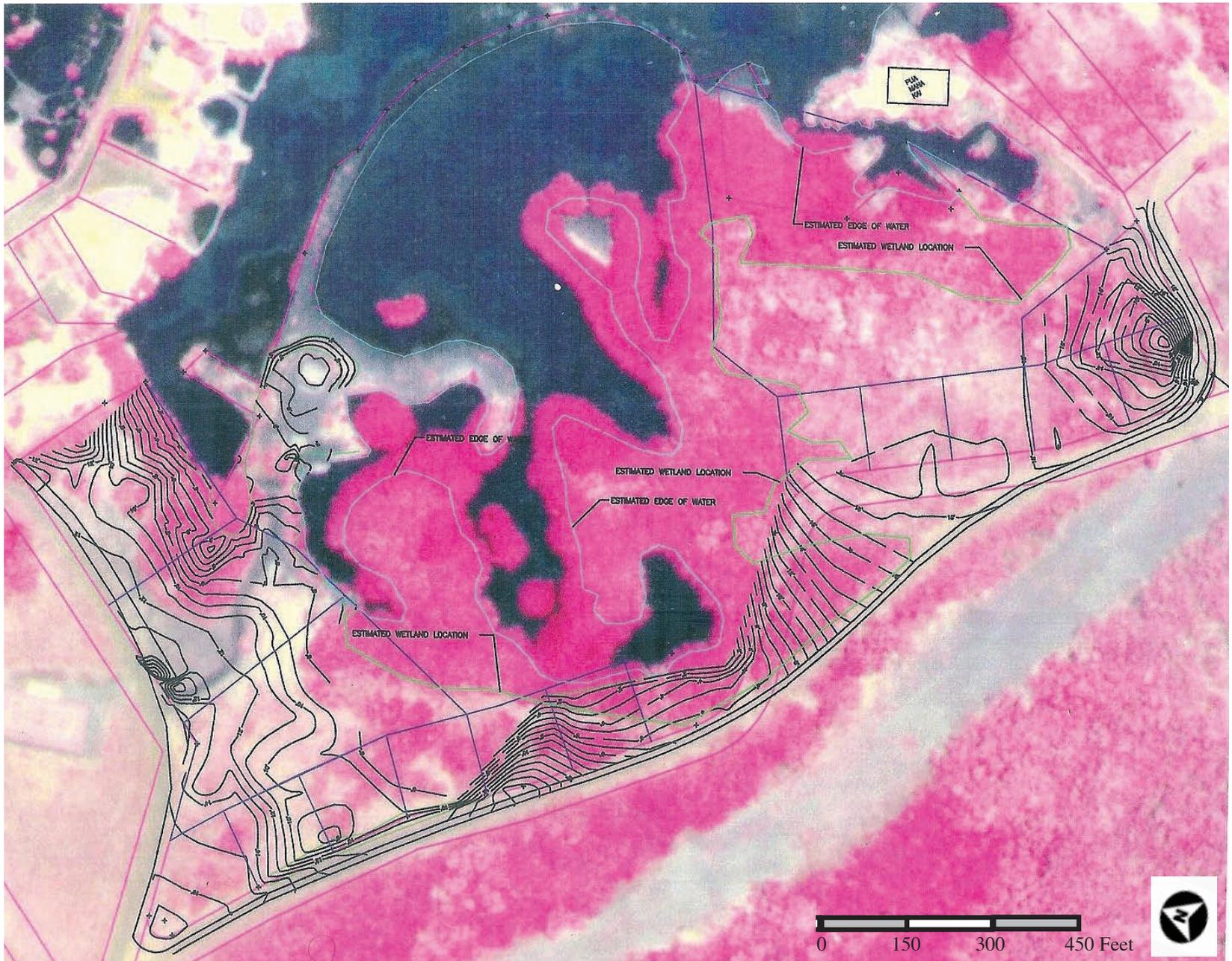


Figure 34
 Shoreline Survey and Topographic Map
 Source: R.M. Towill Corp.
 Farber & Associates, 8/2007.

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site will remain as it is and be at the discretion of the owners.

4.1.2 Topography and Bathymetry

Existing Conditions.

The topography of the site is that of a relatively flat coastal plain. The land area surrounding the fishpond is low lying with minimal slope comprised of *pahoehoe* lava formations, basalt rocks and boulders. The soil is very thin if any (mostly on the north and west portions of the property) but the area is well vegetated. The soils in this area are described as either fragmented *a‘a* lava (Malama extremely stony muck) or *pahoehoe* lava bedrock (Opihikao extremely rocky muck) (U.S. Dept. of Agriculture 1973).

Elevations vary from 0 to 20 feet above mean sea level. The terrain across most of the property slopes gently upward from east to west. Due to the continuous subsidence along this area of the East Rift Zone, it is estimated the Kapoho area is subsiding about 0.08 to 1.7 centimeters per year into the ocean (Brooks 2006). Please note topographic relief map, figure 34, page 39.

The shoreline where the fishpond is located is the inner portion of Kapoho Bay and irregular-- consisting of a series of natural ponds, inlets and coves. The inter-tidal zone along most of the pond's shoreline is heavily inundated with Red Mangrove (*Rhizophora Mangle*). The exception to this mangrove inundation is along the northern portion of the shoreline where a series of tide pools, ponds and a cove are located and are adjacent to the Applicant's single-family home, built in 2006. The entire inter-tidal zone is comprised of basalt rocks, boulders and outcroppings of the smooth solid *pahoehoe* type lava. There is no sand or beach along Kapoho Bay.

The bathymetry of the fishpond basin ranges from approximately 4 feet to 6 feet. Water depths *makai* seaward and immediately adjacent to the fishpond wall average 3 feet to 8 feet. The fishpond basin is a relatively uniform shelf of

smooth solid pahoehoe type lava, small rocks, sand, turf algae, crustose (coralline) algae and minute amounts of live lobe coral (*Porites lobata*).

Potential Impacts and Mitigating Measures.

The topography of the upland areas adjacent to the proposed project site will not be affected. Mangrove removal by hand is ongoing at the site. Mangrove removal will increase the usable area of fishpond waters and areas of land around it. It will also increase the movement of water within the fishpond. As the entire site is comprised of basalt boulders and solid lava, mangrove removal will not result in any erosion or sediment transport or change in the topography of the area.

Repositioning the scattered fishpond wall stones will increase the depths of the fishpond basin about 4 feet in the areas just *mauka* landward of the wall footprint. As the fishpond basin is comprised mostly of solid lava and small rocks, the proposed project will not result in any erosion or sediment transport or change the bathymetry of the area.

4.1.3 Hydrology

Existing Conditions.

The Hydrology of the Kapoho area is of unique interest. The entire East Rift Zone (ERZ) of Kilauea Volcano is known as a thermal groundwater area (Geography of Hawai'i 1998). The subject property is immediately south of geothermically heated springs, two of the most popular of these public ponds, Champagne Pond and Millionaires' Pond, are famous for their year-round water temperatures of 90 and 98 degrees, respectively. Other warm springs dot the coastline in the surrounding area and about five miles *mauka* from the subject property, geothermal fluids have been produced for electrical power generation.

Basal ground water discharges at or below sea level are numerous in places

along this coastline including the subject property. Basal ground water is found in wells, at springs along the coast at low tide, or where features such as cracks have exposed the water table. At coastal discharge points, basal water is brackish. On the far landward side of the fishpond basin, fresh water seepage can be observed during low tide periods (see photo, Figure 30, page 36).

The entire ERZ is within the trade wind-driven rainfall area, and rainfall is uniform at 3,000 mm/year along most of the length of the rift (U.S. Geological Survey 1995). Yet, because the rock in the area is primarily tholeiitic basalt, which is highly permeable, perennial surface water in the area is nearly absent (Ibid.). There are no streams or intermittent water channels in the area. Residents depend mainly on rain catchment systems and ground water for their water supply.

The subject area is within the Tsunami inundation zone (see Figure 36, page 45). The entire area is low lying situated atop a low lava flow that in many places is barely above sea level and is pitted with many saltwater filled depressions that are susceptible to pooling and flooding during heavy storms. These areas tend to drain off and evaporate quickly.

Potential Impacts and Mitigating Measures.

The proposed action will have no impact on hydrology or coastal drainage, nor will it contribute to or exacerbate coastal flooding.

4.1.4 Natural Hazards

Existing Conditions.

Coastal Flooding and Tsunamis. The subject area is located within the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and within The Civil Defense Tsunami Inundation Zone. Because of the low elevation, the

project site is vulnerable to coastal flooding from storm waves, hurricanes and tsunamis (see Flood Zone Map, Figure 36, page 45).

Volcanic Activity. The subject area lies within the very active East Riff Zone of Kilauea Volcano. In January 1960, volcanic activity came within about 3,000 feet of the subject property. The episode destroyed the village of Kapoho and Koa'e, created 3 miles of new shoreline and half a square mile of new land at Cape Kumukahi.

According to the Lava Hazard Zone Map (see Figure 35, page 44) the subject property straddles hazard Zones 1 and 2, Zone 1 being the area of the greatest hazard to volcanic activity (the island is divided into nine zones). The lava flow hazard zones are based on past lava events, past eruption events, past lava coverage and topography.

Earthquakes. In Hawai'i earthquakes are linked to volcanic activity. The subject property is located along the south flank of Kilauea Volcano, where a series of coastal fault lines paralleling the Eastern Riff Zone trigger ongoing seismic activity. Significant seismic activity along the southern flank in the modern era includes: March 1954 (6.5 magnitude), November 1975 (7.2) and June 1989 (6.1) (Macdonald 1983).

This seismic condition has resulted in both episodic and continuous subsidence along the southern flank. For instance the November 1975 earthquake caused coastal subsidence as high as 3.5 meters at Keahou landing to .24 meters at Kapoho (Hwang 2007). Continuous subsidence at Kapoho is estimated at about 0.08 to 1.7 centimeter per year (Brooks 2006).

Potential Impacts and Mitigating Measures.

The proposed action will not exacerbate coastal flooding, tsunami inundation patterns, lava flow inundation patterns or earthquake related hazards.

LAVA HAZARD ZONE

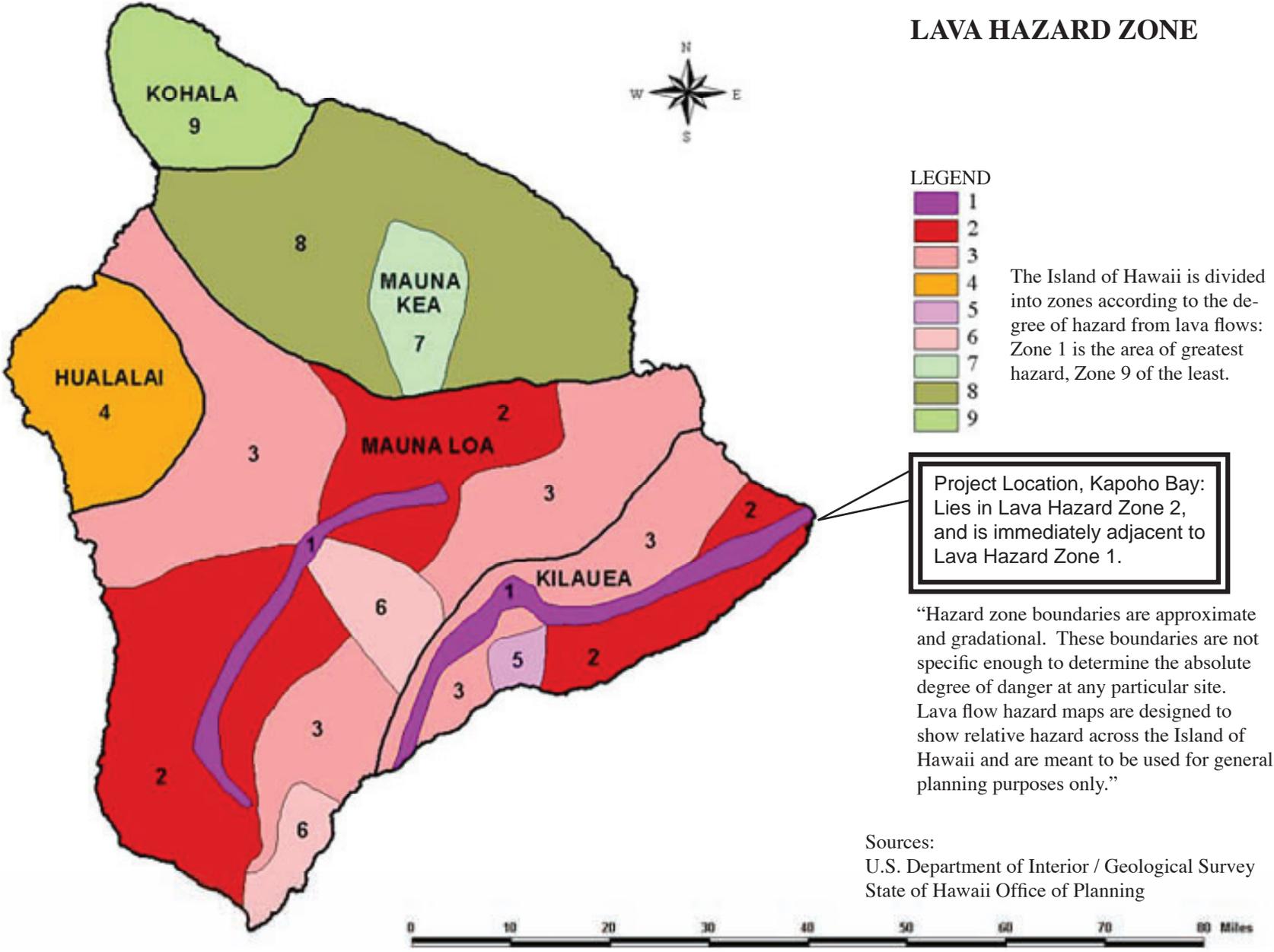


FIGURE 35
 Lava Hazard Zone
 Source: State of Hawai'i GIS
 Farber & Associates, 8/2007

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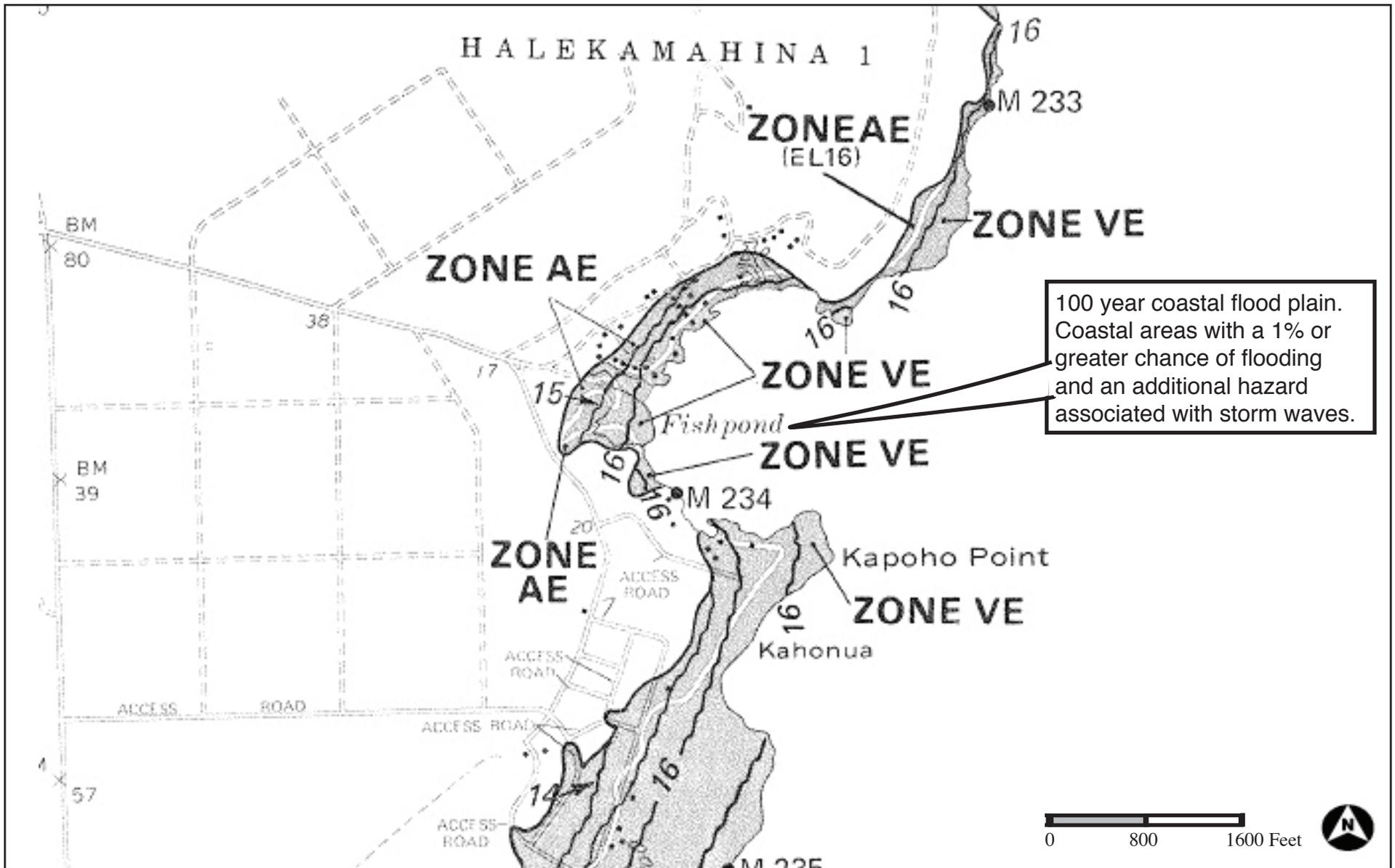


FIGURE 36
 Flood Zone Map
 Source: County of Hawai'i

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Farber & Associates 7/2007

4.1.5 Water quality

Existing Conditions. Water quality with Kapoho Fishpond is generally high with near shore oceanic conditions prevailing. Water quality testing conducted in April 2006 and February 2007 reflect the composition of this fishpond: clear waters and lack of siltation due to a uniform hard lava rock bottom and shoreline and low salinity counts from the presence of fresh water ground water discharges. Details of the water quality testing can be found in Table I, below:

TABLE I				
Water Quality Testing - Kapoho Fishpond				
Parameter Tested	Measuring Unit	Testing Date		Parameter Notes
		4/12/06	2/20/07	
Water temp	F.	79 (26 C)	n/a	
HPC (Heterotrophic Plate Count - heterotrophic microorganism including bacteria, yeasts and moulds).	CFU/ml	180	140	(CFU/ml) > 500 EPA violation. Pools require <200.
Salinity	ppt	23	23	Ocean water is 34 – 36 ppt.
DO (Dissolved Oxygen)	mg/L	10.4	9.3	A fishtank requires min. 6.9.
Turbidity	NTU	0.57	0.77	Allowable turbidity in drinking water 1.0.
pH	Units	8.1	n/a	8.15 – 8.4 is an acceptable range.

Potential Impacts and Mitigation Measures.

Water quality impacts associated with the proposed action are expected to be short-term in nature and largely confined to the immediate vicinity of the fishpond wall.

Wall reconstruction activities such as rock collection, repositioning and placement are expected to result in minimal and short-term increase in the level of silt and suspended solids in and around the fishpond wall. Increase in suspended solids will result from dislodged algae, suspension of organic detritus, and agitation of the

silt deposits. Dissolved inorganic nutrients may increase slightly with the disturbance of rocks and repositioning of wall stones. These impacts will be short-term, during actual moving and repositioning of wall stones and relatively minor, given the relative lack of silt deposits at this site, the high degree of flushing the fishpond wall receives during the prevailing trade wind patterns combined with the daily high tides.

Wall reconstruction activities will be confined to periods of low or minus tides; a condition favorable for best access to rebuild the rock wall and to ensure water quality impacts will be largely confined to the fishpond wall and basin area.

The completion of the wall may change the volume and locations of the exchange of open ocean water into the fishpond basin. This could impact the existing water quality conditions. However, there are many variables that contribute to the flow and exchange of water within this fishpond besides a restored fishpond wall. These include winds, waves, tides, currents, storm activity, shoreline configuration, fresh water discharges, and bathymetry and mangrove inundation.

The power of the daily tides moving through the improved *mākāhā* and rebuilt wall will aid in the flow, exchange and circulation of the fishpond waters. The deepening of the fishpond basin near the wall resulting from the repositioning of the wall stones will also have a favorable impact on maintaining water currents within the fishpond. Trade winds will continue to exert a significant influence on water circulation and water quality, as will the basal ground water springs in the back of the fishpond. The moderate and constant breezes from the northeast help keep pond water moving. As water moves across the ponds with the wind, a vertical mixing that helps replenish oxygen in the deeper parts of the pond takes place. In addition, the on-going mangrove removal along the shoreline and within the fishpond basin is allowing more of the water to interact with the currents and winds and sunlight, thereby increasing the water circulation patterns and water oxygenation.

It should also be noted that in certain cases where a fishpond wall was restored, the vacuum effect of the water flowing into and out of the *mākāhā* increased the flow and circulation of the fishpond waters and aided in the transport and removal of silt within the fishpond basin, improving the overall water quality of the fishpond waters (Ertekin, R.C. 1996).

Fishpond water quality will continue to be monitored and assessed before during and after restoration. Monitoring parameters include: time of day, tide, weather conditions, temperature, heterotrophic plate count, salinity, dissolved oxygen, and turbidity.

4.1.6 Water Currents

Existing Conditions.

The prevailing currents flow perpendicular into fishpond wall and basin towards the shoreline (west-northwest to southeast) during normal trade wind conditions. The intensity of the currents are dependent upon the tides and wind; the strongest winds occurring in the early/middle of the afternoon blowing from the north north-east coupled with the daily high tide breaching the fishpond wall. These winds at medium-high to high tides create waves from that direction and also localized zones of wave energy mostly along the wall from the *mākāhā* south. Observations made during low tides and an absence of trade wind conditions suggest that water currents are minimal during such times, but do continue to flow from the west-northwest to the southwest into the inlets and coves. However, trade winds are the norm, thus even during most low or minus tide conditions, wind is expected to have some influence on pond water currents and turnover. Another factor influencing the water currents within the fishpond are the basalt ground water springs located in the southwest corner of the fishpond basin. At the very least these springs contribute to water flow and exchange in an area that is relatively protected and not overtly influenced by the oceanic conditions closer to the fishpond wall.

Potential Impacts and Mitigation Measures.

The proposed action will modify the existing water currents within the fishpond. However, the reconstruction of the *mākāhā* and the alignment of the restored wall will ensure that adequate currents will continue to exist in the fishpond following wall restoration. It is expected that restoring the wall will increase the power of the daily tides moving through the *mākāhā* and will aid in the flow, exchange and circulation of the fishpond waters. The deepening of the fishpond basin near the wall resulting from the repositioning of the wall stones will also have a favorable impact on maintaining water currents within the fishpond. Trade winds will continue to exert a significant influence on water circulation, as will the basal ground water springs. In addition, the on going mangrove removal along the shoreline and within the fishpond basin is allowing more of the water to interact with the currents and winds, thereby increasing the water circulation patterns.

4.1.7 Air Quality

Existing Conditions.

Air quality in the vicinity of the project site is generally excellent due to the rural, low population density of the region and exposure to the east-northeasterly trade winds which are present about 85 to 95 percent of the time during the summer months (May through September), and 50 to 80 percent of the time during the winter months (October through April). Sources of air pollutants include car and truck emissions from Kapoho Beach Road, salt spray (originating from wave action) and volcanic haze from Kilauea Volcano (when there are little or no trade winds).

Potential Impacts and Mitigation Measures.

The proposed project would create no air pollution impacts.

4.1.8 Noise

Existing Conditions.

Noise levels in the vicinity of the project are relatively low. Existing noise at the project site is the result of light vehicular traffic on Kapoho Beach Road, construction sites nearby, an occasional outboard motor, wind and wave action. High winds and surf hitting the shoreline and offshore reef are by far the most noticeable noise sources at the project site.

Potential Impacts and Mitigation Measures.

Project-generated noise is not expected to be significant. Noise will be generated as a result of heaving and lifting rocks by hand and with the assistance of hand tools, boat and or small barge. These noises will be limited to daylight periods and normally for intervals not exceeding six hours in total duration (low tide periods).

4.2 Biological Environment

4.2.1 MARINE ENVIRONMENT

Fish

Existing Conditions.

Kapoho Fishpond and the immediate areas host a number of fish species. In general, there is a relative lack of diversity of species in this area and their overall numbers are low. This is most likely attributed to over fishing and the fact that the 1960 Lava flow into Kapoho Bay had a devastating effect on the marine environment that has yet to fully recover. There are relatively fewer fish inside the fishpond than outside. Wrasses, *Uhu* (parrotfish), *Mamo* (damsel fish) and *Manini* (surgeonfish) are most abundant fish species that have been observed at the site. See Table II for the full list of fish identified at Kapoho.

Corals

Existing Conditions

The fishpond basin is a relatively uniform shelf of smooth solid pahoehoe type lava, small rocks, sand, turf algae, coralline algae and minute amounts of live lobe coral (*Porites lobata*). The coral was observed mostly within about 75 feet of the fishpond wall, distributed randomly, sporadically and small, most of the corals were between 2 to 4 inches (4cm to 10 cm) in diameter. This condition is a combination of factors including the 1960 lava flow that wiped out most of the coral communities in Kapoho Bay coupled with earthquake related subsidence in the Bay that has increased its exposure to open ocean surf (Henderson comment letter p. 119). Ford (1973) believes that the continued absence of significant coral growth 40 years after the eruption is due to excessive fresh water entering the Bay causing alterations in salinity, turbidity and water temperature change. Others cite the porous nature of the lava substrate has allowed seepage of wastewater into the Bay from cesspools in the surrounding community (ibid.).

TABLE II - KAPOHO BAY AND FISHPOND FISH INVENTORY

Marine fish commonly observed inside and outside the fishpond wall at Kapoho.

Hawaiian Name	Common Name	Scientific Name
Ama'ama	striped mullet	<i>Mugil cephalus</i>
Aholehole	Hawaiian Flagtail	<i>Kuhlia xenura</i>
Awa	milkfish	<i>Chanos chanos</i>
Awa aua	Hawaiian Tenpounder	<i>Elops hawaiiensis</i>
Hinalea lauwili	Saddle wrasse	<i>Thalassoma duperrey</i>
Kaku	Barracuda	<i>Sphyraena barracuda</i>
Kihikihi	Moorish Idol	<i>Zanclus cornutus</i>
Kōkala, 'O'opu hue	Pufferfish	<i>Diodontidae and Tetraodontidae</i>
Kumu	Whitesaddle goatfish	<i>Parupeneus porphyreus</i>
Lai	Leatherback	<i>Scombroides sancti-petri</i>
Lauhau or Kikakapu	Butterflyfish	<i>Chaetodon</i>
Mamo, Kūpīpī	Sargent major damsel	<i>Abudefduf abdominalis</i>
Manini	convict surgeon fish	<i>Acantharus sandvicensis</i>
Moa	Spotted Boxfish	<i>Ostracion meleagris</i>
Moana	Manybar goatfish	<i>Parupeneus multifasciatus</i>
Moi	Six-fingered threadfin	<i>Polydactylus sexfilis</i>
Nunu	Trumpetfish	<i>Aulostomus chinensis</i>
Ohua	Ornate wrasse	<i>Halichoeres ornatissimus</i>
O'io	Bonefish	<i>Albula vulpes</i>
Omaku	Belted wrasse	<i>Stethojulis balteata</i>
Palani	Eyestripe surgeonfish	<i>Acanthurus dussumieri</i>
Papio	jack, trevally	<i>Family Carangidae</i>
Pualu	Ualu	<i>Acanthurus mata</i>
Puhi'ou	Banded Moray eel	<i>Gymnothorax rueppelliae</i>
Roi	Argus grouper	<i>Cephalopolis argus</i>
To'au	Black tail snapper	<i>Lutjanus fulvus</i>
Uhu	Parrotfish	<i>Scarus perspicillatus</i>
Uouoa	sharpnose mullet	<i>Neomyxus leuciscus</i>
Upapalu	Cardinal fish	<i>Apogon maculifer</i>
U'u	Squirrelfish	<i>Myripristis berndti</i>
Weke'ula	Yellowstripe goatfish	<i>Mulloidichthys vanicolensis</i>
<i>Marine fish commonly observed only outside fishpond wall:</i>		
Kala	Bluespine unicornfish	<i>Naso unicornis</i>
Maiko	Bluelined surgeon	<i>Acanthurus nigrosis</i>
Manini	Convict tang	<i>Acanthurus triostegus</i>
Mano lalakea	White-tipped shark	<i>Triaenodon obesus</i>
Na 'ene 'a	Orange spot wrasse	<i>Acanthurus olivaceus</i>
Nenu	Rudderfish	<i>Kyphosus cinerescens</i>
Palani	Dussumier's surgeon	<i>Acanthurus dussumieri</i>
Ta'ape	Blue striped snapper	<i>Lutjanus kasmira</i>

Algae

Existing Conditions

In general, the marine algae associated with the fishpond lie with two distinct zones: algae associated with the fishpond basin, a more protected area, and those species best adapted to high-energy wave and surge prone areas, in and around the pond wall. Along the wall, coralline red algae were in abundance, attached to the basalt boulders and rocks following the fishpond wall. Turf algae were also abundant in the wave and surge prone areas along the seabed and the fishpond rocks and *mākāhā*. *Acanthophora spicifera* (prickly seaweed) was the most dominant macro alga throughout the fishpond basin. *Gracilaria salicornia* (Gorilla Ogo) was found within sheltered embayment areas, specifically around the mangrove forest. Both these macro algae are invasive species.

Potential Impacts and Mitigating Measures.

Overall, in the long-term, the project will result in an increase in the marine life within the fishpond, and it is believed, this resurgence in marine life will spill out into Kapoho Bay improving its fisheries. The Applicant views the fishpond as a marine sanctuary, a no-fishing zone. Studies have shown that setting aside no fishing zones in reef fishing areas impacts the overall fisheries in a few years because the resurgent fish populations in the conservation areas spill over to areas where fishing is allowed (Pala 2007). See articles Appendix C, Pages 134.

Impacts to the marine life within the fishpond fish fauna in the short-term are expected to be small and of no ecological consequence. Construction activities would cause the fish to flee the site around the wall during wall reconstruction. Fishes routinely move between the fishpond and adjacent waters through existing pond openings and this behavior would likely continue through the construction phase of the project.

Collection, temporary stockpiling, and repositioning of rock will result in the loss of portions of algal community that is presently in the fishpond basin but impacts will be temporary and not significant. Small quantities of silt and

organic detritus are likely to be suspended from the fishpond bottom during rock repositioning but are unlikely to cause a significant impact as they would be largely contained to the existing fishpond basin and adjacent near shore waters and would dissipate with the mixing of waters and currents. As such, there is little potential for silt or detritus to accumulate in concentrations that would be harmful to marine organisms

Measures will be taken to ensure that restoration actions in the ponds do not encourage spread of invasive algae outside of the bay. It is recognized that in-pond mechanical effects of rolling and dropping rocks, foot trampling, and movement of cut mangrove trees could all potentially fragment brittle seaweed clumps, thereby increasing spread potential. To reduce this potential, workers will daily execute a snorkel survey of the water area immediately surrounding the day's target work area and remove all clearly visible weed algae clumps, transporting that material in fine mesh bags to suitable land disposal areas.

Adverse impacts to the existing coral community will be limited because of the low densities of coral in and around where restoration activities will take place, i.e., around areas where the wall stones are to dislodge and be moved back onto the wall footprint.

Upon rebuilding the wall, the increased vertical relief, together with the use of large foundation boulders and smaller stones will provide a number of new protected microhabitats and niches for many marine organisms. Such protected habitats are presently few in number because of the limited topographic relief of the existing fishpond wall. Algae and invertebrates are expected to re-colonize the repositioned pond boulders and stones. The collection of existing rocks now spread out along the wall footprint will result in deepening of the fishpond, helping to increase the biodiversity over baseline conditions. In addition, the ongoing clearing of mangrove from the fishpond has the potential to help control the growth of the invasive *Gracilaria salicornia* (Gorilla Ogo).

4.2.2 Terrestrial Biota (Flora and Fauna)

Existing Conditions.

Terrestrial Flora. Vegetation surrounding the fishpond is dominated by red mangrove (*Rizophora mangle*) an introduced species that is found along much of the coastline. Mangrove is also covering a portion of the wall on the south end. In addition to grasses and weeds, ornamental (landscaping) varieties include hibiscus, heliconia, palms, papaya and avocado. Native species on the property include *hala* (*Pandanus tectorius*), *Kukui* (Candlenut tree, *Aleurites moluccana*), *hou* (native sugar cane, *Saccharum officinarum*), *milo* (*Thespesia polpunea*), *niu* (coconut palm, *Cocos nucifera*), *naupaka kahakai* (*Scaevola sericea*), *ti* (*Cordyline fruticosa*) and *noni* (*Morinda citrifolia*).

Terrestrial Fauna. Birds typically found in the area include the common (Indian) Mynah, *Kolea* (Pacific Golden Plover), *'Auku'u* (Black Crowned Night-Heron), several species of dove, cardinal, finch, and sparrow. Animals common to the area include dogs, cats, rats, mice, mongoose. No known rare, endangered or threatened species of flora or fauna were found at the subject property.

Potential Impacts and Mitigating Measures.

Mangrove removal by hand is ongoing at the site. Mangrove's smothering root systems allow it to out-compete all native Hawaiian plants; it fills in coastal regions with sediment, destroying habitats for native plants and birds. Mangrove removal will increase the usable area of fishpond waters as a suitable habitat for wading birds and will help bring back native plant species and provide an overall more balanced ecosystem.

Impacts to plant communities from the proposal will be minor if at all and will result from equipment ingress to and egress from the project site. Noise and activity associated with manual labor may temporarily dislocate wading birds that may frequent the inshore waters or adjacent areas. Such temporary

displacements are not regarded as significant. The reconstructed fishpond wall will likely create a permanent, and somewhat protected, resting or feeding habitat for wading birds. The deepening of the fishpond basin is also likely to increase biodiversity, resulting in improvements of the pond as a feeding site for seabirds and wading birds. The diversity and density of certain wading birds and seabirds may increase with the operation of the fishpond due to the greater abundance of fish biomass and foraging fishes within the pond.

4.2.3 Endangered And Threatened Species

Existing Conditions.

The Hawaiian Green Turtle (*Chelonia mydas*), federally listed as threatened under the U.S. Endangered Species Act of 1973, are found in large numbers in and around Kapoho Fishpond.

The Hawaiian monk seal (*Monachus schauinslandi*) is considered the most endangered seal in U.S. waters, with only about 1,200 left. They have been seen in Kapoho Bay and inside the fishpond.

Potential Impacts and Mitigating Measures.

The proposed project is not expected to have an adverse impact upon the Hawaiian Green Sea Turtle or the Hawaiian Monk Seal.

Kapoho Bay and the subject fishpond are unique for being a refuge for the Hawaiian Green Sea Turtle. Turtles are a rare sighting within most managed fishponds, as they are usually gated, preventing their access. We welcome the turtles into the fishpond. The proposal foregoes gating the mākāhā to allow for their access to the protected fishpond waters. This is a good appropriate compromise, allowing *all* marine life access to what is a traditional Hawaiian fishpond.

Raising the fishpond wall will increase the area of calm waters within the basin, improving the fishpond as a favorable feeding and resting place for turtles. Also note that the ongoing removal of alien mangrove in the pond has exposed the old pahoe-hoe shoreline creating an ideal haul-out and sun basking substrate for the turtles. The turtles have taken quickly to using these basking areas as the mangrove is removed and replaced with salt grass (Paspalum vaginatum).

It is expected that the restored wall and mā kāhā will improve passage of marine life into and out of the fishpond. Marine plants and animals are naturally attracted to ocean currents. An important component of a functioning fishpond is the utilization of tidal shifts and the water currents they create through the fishpond mā kāhā and into and out of the fishpond basin. Certainly at higher tides portions of the fishpond wall are currently underwater, providing access to marine animals. But this access over the wall is periodic and happenstance. Strong currents are what attract marine animals. So does, in the case of a fishpond, the detection of a large column of nutrient rich brackish water. With an intact wall and mā kāhā these water currents will be stronger than what now exists and thus provide an improved means for marine life to find their way into and out of the fishpond. Seawater flowing into the pond brings microscopic plants and animals that provided food. Baby fish or *pua*, and other fish species and marine mammals such as the Hawaiian Green Sea Turtle and Hawaiian Monk Seal also enter the mā kāhā through incoming tides. Likewise, out-going waters contains a rich combination of brackish water rich with microorganisms that serve as food for the reefs, grown fish move out onto the reefs and open ocean to spawn and other marine animals exit the fishpond

Should sea turtles or monk seals be observed within the vicinity of the active construction site or if they use the fishpond shoreline, all construction activities would cease in that area. Post-construction, the mā kāhā will not be gated, sea turtles and seals will be able to move into and out of the fishpond at will so their access to these protected waters will not be impeded.

No other Federal or State-listed endangered or threatened plant or animal species or any designated “critical habitat” are foreseen to be affected by the proposed project (see comment letter from Fish and Wildlife Service, Appendix C, page 134).

4.3 Cultural, Archaeological and Historical Resources

Existing Conditions.

Historical resources in the area include the fishpond (fishpond wall and mākāhā) that is estimated to be at least 100 years old and is an excellent example of a *loko kūapa* style fishpond. It is one of the best-preserved fishponds in East Hawai‘i and an exceptional and unique example of the architectural achievements by Hawaiian fishpond builders.

This fishpond, which has no historical name attached to it, is believed to have been originally constructed before 1893 (ACP 2007 I). Long time residents of the area, refer to the fishpond as “The Old Lyman Pond” a reference to the Lyman family who at one time owned most the land in the Kapoho area, had a house on the subject property and is credited with building the fishpond. Oral testimony and field observations indicated that the fishpond had been maintained and improved (i.e., *mākāhā* reinforced with concrete in 1920) during the early to mid-twentieth century but in recent years has fallen into disrepair (Kennedy 2007 ii).

The State-wide fishpond inventory ranked this fishpond as IIA; the second highest ranking on a five scale classification system based on a fishpond’s physical condition and historical significance (wall in fair to good condition, no more than moderate siltation, no more than moderate encroachment by vegetation and three or less Register criteria (DHM Planners 1989). The fishpond site is considered historically significant with three of four National Register Criteria (Criteria A, C, and D). The criteria were established for use in evaluating and determining the eligibility of properties for listing on the State and National

Register of Historic Places:

A. Property is associated with events that have made a significant contribution to the cultural heritage of the Hawaiian people:

The fishpond is a good example of the technological achievements associated with the development of Hawaiian aquaculture.

B. Property is associated with the lives of persons significant in our past:

N/A, Did not meet the criteria.

C. Property embodies the distinctive characteristics of a type, period or method of construction, represents a work of a master.

The fishpond contains considerable structural integrity, and it is one of the best-preserved fishponds in East Hawai'i. It is an excellent and unique example of the architectural achievements attained by the Hawaiian fishpond builders.

D. Property has yielded, or is likely to yield, information important in prehistory or history.

This fishpond at Kapoho Bay has a high potential for providing new information regarding the maritime history and social history of the Hawaiian people- both prehistoric Hawaiian culture and historic period Hawaiian culture.

Cultural resources in the project area include the fishpond and the features associated with it (fishpond wall, mākāhā, springs, pua ponds, limu, fish ('anae, awa, aholehole), and turtles.

Natural resources as related to cultural resources and traditional practices include the fishpond waters, springs, native plants, fish, limu and turtles. Immediately adjacent to the project area natural resources include Kapoho Bay and all the features associated with

it (coral reefs, fish, limu, turtles, etc).

Cultural Practices exist in the form of fishing and trapping fish within the fishpond. Other cultural practices exist in the form of working in the fishpond, reviving it back to productive use. At the moment this consists of the clearing of invasive mangrove from within the fishpond basin and shoreline. The second phase of this restoration project will involve rebuilding the fishpond wall, operate the fishpond and maintain it for long-term use as a marine preserve (the purpose of this Final EA is to obtain approval to conduct phase two). Immediately adjacent to the project area cultural practices revolve around traditional uses associated with the shoreline and waters of Kapoho Bay that include padding, boating, gathering, fishing (net, spear and line).

Potential Impacts and Mitigating Measures.

The proposed action will not adversely impact the archaeological integrity of the fishpond as required data retrieval efforts have been undertaken. An Archaeological Inventory Survey Report and Cultural Impact Statement were conducted for the project by Archaeological Consultants of the Pacific in February 2007 (Appendix A, Appendix B, respectively).

The proposed project will result in the restoration of a traditional Hawaiian fishpond that has deteriorated. This fishpond has undergone alterations to it through its history. Many of these details have been lost from historical record. While the original fishpond design, configuration and its aquacultural function cannot precisely be replicated, the proposal intends to be as historically accurate as possible. This fishpond, from a standpoint of physical restoration and honoring its original form is relatively good: most of the rocks to rebuild the wall are in the immediate vicinity of the footprint, mangrove inundation on the wall is minimal, and silt is not an issue. A big plus is the intact *mākāhā*. Because of this the dimensions and configuration of the wall are known.

This portion of the wall at the *mākāhā* can serve a template for the wall rebuilding. In doing that, there is less ambiguity to the question of are we honoring the historic integrity of the original structure—there is enough information in that portion of the wall to guide the wall restoration effort.

There are no known historic, cultural or natural resources within the immediate vicinity of the project that may be adversely impaired as a result of the proposed project. This proposal will only enhance, protect and develop culturally significant practices and traditional resources in the area. The project proposal will revive a fishpond that was previously derelict and extensively inundated with mangrove. The work is being undertaken by a group consisting of mostly Native Hawaiians. In fact, the project foreman's great uncle helped build the original wall and *mākāhā*. The restored fishpond will be managed as a fully functioning historic fishpond and it will again be a productive site for the propagation and grow-out of traditional species such as 'anae, awa, aholehole. Because the fishpond will be a marine reserve (no large-scale fish harvesting allowed) the fishpond will be in effect a nursery and help restock the larger waters of Kapoho Bay—thus enhancing traditional fishing and gathering practices in the waters adjacent to the fishpond.

Associated with potential cultural impacts is the issue of access to these resources. The exclusive control over the waters (and the fish) inside the fishpond is consistent with traditional custom and cultural practices that have always considered fishponds, their submerged lands and the animals therein as private property of the fishpond owner. Those using the waters and shoreline of Kapoho Bay for traditional customary practices do not, in general, access those areas through the subject property as it is developed and contains the single-family residence of the applicant. The proposed project will not change or affect the existing access points to Kapoho Bay and its shoreline.

4.3 Social and Economic Environment

4.41. Recreation

Existing Conditions.

The subject property, which includes the fishpond of about four acres in size and surrounding land of about 13 acres, serves primarily as a single-family residence.

There is no public access to the fishpond as it is located within the gated subdivision of Kapoho Beach Lots. Outside of the owners and their guests using the property for personal use, there are no recreational activities that occur on site. The Applicant considers the fishpond a historic and scenic resource and a conservation area, i.e., a no fishing zone. Recreational activities that occur adjacent to the subject property, in Kapoho Bay, are primarily water-related and include subsistence fishing (nets, spears and rod and reel) diving and boating.

Potential Impacts and Mitigation Measures.

The reconstructed wall will deepen of the fishpond basin and increase the vertical relief of the fishpond wall, resulting in numerous protected microhabitats and niches for many marine organisms. Mangrove removal will improve the ecology and biodiversity over baseline conditions thus increasing the diversity and numbers of fish within the fishpond. As the fishpond is a marine sanctuary and no-fishing zone, it is believed that the resurgent fish populations within the fishpond will spill out to Kapoho Bay, improving recreational fishing opportunities outside of the fishpond.

4.4.2 Aesthetics

Existing Conditions.

The project site is located in the inner southwestern corner of Kapoho Bay. During low and medium tides the remnants of the existing fishpond wall, which resembles a flattered mound of rocks and boulders, varying between 1 to 3 feet in height; it is visible from the property owners home, about 4 or 5 homes within

the subdivision that are adjacent to the subject property and to boaters that are within the inner southern portion of Kapoho Bay.

Potential Impacts and Mitigation Measures.

The restored fishpond will enhance scenic vistas as it now lies in a state of abandonment and disrepair. It will provide a permanent and prominent enhancement of the viewscape. The restored fishpond wall will be visible at any tide, the wall being configured to rise between 1 to 2 feet above most high tide episodes. The rebuilt wall will be clearly identified as a traditional fishpond and a man-made structure of integrity, uniformity and strength.

4.4.3 Economics

Existing Conditions.

The fishpond is a historic and scenic resource adjacent to the Applicant's residence and its waters are considered a marine conservation area, i.e., a no fishing zone. There are no commercial activities on the property. The fishpond makes no measurable contribution to the economic base of Hawai'i.

Potential Impacts and Mitigation Measures.

The fishpond will continue to be treated as a scenic, cultural and historic resource and a marine sanctuary. Under the proposed plan it is anticipated that restoration activities will employ a full-time work force of about 3 to 4 workers for about 12 – 18 months. After the pond wall is restored, the fishpond will require about two full-time staff to maintain it. Such activities will generate employment opportunities and the purchasing of equipment and supplies.

4.4.4 Access, Transportation and Parking

Existing Conditions.

The subject property is entirely contained within the Kapoho Beach Lots subdivision (KBL). KBL was subdivided in the 1950s. All the roads to and

within the subdivision are private roads not maintained by the County. There is an electronic gate that permits access to the residents of the subdivision. Within the subdivision there are about 6 shoreline access paths between private lots. The access paths are restricted to KBL residents. One of these access paths is four houses (100 yards) to the northeast of the subject property. Public access to Kapoho Bay is from Lighthouse Road, at the northern end of the bay (Shoreline Access Map is found on page 69). There is no regularly scheduled public transportation available in the area.

The applicant owns the fishpond wall, the submerged lands within the fishpond wall and all the shoreline surrounding it. The subject property boundaries are gated and fenced. There is ample off-street parking on site as the subject property consists of about 13 acres of land.

Potential Impacts and Mitigation Measures.

The proposed project would create no access, transportation or parking impacts.

5. RELATIONSHIP TO STATE AND COUNTY PLANS POLICIES, AND CONTROLS

5.1 The Hawai'i State Plan

The Hawai'i State Plan (Chapter 226, Hawai'i Revised Statutes) serves as a guide for the future of Hawai'i by identifying the goals, objectives, policies, and priorities for the State.

The proposed plan of restoring Kapoho Fishpond is consistent with the State Plan. The following are relevant objectives of the plan that relate to the proposed project:

[§226-3] Overall theme. The following principles or values are established as the overall theme of the Hawai'i state plan:

(3) Community or social well-being is a value that encompasses many things. In essence, it refers to healthy social, economic, and physical environments that benefit the community as a whole. A sense of social responsibility, of caring for others and for the well-being of our community and of participating in social and political life, are important aspects of this concept. It further implies the aloha spirit--attitudes of tolerance, respect, cooperation and unselfish giving, within which Hawaii's society can progress.

§226-4 State goals. In order to guarantee, for present and future generations, those elements of choice and mobility that insure that individuals and groups may approach their desired levels of self-reliance and self-determination, it shall be the goal of the State to achieve:

(2) A desired physical environment, characterized by beauty,

cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well-being of the people.

(3) Physical, social, and economic well-being, for individuals and families in Hawai'i, that nourishes a sense of community responsibility, of caring, and of participation in community life. [L 1978, c 100, pt of §2; am L 1986, c 276, §3]

§226-103 Economic priority guidelines. (a) (4) Encourage visitor industry practices and activities that respect, preserve, and enhance Hawaii's significant natural, scenic, historic, and cultural resources.

§226-11 Objectives and policies for the physical environment--land-based, shoreline, and marine resources. (b)(4) Manage natural resources and environs to encourage their beneficial and multiple uses without generating costly or irreparable environmental damage;

§226-12 Objective and policies for the physical environment--scenic, natural beauty, and historic resources. (1) Promote the preservation and restoration of significant natural and historic resources; (4) Protect those special areas, structures, and elements that are an integral and functional part of Hawaii's ethnic and cultural heritage.

§226-13 Objectives and policies for the physical environment--land, air, and water quality. (a) (8) Foster recognition of the importance and value of the land, air, and water resources to Hawaii's people, their cultures and visitors.

§226-23 Objective and policies for socio-cultural advancement--leisure. (b) (1) Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities; (4) Promote the recreational and educational

potential of natural resources having scenic, open space, cultural, historical, geological, or biological values while ensuring that their inherent values are preserved.

§226-25 Objective and policies for socio-cultural advancement--culture.

(b) (1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawai'i.

5.2 State Land Use Law

The State Land Use Law, Chapter 205, Hawai'i Revised Statutes, divides the State into four land use classifications: Urban, Agricultural, Conservation and Rural.

The proposed project lies within the Conservation District, sub zone: Resource. The purpose of the conservation district is to regulate land use for conserving protecting and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare (§13-5-1).

The proposed project is consistent with the objectives, policies and intent of the Conservation District, sub zone: Resource:

13-5-13 (a) The objective of this sub zone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.

The following are applicable permitted uses within the Resource (R) sub zone:

- (1) All Permitted uses in the Protective and Limited sub zone;

Fishponds:

(A-1) Repair, strengthening, reinforcement or maintenance of a fishpond under an approved conservation district use permit and approved management plan.

(D-1) Restoration or repair of a fishpond under an approved management plan; where restoration is the act or process of restoring the property to a state of utility through repair or alteration which makes possible an efficient contemporary use, such as aquaculture.

(R-1) Aquaculture.

5.3 Hawaii County Zoning

The subject fishpond is in State Conservation Lands, outside of County Zoning jurisdiction. County Zoning of adjacent properties is Single-Family Residential (RS-10).

Shoreline Management Area (SMA).

The County-administered Shoreline Management Area (SMA) is defined as all marine waters extending from the upper reaches of the wash of the waves on the shore seaward to the limit of the State's police power and management authority. The fishpond falls within State jurisdiction boundaries thus fall outside of SMA rules and regulations (See Figure 13: Shoreline Management Area (SMA) Boundaries Map, page 18).

The landward areas of the subject property is undergoing improvements based on a SMA Permit dated 2/15/05 and includes: mangrove eradication by hand, landscaping, fencing, a new gate, and construction of 1,600 square foot single-family dwelling. A copy of the SMA Permit is found in appendix C, page 134.

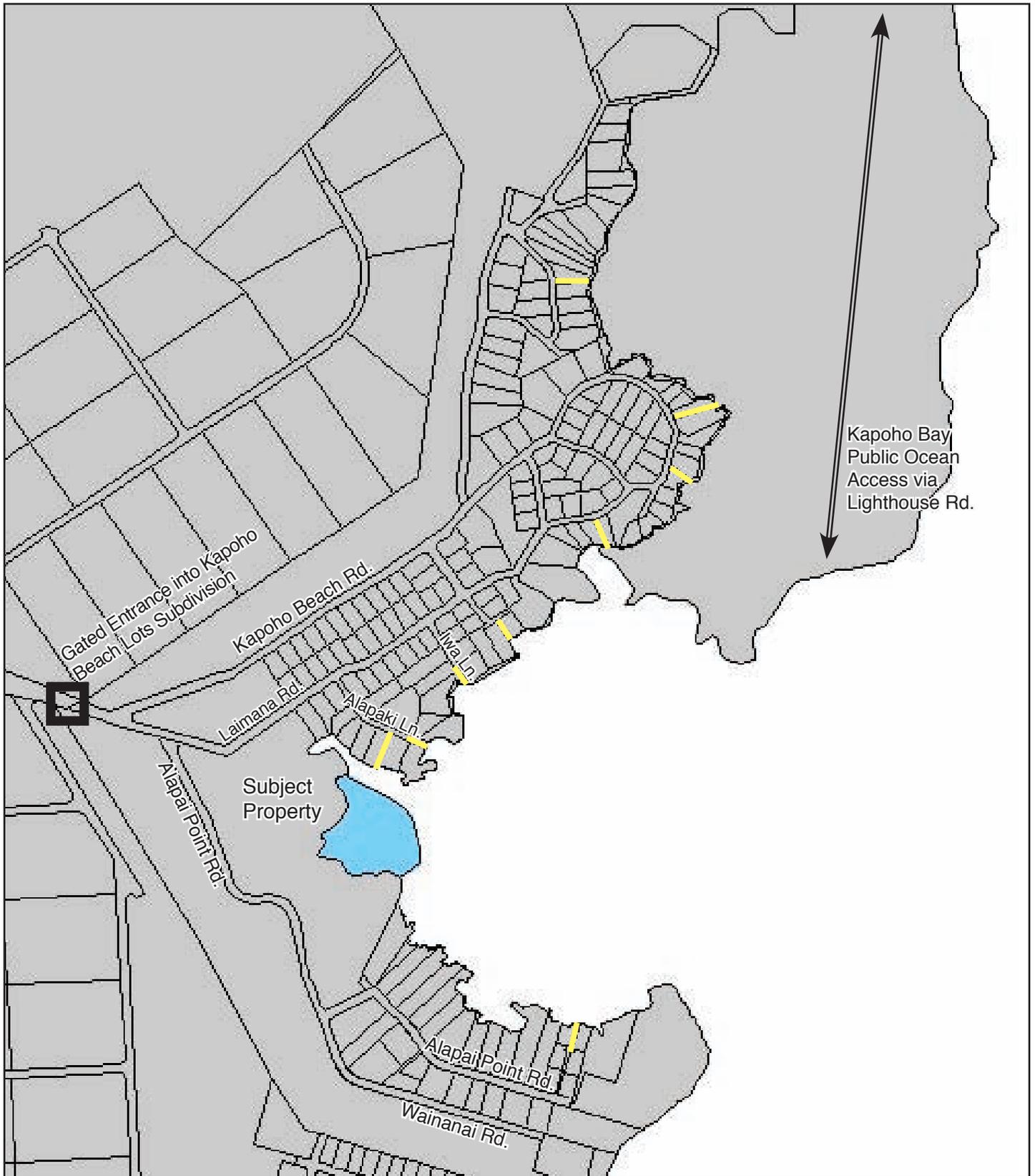


FIGURE 37

Coastal Access

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
Kapoho, Puna, Hawai'i

Farber & Associates, 9/2007.



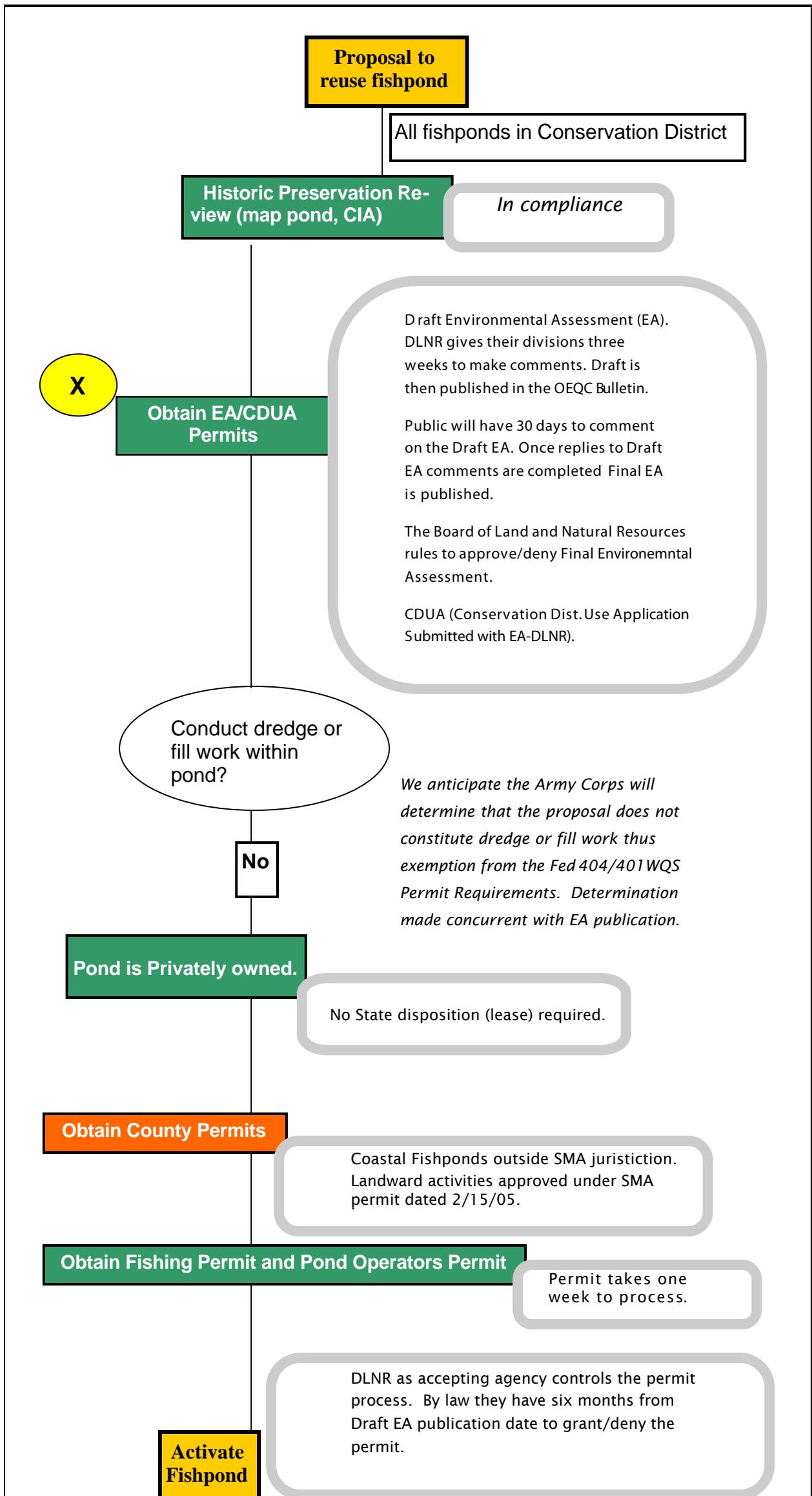
— Ocean Access Points
Within Kapoho Beach Lots

5.4 Permits and Approvals

PERMIT PROCESS TO REPAIR AND RESTORE KAPOHO FISHPOND			
Permit	Administering Agency	Why Needed	Est. Time Frame
FEDERAL			
404 Army Corp of Engineers Permit (ACOE 404)	Army Corps of Engineers, Regulatory Branch, Honolulu Office (Fort Schafter)	Triggered if determined that action constitute dredge and fill work.	N/A - waiver anticipated, no dredge or fill work.
401 Water Quality Certification (401) Dept of Health	State of Hawaii Department of Health, Clean Water Branch	If 404 required	N/A - 404 permit waiver anticipated.
NPDES Permit	State of Hawaii Department of Health, Clean Water Branch	If aquaculture production greater than 100,000 lbs./yr.	N/A - no aquaculture production.
Coastal Zone Management Area (CZM) Consistency Statement	State of Hawaii Department of Business, Economic Development and Tourism, Office of Planning	If 404 required - tied into ACOE review process. Administrative Approval.	N/A - 404 permit waiver anticipated.
Fish and Wildlife Service Review	Department of Interior, Fish and Wildlife Program	Endangered species/wetlands. Review at ACOE process	60 - 90 days.
STATE			
Revocable Permit (RP) or long-term State Land Lease	State of Hawaii Department of Land and Natural Resources (DLNR) - Land Division	If State-owned fishpond	N/A - privately-owned fishpond.
Environmental Assessment (EA)	DLNR - Planning and Permitting Division	Environmental Impact Statements, HRS Ch 343	Within 180 days.
Conservation District Use Application Permit (CDUA)	DLNR - Planning and Permitting Division	Fishponds in Conservation Lands	Within 180 days.
Historic Preservation Review	DLNR - Historic Preservation Division	Archeological mapping/ Cultural Impact Assessment (CIA)	3-5 weeks
Fishing Permit	DLNR - Division of Aquatic Resources	(1) Aquaculture facilities permit (2) Scientific collection permit (for noncommercial collection of pua).	N/A - no aquaculture production / natural recruitment of fish stocks.
COUNTY			
Shoreline Management Area Use permit (SMA)	County Department of Planning	Loko I'a fall outside the SMA	Landward activities permitted under SMA dated 2/15/05

(Farber & Assoc. 2006)

Permit Process to Repair and Restore Kapoho Fishpond



6. FINDINGS AND ANTICIPATED DETERMINATION

6.1 SIGNIFICANCE CRITERIA

Environmental Impact Statement Rules, Chapter 200 Title 11 Department of Health Hawai'i Administrative Rules specifies criteria for determining whether an action may have a significant effect on the environment. The proposed project in relationship to these criteria is as follows:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;

Kapoho Fishpond has been extensively modified and nearly destroyed by storm waves, tsunami, earthquakes, lava flows, mangrove inundation and general neglect. The proposed project will involve the restoration, repair and maintenance of an important cultural and archaeological resource.

(2) Curtails the range of beneficial uses of the environment;

The proposed project will expand and improve the range of beneficial uses of the environment (cultural and historic preservation, education, recreation, marine habitat) and will result in the revitalization of an important cultural site.

(3) Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project is consistent with the State's long-term environmental policies or goals and guidelines. The definition of "Environment" in Chapter 344, HRS is, "The complex of physical and biological conditions that influence human well-being, including land, air, water, minerals, flora, fauna, energy, noise, and places of historic or aesthetic significance".

The proposed project will foster culture and the arts through the wall rebuilding effort and promote their linkage to the enhancement of the environment; it will establish, preserve and maintain scenic, historic, cultural and marine resources for recreational, educational, and historic preservation uses; and reestablish and enhance a unique ecological marine reserve.

(4) Substantially affects the economic or social welfare of the community or state;

The proposed project, the revitalizing of a cultural resource, will benefit the community and its social welfare. This fishpond is a unique cultural resource and embodies the unique history of the Kapoho area and a spiritual connection to the past. The rebuilding of the fishpond wall will involve the active participation of community members, both paid staff and volunteers. As such, rebuilding the pond will bring people together in a positive manner for a common good—appropriate goals as stated in the state goals (§226-4 **State goals**) that seek to “nourish a sense of community responsibility, of caring, and of participation in community life”.

In addition, the restored fishpond is to be treated as a marine sanctuary and a no-fishing zone. It is believed that the resurgent fish populations within the fishpond will spill out to Kapoho Bay, improving recreational fishing in the larger area.

(5) Substantially affects public health;

Public health is not threatened by existing facilities and functions at the site and there is no reason to expect that public health will be affected in the future by the restored fishpond.

(6) Involves substantial secondary impacts, such as population changes or effects on public facilities;

The proposed project does not involve substantial secondary impacts, such as population changes or effects on public facilities.

(7) Involves a substantial degradation of environmental quality;

Short-term environmental impacts will be minor and limited to immediate near shore waters. Such short-term impacts include increased level of turbidity and suspended solids due to the manual movement and placement of larger rocks and small pebbles- found within the vicinity of the footprint – back onto the fishpond wall.

(8) Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

The proposed project does not involve the commitment for a larger action nor will result in significant cumulative or long-term adverse effects to the environment.

(9) Substantially affects a rare, threatened, or endangered species, or its habitat;

No Federal or State-listed endangered or threatened plant or animal species or any designated “critical habitat” is foreseen to be affected by the proposed project (see determination letter from the U.S. Fish and Wildlife Service, Appendix C, page 122).

(10) Detrimentially affects air or water quality or ambient noise levels;

No impacts to air quality are anticipated. Water-quality impacts will be short-term, minor and limited to the immediate project area. We anticipate that rebuilding the fishpond wall and *mākāhā*, gates will allow for proper circulation of water through the fishpond basin, thus no long-term impacts to water quality are anticipated. Noise impacts will be minimal and shore-term (during wall rebuilding phase) and buffered by

noises emanating from surf action and winds.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The project site is located in coastal waters and within a defined tsunami inundation zone. The proposed project will not impact public safety. As a fishpond is located in such a dynamic environment of coastal water, the project is prone to damage due to unforeseeable heavy surf or storm activity. Fishpond requires continual maintenance and care to assure their long-term survival.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies;

The revitalized fishpond will enhance scenic vistas as it now lies in a state of abandonment and disrepair.

(13) Requires substantial energy consumption.

The project requires no substantial energy consumption. The proposed project is rebuilding a traditional Hawaiian fishpond rock wall that is 1,250 feet long. This effort will be undertaken by hand and with manual tools.

6.2 FINDINGS AND ANTICIPATED DETERMINATION

This Environmental Assessment has been prepared in support of an application for a Conservation District Use Permit (CDUP) in order to allow for restoration of the historic Kapoho Fishpond by the Applicant.

The proposed project is not anticipated to result in significant environmental impacts to this archaeological and historic resource, the near shore waters, surrounding properties, natural resources on the site or in the immediate area. The proposed project is not anticipated to negatively impact existing activities at the site and is not anticipated to create adverse impact upon the visual character of the site and surrounding view planes.

The subject property is located with the State's Conservation Lands, sub zone: Resource. The proposed project is consistent with the objectives, policies and intent of the Conservation District, sub zone Resource.

Based of the foregoing information, it is anticipated that the proposed project would not have significant impacts on the environment. Therefore, a Finding of No Significant Impact (FONSI) is warranted.

7. LIST OF PEOPLE CONSULTED

PRE-CONSULTED AGENCIES & PRIVATE INTERESTS

(See Appendix C : Agency and Pre-consultation Letters)

1. FEDERAL AGENCIES

National Oceanic Atmospheric Administration (NOAA), National Marine Fisheries Service.

U.S. Fish and Wildlife Service

2. STATE OF HAWAI'I

A. Department of Land and Natural Resources:

-Historic Preservation Division

-Conservation and Coastal Lands Division

-Division of Aquatic Resources

B. University of Hawai'i at Hilo:

-Sea Grant Extension Services

-Marine Biology Department

3. COUNTY OF HAWAI'I

Department of Planning

4. PRIVATE INTERESTS

Archeological Consultants of the Pacific, Inc.

8. COMMENT LETTERS FROM AND RESPONSES TO DRAFT EA

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

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CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:DH

CDUA: HA-3447

Acceptance Date: November 27, 2007
180 Exp. Date: May 25, 2008

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Honolulu, Hawaii 96822

JAN 25 2008

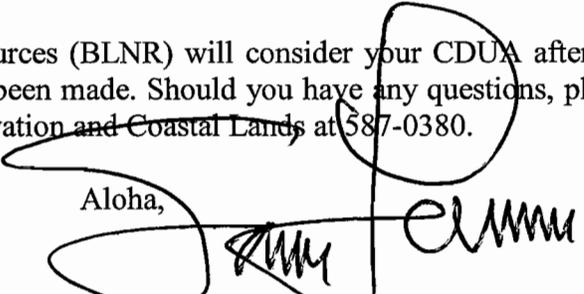
Dear Mr. Farber:

SUBJECT: REQUEST FOR COMMENTS
Conservation District Use Application (CDUA) HA-3447 to restore and rebuild the 1893 "nameless" fishpond, hereinafter referred to as "Kapoho Fishpond," located at Kapoho Bay, Kapoho Ahupuaa, Puna District, Island of Hawaii located on subject parcel TMK: (3) 1-4-002:036

This letter is regarding the processing of CDUA HA-3447. The public and agency comment period on your application has closed. Attached to this letter are copies of the comments received by the Office of Conservation and Coastal Lands (OCCL) regarding your CDUA. Please send copies of your responses to the questions raised in these letters directly to the authoring agency as well as to the OCCL. Please submit your comments to us by February 13, 2008. We also request that you include the entire CDUA with the Final EA on a compact disk. In addition, we recommend that you contact the neighborhood board and/or association and offer to make a presentation to them regarding the proposed project in the next couple of months; please report on the status of the meeting by February 31, 2008.

The Board of Land and natural Resources (BLNR) will consider your CDUA after all reviews and evaluations of the proposal have been made. Should you have any questions, please contact Dawn Hegger of the Office of Conservation and Coastal Lands at 587-0380.

Aloha,


Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

c: Hawaii Board Member
Hawaii District Land Office
County of Hawaii Planning Department



RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

REF:OCCL:DH

CDUA: HA-3447

Acceptance Date: November 27, 2007
180 Exp. Date: May 25, 2008

Joe Farber
Farber and Associates
2722 Ferdinand Avenue
Honolulu, Hawaii 96822

DEC 11 2007

Dear Mr. Farber:

**NOTICE OF ACCEPTANCE AND PRELIMINARY ENVIRONMENTAL
DETERMINATION**

Conservation District Use Application (CDUA) File No. HA-3447
(BOARD Permit)

This letter acknowledges the receipt and acceptance for the processing of your client's Conservation District Use Application (CDUA) HA-3447 to restore and rebuild the 1893 "nameless" fishpond, hereinafter referred to as "Kapoho Fishpond," located at Kapoho Bay, Kapoho Ahupuaa, Puna District, Island of Hawaii located on subject parcel TMK: (3) 1-4-002:036.

According to your information in the CDUA and accompanying Draft Environmental Assessment (DEA), the applicant is proposing to restore and rebuild the 4.3 acre Type I, *Loko Kuapa* "Kapoho Fishpond" fishpond. The fishpond is located along the shoreline of Kapoho Bay. Current water bathymetry is 4 to 6 feet. Water depth makai of the seawall average 3 to 8 feet. The fishpond basin is a relatively uniform shelf of smooth pahoehoe type lava, small rocks, sand, turf algae, crustose (coralline) algae and minute amounts of live lobe coral (*Porites lobata*). Marine algae associated with the fishpond lie within two distinct zones: 1) algae associated with the fishpond basin (*Acanthophora spicifera*, *Gracilaria salicornia*), and 2) species that are adapted to high-energy wave and surge prone areas (Coralline red algae, turf algae). Access to the fishpond is only from the subject parcel or the ocean; there is no public access to the fishpond or adjacent shoreline.

The restoration and rebuilding of the fishpond will involve the repair of the fishpond walls and makaha (sluice gates) and periodic post-repair maintenance of the wall and basin. The proposed project will produce a continuous fishpond wall, approximately 1,250 feet in length with a base width of 10 to 12 feet; tapering to a crown width of 5 to 6 feet. Restoration will follow the

Original wall alignment. The outside slope of the wall will be at a 20 degree angle and the inside slope will be at a 10 to 15 degree angle. Stone rebuilding material is available onsite in the existing fishpond wall footprint, immediately adjacent to the pond wall, and within the fishpond basin.

Lastly, the applicant notes there are no Federal or State listed rare, endangered or threatened of flora and/or fauna found on the subject parcel surrounding the fishpond. The Hawaiian Green Sea Turtle (*Chelonia mydas*) is federally listed as threatened under the U.S. Endangered Species Act of 1973, is known to forage and rest in shallow waters in and around Kapoho Fishpond.

The OCCL notes the fishpond is considered submerged lands that are privately owned. However the water and water column of the fishpond is located within the State Land Use (SLU) Conservation District, Resource subzone. The OCCL also notes it appears mangrove removal will occur and/or is occurring, as noted on page 46 of the DEA. Please specify the area that mangrove removal is occurring in the DEA and detail this with a site-specific map as well.

After reviewing the application, we find that:

1. The proposed use is an identified use within the Protective subzone of the Conservation District according the Hawaii Administrative Rules (HAR), 13-5-22, P-2, FISHPONDS, (D-1), restoration or repair of a fishpond under an approved management plan; where restoration is the act or process of returning the property to a state of utility through repair or alteration which makes possible an efficient contemporary use, such as aquaculture;" please be advised however that this finding does not constitute approval of the proposal;
2. A public hearing pursuant to HAR 13-5-40 will not be required;
3. In conformance with Chapter 343, Hawaii Revised Statutes (HRS), as amended, and Chapter 11-200, HAR, a finding of no significant impact (FONSI) to the environment is anticipated for the proposed project. The draft environmental assessment for the project has been submitted to the Office of Environmental Quality Control (OEQC), and will be published in the November 23, 2007 edition of OEQC's Environmental Notice.

Lastly, Native Hawaiian practitioners need to be consulted as a part of the State's obligations to protect the customarily and traditionally exercised rights of native Hawaiians, while balancing private interests, when a CDUA is being processed. The Board may evaluate the following topics when reviewing native Hawaiian traditional and customary rights for a CDUA:

1. The identity and scope of "valued cultural, historical and natural resources" in the area, including the extent to which traditional and customary native Hawaiian rights are exercised in the area;
2. The extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed action; and

3. The feasible action, if any, to be taken by the Board of Land and Natural Resources to reasonably protect native Hawaiian rights if they are found to exist.

Your CDUA will be placed on the agenda of the Board of Land and Natural Resources for their consideration after all reviews and evaluations of the proposal have been made. Should you have any questions, please contact Dawn Hegger of our Office of Conservation and Coastal Lands staff at 587-0380.

Sincerely,


for LAURA H. THIELEN, Chairperson
Board of Land and Natural Resources

c: Hawaii District Land Office
County of Hawaii
Planning Department
Department of Parks and Recreation
DOH/OHA/DOT/OEQC
ED/DAR/DOFAW/HPD/SP/MDLO
ACOE/NMFS/USFWS

LINDA LINGLE
GOVERNOR OF HAWAII



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OFFICE OF CONSERVATION
AND COASTAL LANDS

2008 JAN 31 A 9:45

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF AQUATIC RESOURCES
1151 PUNCHBOWL STREET, ROOM 300
HONOLULU, HAWAII 96813

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

January 31, 2008

MEMORANDUM

To: Sam Lemmo, Administrator
Office of Conservation and Coastal Lands

From: Dan Polhemus, Administrator 
Division of Aquatic Resources

Subject: Request for Comments for a Conservation District Use Application
(CDUA) HA-3447 to Restore and Rebuild the 1893 "Nameless" Fishpond

Applicant: Farber and Associates, 2722 Ferdinand Ave., Honolulu, HI 96822

TMK: (3) 1-4-002:036

Location: Kapoho Bay, Kapoho Ahupuaa, Puna District, Island of Hawaii

Summary of Project:

The objective of the proposed project is the repair, restoration and maintenance of "nameless" fishpond at Kapoho for historic and cultural preservation purposes and to serve as a marine sanctuary.

Comments:

The Division of Aquatic Resources (DAR) is concerned about the two invasive macro algae (*Acanthopora spicifera* and *Gracilaria salicornia*) that are present at this "nameless" fishpond. DAR would like to request more quantitative surveys be conducted inside and outside around the "nameless" fishpond to gather data on the extent of the invasive algae population.

Also, DAR would like to request that the project minimize possible invasive algae dispersal by preventing disturbance (fragmentation) of the two algae. If fragmentation were to occur, these invasive algae could be spread further along the coastline. The reason for DAR's concern is that located south of the Kapoho fishpond is DAR's Waiopae Marine Life Conservation Districts (MLCD). Currently, there are no reports of either invasive algae occurring at the Waiopae MLCD. Obviously, DAR does not want these invasive algae to be established at the Waiopae MLCD.

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 12, 2008

Mr. Dan Polhemus
Administrator, Division of Aquatic Resources
Department of Land and Natural Resources
1151 Punchbowl Street, PO Box 621
Honolulu, HI 96813

Subject: Draft EA for CDDA HA-3447 – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i; TMK: 1-4-2:36.

Dear Mr. Polhemus:

Thank you for your Memorandum of January 31, 2008 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the Kapoho Bay Fishpond.

We acknowledge your concerns about the presence of the two invasive micro algae (*Acanthopora spicifera* and *Gracilaria salicornia*) and your request for more quantitative surveys to be conducted inside and outside the fishpond to gather more data on the extent of the invasive limu population. We also acknowledge your request to minimize disturbance (fragmentation) of these algae to prevent their dispersal.

We indeed plan to conduct a survey of the Kapoho Fishpond complex for the presence and abundance of invasive algae. If they occur in significant abundance, measures will be taken to ensure that restoration actions in the ponds do not encourage spread of the algae outside of the bay. It is recognized that in-the-pond mechanical effects of rolling and dropping rocks, foot trampling, and movement of cut mangrove trees could all potentially fragment brittle seaweed clumps, thereby increasing spread potential. To reduce this potential, workers will daily execute a snorkel survey of the water area immediately surrounding the day's target work area and remove all clearly visible weed algae clumps, transporting that material in fine mesh bags to suitable land disposal areas.

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

STATE OF HAWAII
DEPARTMENT OF HEALTH 2008 JAN 24 A 10: 50
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-07-231

January 22, 2008

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Mr. Samuel J. Lemmo, Administrator
State of Hawaii
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Lemmo:

SUBJECT: CDUA HA-3447
Draft Environmental Assessment and Conservation District Use Application for
Kapoho Bay Fishpond Restoration Project
Kapoho, Puna, Island of Hawaii, Hawaii
TMK: (3) 1-4-002: 036

Thank you for allowing us to review and comment on the subject application. The document was routed to the various branches of the Department of Health (DOH) Environmental Health Administration. We have the following Clean Water Branch and General comments.

Clean Water Branch

The Department of Health, Clean Water Branch (CWB), has reviewed the subject document and offers these comments on your project. Please note that our review is based solely on the information provided in the subject document and its compliance with Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55. You may be responsible for fulfilling additional requirements related to our program. We recommend that you also read our standard comments on our website at <http://www.hawaii.gov/health/environmental/env-planning/landuse/CWB-standardcomment.pdf>.

1. Any project and its potential impacts to State waters must meet the following criteria:
 - a. Antidegradation policy (HAR, Section 11-54-1.1), which requires that the existing uses and the level of water quality necessary to protect the existing uses of the receiving State water be maintained and protected.
 - b. Designated uses (HAR, Section 11-54-3), as determined by the classification of the receiving State waters.

- c. Water quality criteria (HAR, Sections 11-54-4 through 11-54-8).
2. Please call the Army Corps of Engineers at (808) 438-9258 to see if this project requires a Department of the Army (DA) permit. Permits may be required for work performed in, over, and under navigable waters of the United States. Projects requiring a DA permit also require a Section 401 Water Quality Certification (WQC) from our office.
3. You are required to obtain a National Pollutant Discharge Elimination System (NPDES) individual permit for discharges of wastewater, including storm water runoff, into State surface waters (HAR, Chapter 11-55). For the following types of discharges into Class AA State waters, you may apply for NPDES individual permit coverage.
 - a. Storm water associated with construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the start of the construction activities.
 - b. Dewatering effluent.

An application for an NPDES individual permit must be submitted at least 180 calendar days before the commencement of the discharge. The NPDES application forms may be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.

4. Please note that all discharges related to the project construction or operation activities, whether or not NPDES permit coverage and/or Section 401 WQC are required, must comply with the State's Water Quality Standards. Noncompliance with water quality requirements contained in HAR, Chapter 11-54, and/or permitting requirements, specified in HAR, Chapter 11-55, may be subject to penalties of \$25,000 per day per violation.

If you have any questions, please visit our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>, or contact the Engineering Section, CWB, at 586-4309.

General

We strongly recommend that you review all of the Standard Comments on our website: www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this project should be adhered to.

Mr. Lemmo
January 22, 2008
Page 3

If there are any questions about these comments please contact Jiakai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



KELVIN H. SUNADA, MANAGER
Environmental Planning Office

c: EPO
CWB
EH-Hawaii

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 12, 2008

Kelvin H. Sunada, Manager
Environmental Planning Office
State of Hawai'i Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Dear Mr. Sunada:

Subject: CDUA HA-3447
Draft Environmental Assessment and Conservation District Use Application for Kapoho Bay Fishpond Restoration Project
Kapoho, Puna, Island of Hawai'i, Hawai'i
TMK: (3) 1-4-002: 036

Thank you for your letter of January 22, 2008 commenting on the Draft Environmental Assessment for the proposed Kapoho Bay Fishpond Restoration Project.

We acknowledge your recommendation and have read the Clean Water Branch Standard Comments posted as a PDF document at your website.

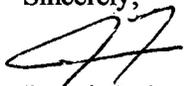
We further acknowledge the terms and conditions as you so present that trigger the need for a National Pollution Discharge Elimination System (NPDES) permit and will apply for such a permit should it be determined necessary.

We acknowledge that the Army Corps of Engineers will be consulted with to determine which Federal licenses or permits may be required for this project.

Again let me reiterate that this proposal does not include the provision for aquaculture activities and that the fishpond is being restored for cultural and historic preservation purposes and to serve as a marine sanctuary (a no fishing zone) to help replenish the depleted fisheries of the larger Kapoho Bay area. As such we anticipate that the proposed project will not in any way negatively impact the existing uses and the level of water quality necessary to protect the existing uses of the receiving State waters (HAR, Section 11-54-1.1).

We appreciate your comments on the proposed project.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

PHONE (808) 594-1888



RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS FAX (808) 594-1865

2008 JAN -9 A 9:08

STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

HRD07/3437

January 2, 2008

Dawn Hegger
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, HI 96809

RE: Request for comments on the Draft Environmental Assessment for the Kapoho Bay Fishpond Restoration Project, Puna, Hawai'i Island, TMK: (3) 1-4-02: por. 36.

Dear Dawn Hegger,

The Office of Hawaiian Affairs (OHA) is in receipt of the above-referenced Draft Environmental Assessment for the restoration of a 4.3-acre traditional Hawaiian fishpond, which is attached to a 13-acre private residence in the gated-community called Kapoho Beach Lots. The applicant intends to restore the 1,250-foot wall of the loko kuapā-style fishpond using traditional dry-stack masonry techniques with the remnant fishpond rocks and rocks found on the applicant's property. Once fully restored, the fishpond will serve as a no-fish marine sanctuary to help replenish the diminished fish populations of the area.

OHA appreciates the applicant's plan to restore the Kapoho Fishpond, as loko i'a are one of the most cherished treasures of Hawaiian culture. We also appreciate that the applicant will use the pond as a no-fish marine sanctuary. However, we ask the applicant to consult with marine experts who could provide information on whether leaving the mākāhā open is the best method to help restock the area's dwindling fish populations.

In addition, we agree with the Board of Land Natural Resources (BLNR) Chairperson Laura Thielen that the BLNR must examine the impacts a project will have on Native Hawaiian traditional and customary rights when it is considering a Conservation District Use Application.

Dawn Hegger
Office of Conservation and Coastal Lands
January 2, 2008
Page 2

In her November 27, 2007, letter to Joe Farber, of Farber and Associates, Chairperson Thielen specifically pointed out the following Native Hawaiian traditional and customary rights topics the Land Board must analyze:

- 1) The identity and scope of “valued cultural, historical and natural resources” in the area, including the extent to which traditional and customary native Hawaiian rights are exercised in the area;
- 2) The extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed action; and
- 3) The feasible action, if any, to be taken by the Board of Land and Natural Resources to reasonably protect native Hawaiian rights if they are found to exist.

OHA would like to point out that this three-prong requirement was mandated by the Hawai‘i Supreme Court in Ka Pa‘akai O Ka ‘Āina v. Land Use Comm’n, 94 Haw. 31, 47 (2000).

While OHA appreciates that a Cultural Impact Statement was conducted for the project, we ask that a more detailed analysis with mitigation measures be included in the Final Environmental Assessment. Specifically, we request the applicant to take a close look at the third topic listed above and examine what measures can be taken to protect Native Hawaiian rights if they are found to exist in the project area. We look forward to reviewing the project’s Archaeological Preservation Plan when it is completed.

Thank you for the opportunity to comment. If you have further questions, please contact Sterling Wong (808) 594-0248 or e-mail him at sterlingw@oha.org.

Sincerely,



Clyde W. Nāmu‘o
Administrator

C: Lukela Ruddle
Office of Hawaiian Affairs, Hilo Office
162 A Baker Avenue
Hilo, HI 96720-4869

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Clyde W. Nāmu'o
Office of Hawaiian Affairs
711 Kapi'olani Blvd., Suite 500
Honolulu, HI 96813

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i; TMK: 1-4-2:36.

Dear Mr. Nāmu'o:

Thank you for your letter of February 7, 2008 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

We have one change to the proposed project as summarized in the first paragraph of your letter. The wall will be restored using remnant rocks from within the immediate vicinity of the fishpond wall (that are found in the water) as originally planned, however, no rocks will be used from the applicants (dry land) property. This will help preserve the existing shoreline configuration and property topography. Additional rock to restore the wall will be purchased and bought in from a local quarry. The rock will be of the same general size and type as the rocks found on-site along the fishpond wall.

In your letter ask the applicant to consult with a marine expert and, *“(If) leaving the mākāhā open is the best method to help restock the area's dwindling fish population.”*

We have consulted with marine experts. Leaving the fishpond mākāhā open, ungated, is the best way to serve the needs of all the aquatic life that utilize the protected waters of the fishpond. Gating the fishpond would exclude the movement of the Hawaiian Green Turtles into and out of the fishpond—which frequent the fishpond in large numbers. Leaving the mākāhā open and banning fishing within the fishpond will provide a productive, nutrient rich and protected body of water for juvenile fish to feed and grow until they return to the ocean to reproduce.

You also request a further detailed analysis with mitigation measures regarding potential impacts the project may have on Native Hawaiian Traditional and customary rights. This three-prong disclosure was mandated by the Hawai'i Supreme Court (*Ka Pa'akai O Ka Āina vs. Land Use Commission*, 94 Haw. 31, 47 [2000]). Based on information gathered including personal interviews, field visits and a review of past literature, as detailed in the Cultural Impact Assessment, Appendix B, page 101 of the Draft Environmental Assessment, the following

conclusions can be made about cultural resources and practices, the potential impacts to those resources and practices and mitigation efforts:

1. *The identity and scope of “valued cultural, historical and natural resources” in the area, including the extent to which traditional and customary native Hawaiian rights are exercised in the area.*

Cultural resources in the project area include the fishpond and the features associated with it (fishpond wall, mākāhā, springs, pua ponds, limu, fish (‘anae, awa, aholehole), turtles.

Historical resources in the area include the fishpond (fishpond wall and mākāhā) that is estimated to be at least 100 years old and is an excellent example of a *loko kūapa* style fishpond. It is one of the best-preserved fishponds in East Hawai’i and an exceptional and unique example of the architectural achievements by Hawaiian fishpond builders.

Natural resources include the fishpond waters, springs, native plants, fish, limu and turtles. Immediately adjacent to the project area natural resources include Kapoho Bay and all the features associated with it (coral reefs, fish, limu, turtles, etc).

Cultural Practices exist in the form of fishing and trapping fish within the fishpond. Other cultural practices exist in the form of working in the fishpond, reviving this fishpond back to productive use. At the moment this consists of the clearing of invasive mangrove from within the fishpond basin and shoreline. The second phase of this restoration project will involve rebuilding the fishpond wall, preserve and maintain it for long-term use as a marine preserve (the purpose of this EA is to obtain approval to conduct this phase two). Immediately adjacent to the project area cultural practices revolve around traditional uses associated with the shoreline and waters of Kapoho Bay that include padding, boating, gathering, fishing (net, spear, line).

2. *The extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed action.*

There are no known historic, cultural or natural resources within the immediate vicinity of the project that may be adversely impaired as a result of the proposed project. We feel this proposal will only enhance, protect and develop culturally significant practices and traditional resources in the area. The project proposal will revive a fishpond that was previously derelict and extensively inundated with mangrove. The work is being undertaken by a group consisting of mostly Native Hawaiians. In fact, the project foreman’s great uncle helped build the original wall and mākāhā. The restored fishpond will be managed as a fully functioning historic fishpond and it will again be a productive site for the propagation and grow-out of traditional species such as ‘anae, awa, aholeahole. Because the fishpond will be a marine reserve, no large-scale fish harvesting allowed,

the fishpond will in be in effect a nursery and will help restock the larger waters of Kapoho Bay—thus enhancing traditional fishing and gathering practices in the waters adjacent to the fishpond.

Associated with potential cultural impacts is the issue of access to these resources. The exclusive control over the waters (and the fish) inside the fishpond is consistent with traditional custom and cultural practices that have always considered fishponds, their waters and the animals therein as private property of the fishpond owner. Those using the waters and shoreline of Kapoho Bay for traditional customary practices do not, in general, access those areas through the subject property as it is developed and contains the single-family residence of the applicant. The proposed project will not change or affect the existing access points to Kapoho Bay and its shoreline.

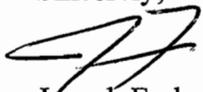
3. The feasible action, if any, to be taken by the Board of Land and Natural Resources to reasonably protect native Hawaiian rights if they are found to exist.

This project embodies the notion of not only protecting native Hawaiian rights, but also enhancing them. This project is about mālama ‘āina, the stewardship and protection of a nearly lost cultural treasure. Rebuilding and maintaining the fishpond will revive many cultural practices nearly lost, particularly in this region, and passing these practices on to the next generation.

Thus, the measures to be taken to protect Native Hawaiian rights are to allow this proposal to move forward, so we can continue our work. To protect the traditional and customary practices and rights of Native Hawaiians, one must protect the cultural and natural resources upon which these practices depend. Granting the permits so we can restore and reuse this fishpond is an important step in fulfilling that goal.

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

LINDA LINGLE
GOVERNOR OF HAWAII



RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

LAURENCE K. LAU
ACTING DIRECTOR

2008 JAN 24 A 8: 20

STATE OF HAWAII
DEPARTMENT OF HEALTH
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPT. OF LAND &
NATURAL RESOURCES
OF HAWAII
235 SOUTH BERETANIA STREET
LEIOPAPA A KAMEHAMEHA, SUITE 702
HONOLULU, HAWAII 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Electronic Mail: OEQC@doh.hawaii.gov

January 22, 2008

Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawai'i 96809

Subject: CDUA HA-3447 to restore and rebuild the 1893 "nameless" fishpond, hereinafter referred to as "Kapoho Fishpond," located at Kapoho Bay, Kapoho Ahupua'a, Puna District, Island of Hawai'i located on subject parcel TMK: (3) 1-4-002:036

Dear Mr. Lemmo:

Thank you for the opportunity to review and comment on the DEA pertaining to the subject fishpond. The Office of Environmental Quality Control offers the following comments:

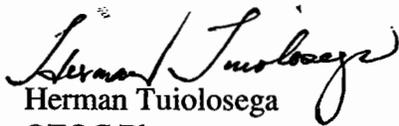
1. There are spelling/grammatical errors on pages 3, 7, 9, 11 (2 errors), 22, 23, 29, 43, and an extra line space on page 53.
2. Page 10 refers to Appendix C, page 122; page 122 is the last page of an interview under Section 5, Community Consultation. Please identify the correct page listing the SMA Permit.
3. Page 23 – Since the "fishpond walls were always designed to be above water at all but the most extreme high tides," will the extra one foot height above the existing *mākāhā* allow water to breach the top of the wall at extreme high tides as designed? Please provide a little more detail on this matter.
4. Please provide more details about the supply of "additional rocks from the subject property"; are the rocks a part of a significant archaeological/historical site? Since rocks will be taken from a Special Management Area, is a special permit

required? What is the secondary impact of removing rocks from the subject property? Please provide an approximate cubic-foot total of rocks to be taken from the subject property for the fishpond restoration.

5. P. 30 again references a permit in Appendix C, page 122 at the end of the third paragraph; please provide the correct page listing the mentioned permit.
6. P. 32, last sentence of the third paragraph talks about “the free movement of marine animal sea life into and out of the fishpond.” This raises an issue with the access of marine mammals like turtles and other possible marine mammals. If the only shoreline access after completion of the fishpond is through the *mākāhā* and the walls are above sea-level at normal tides, how will this affect access for marine mammals to the shoreline? Is the *mākāhā* adequate to provide passage for marine life? Please discuss this.
7. Figure 32 on page 37 discusses the poor condition on the southern terminus of the wall “due to exposure to heavy wave energy and currents.” How will the wall construction mitigate against strong ocean surge and tidal energy? Please discuss measures to address this.
8. Please delete the extra line space in the third paragraph, p. 53.
9. Page 55 discusses access for sea turtles, as questioned in number 6. The discussion requested by item number six still stands. Also, there is reference again to Appendix C, page 122; please make the correction as referred to earlier.
10. P. 57, first paragraph, mentions Appendix A Archaeological Survey, page 77; page 77 is the list of references. The same paragraph also mentions Appendix B: Cultural Impact Assessment, page 97; page 97 actually concludes the Archaeological Survey.

Please call us at (808) 586-4185 if you have any questions.

Sincerely,


Herman Tuiolosega
OEQC Planner

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Herman Tuiolosega, Planner
State of Hawai'i Department of Health
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Mr. Tuiolosega:

Subject: CDUA HA-3447
Draft Environmental Assessment and Conservation District Use Application for
Kapoho Bay Fishpond Restoration Project
Kapoho, Puna, Island of Hawai'i, Hawai'i
TMK: (3) 1-4-002: 036

Thank you for your letter of January 22, 2008 commenting on the Draft Environmental Assessment for the proposed Kapoho Bay Fishpond Restoration Project. The following are our replies to your comments:

1. Page 23. *Since the, "fishpond wall were always designed to be above water at all but the most extreme high tides," Will the extra one foot height above the existing mākāhā allow water to breach the top of the wall at extreme high tides as designed? Please provide a little more detail in this matter.*

Yes, the proposed rebuilding of the fishpond wall as designed will allow water to breach the wall at extreme high tide. Extreme high tide episodes, also known as spring tides, occur around the dates of the full moon and new moon. In this region spring tides top out at about 2.3 feet ht. with average high tides about 2 feet ht. Mean tide level is 1.1 feet. The wall will be rebuilt at a uniform height of six feet, which relative to the tidal range, is about the 2-foot high tide mark.

The wall is being rebuilt one-foot higher than the mākāhā (and thus the height of the original wall) to compensate for the fact that the entire Kapoho Bay area including the fishpond has sunk over the years as a result of periodic earthquakes due to its location along the active Kilauea Volcano East Riff Zone.

We feel the proposed wall configuration is a reasonable compromise between creating a functioning fishpond with a protected body of water for fish and other aquatic life to develop and grow and the resources in terms of rocks and manpower to rebuild the wall. Fishpond walls were never absolutely sealed; they were designed to be somewhat porous, to relieve the pressure of tides and surf action and to allow the movement of some aquatic life to pass in and out.

2. *“Please provide an approximate cubic-foot total of rocks to be taken from the subject property for the fishpond restoration.”*

We have modified the project plan in this regard and now propose to take no rock from the applicant’s (dry land) property. This will help preserve the existing shoreline configuration and property topography.

The majority of rocks to rebuild the wall are found immediately adjacent to the fishpond wall footprint. However, to raise the wall to the proposed uniform height of 6 feet, we estimate a one-foot cap of additional rocks along the length of the wall will be needed. This calculates: 1,250 foot wall length x 5.5 ft. wall width x 1 ft. height = 6,875 cubic ft. (255 cubic yards) of additional rock. The additional rock will be purchased from a local quarry, and will be of the same uniform size as the existing rocks. The rocks will be washed and clean of any excessive dirt and/or debris before being trucked on-site. To minimize stockpiling, rocks will be brought in as needed, in truckloads of about 16 cubic yards each. The rock will be brought out to the wall via a 8ft x 12 ft floating pontoon platform and placed on the wall by hand.

3. *“If the only shoreline access after completion of the fishpond is through the mākāhā and the walls are above sea-level at normal tides, how will this affect access for marine mammals [like turtles] to the shoreline? Is the mākāhā adequate to provide passage for marine life?”*

We believe the restored mākāhā gate and wall combined with clearing mangrove from the shoreline and fishpond basin will provide much improved access for marine mammals to the shoreline. Likewise, the restored wall and mākāhā will improve passage of marine life into and out of the fishpond.

An important component of a functioning fishpond is the utilization of tidal shifts and the water currents they create moving through the fishpond mākāhā and into and out of the fishpond basin. Certainly, at the moment, during higher tides, portions of the fishpond wall are underwater providing access for marine animals. But this access over the wall is periodic and happenstance. Strong currents are what attract marine animals. So does, in the case of a fishpond, the detection of a large column of nutrient rich brackish water. With an intact wall and mākāhā these water currents will be stronger than what now exists and thus provide an improved means for marine life to find their way into and out of the fishpond. Seawater flowing into the pond brings microscopic plants and animals that provided food. Baby fish or *pua*, and other fish species and marine mammals such as the Hawaiian Green Sea Turtle also enter the mākāhā through incoming tides. Likewise, out-going waters contains a rich combination of brackish water rich with microorganisms that serve as food for the reefs, grown fish move out onto the reefs and open ocean to spawn and other marine animals exit the fishpond.

Also note in terms of shoreline access for marine mammals, the removal of alien mangrove in the pond system has exposed the old pahoehoe shoreline creating an ideal haul-out and sun basking substrate for the turtles. Furthermore, those basking areas are largely protected from

surf action, dogs and humans. The turtles have taken quickly to using these basking areas as the mangrove is removed and replaced with salt grass (Paspalum vaginatum).

4. *Ref. Figure 32 on page 37 - Discusses the poor condition of the southern terminus of the wall due to exposure of heavy wave energy and currents. "How will the wall construction mitigate against strong ocean surge and tidal energy?"*

The southern portion of the fishpond wall lies furthest makai, seaward, and closest to edge the reef flat, thus it is exposed to more wave energy and currents relative to the rest of the wall. This situation, coupled with years of neglect in maintaining the fishpond wall have resulted in the wall to be in poor condition in this area. However, the footprint of the wall is clearly visible and most of the rocks from this portion of the wall are located within the fishpond basin. This would be expected as the wave energy has simply pushed the wall rock mauka, landward, into the fishpond.

The wall will be constructed to withstand and absorb strong ocean waves and tidal energy. Two features of traditional fishpond wall construction enable the wall to withstand wave energy: 1) The outer wall is constructed with a sloping face of between 15 to 20 degrees; 2) The fishpond wall is solid, but porous, and does permit percolation of seawater, allowing wave energy to be absorbed and dissipated. Of course after the wall is rebuilt, ongoing maintenance of the wall will be necessary to put rocks back in place after high surf episodes.

We appreciate your comments on the proposed project. Should you have any questions please contact me at (808) 988-3486 or via email, joefaber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Harry Kim
Mayor



County of Hawaii
PLANNING DEPARTMENT
101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-4224
(808) 961-8288 • FAX (808) 961-8742

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
Christopher J. Yuen
Director
Brad Kurokawa, ASLA
2008 JAN - 7 AEBDQP
Deputy Director
DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

December 28, 2007

Mr. Samuel J. Lemmo, Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P. O. Box 621
Honolulu HI 96809

Dear Mr. Lemmo:

Subject: Environmental Assessment for CDUA HA-3447
Owner: John Barsell
Request: Restoration, Rebuilding, and Maintenance of Kapoho Fishpond
Tax Map Key: (3) 1-4-2:36, Kapoho Beach Lots, Puna, Hawaii

We have reviewed the environmental assessment (EA) associated with CDUA HA-3447 for the proposed restoration of the Kapoho Fishpond on the subject parcel and have the following comments and concerns.

The EA mentions that rocks from the property will be used to restore the walls of the fishpond. However, it does not further detail nor show by map the whereabouts on the property those rocks will be taken from nor how many cubic yards of rocks will be needed. Without a certified shoreline survey, we do not know if those rocks will be taken from within the 40-foot shoreline setback area and hence, trigger the requirement for a Shoreline Setback Variance Permit from the County Planning Commission. Therefore, we request that DLNR provide clarification of where they will certify the shoreline at this point in time. Additionally, if rocks are removed landward of the certified shoreline an SMA permit would be required because SMA guidelines define development as "Grading, removing, dredging, mining, or extraction of any materials" on land within the SMA.

Mr. Samuel J. Lemmo, Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
Page 2
December 28, 2007

The SMA discussion on pages 64-67 incorrectly describes the County's SMA boundary/jurisdiction and that the landward activities for the proposed repair and restoration of the fishpond are permitted under SMA dated February 15, 2005. The only landward activity that was approved in the 2/15/05 SMA permit and is included in the proposed fishpond restoration project is the trimming and maintenance of the mangroves along the shoreline and ponds. The County granted approval to the owner to allow trimming and maintenance of the mangroves (page 22) along the shoreline and ponds, by cutting the mangroves above the roots using hand tools and/or chainsaws only. We required that all vegetative waste material be removed from the subject property or composted on the property at a location with an elevation of not less than 12 feet and more than 45 feet from any 4-foot elevation.

The owner has recently submitted an SMA Assessment Application for construction of a second dwelling to be located on the western portion of the property. Upon reviewing the application the Planning Department determined that a SMA Major Use Permit will be required to construct the second dwelling.

The proposed action is to restore and rebuild the fishpond rock wall to stand one foot higher than the historic wall in order for it to function as a *Loko kuapā* styled wall. Restoration of the wall will change the flow of water into and out of the fishpond which will likely change the natural shore. The EA does not specifically explain how the natural shore will change. It is our understanding that any future shoreline surveys certified by the Board of Land and Natural Resources would be based upon the natural shore as indicated in Hawaii Administrative Rules, Title 13, Subtitle 10, Chapter 222 regarding shoreline certifications, Section 13-222-16(b)(7), which states "Where an artificial wall seaward of the natural shore is used to create a fishpond, the shoreline shall be at the natural shore and not at the artificial outer wall." Please indicate whether your office concurs with the above basis for defining the shoreline and explain what changes to the natural shore may occur as a result of this project.

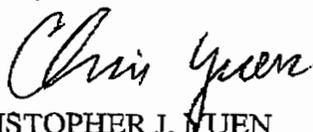
The letter dated September 2, 2004 from the Department of Army, U. S. Army Engineer does not relate to the current proposed project to restore and repair the Kapoho Fishpond, but instead was generated when the owner was seeking approvals to construct a dwelling in 2004. The property is designated as a wetland by the U.S. Fish and Wildlife Service. Therefore, the owner needs to contact the U. S. Army Engineer to obtain a written determination on whether a Department of Army permit would be required for the proposed restoration and rebuilding of the fishpond wall, and removal of mangroves which may be habitat for endangered or threatened species.

Mr. Samuel J. Lemmo, Administrator
Department of Land and Natural Resources
Office of Conservation and Coastal Lands
Page 2
December 28, 2007

Page 108 of the EA indicates that the fishpond wall may have been constructed in 1893; however there is no real evidence to support this date. We recommend an interview of Mrs. Minnie Ka'awaloa be conducted to obtain more complete information on when the fishpond wall was constructed.

Should you have questions, please feel free to contact Maija Cottle of my staff at 961-8288, ext. 253.

Sincerely,



CHRISTOPHER J. YUEN
Planning Director

MJC:cd

P:\wpwin60\Maija\CDU\LEMMO-BARSELL 1-4-2-36.rtf

xc: .Norman Hayashi, Planning Division
Long Range Planning Division

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Mr. Christopher J Yuen
Planning Director
County of Hawai'i, Planning Department
101 Pauahi St., Suite 3
Hilo, HI 96720-4224

Subject: Draft EA for CDUA HA-3447 – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Yuen:

Thank you for your letter of December 28, 2007 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the Kapoho Bay Fishpond. The following are responses to your comments in the order that they are addressed in your letter:

We have modified our proposal so no rocks from the property (dry land) will be used to rebuild the fishpond wall. The majority of rocks to rebuild the wall are found immediately adjacent to the fishpond wall footprint. However, to raise the wall to the proposed uniform height of 6 feet, we estimate a one-foot cap of additional rocks along the length of the wall will be needed. This calculates: 1,250 foot wall length x 5.5 ft. wall width x 1 ft. height = 6,875 cubic ft. (255 cubic yards) of additional rock. The additional rock will be purchased from a local quarry, and will be of the same uniform size as the existing rocks. The rocks will be washed and clean of any excessive dirt and/or debris before being trucked on-site. To minimize stockpiling, rocks will be brought in as needed, in truckloads of about 16 cubic yards each. The rock will be taken out to the wall via a 8 ft x 12 ft floating pontoon platform and placed on the wall by hand.

As the fishpond is makai, seaward, of the SMA boundaries, it is our understanding that the proposed project (with the above provision to take no rocks from the property) will not be required to obtain an SMA Permit. Further, having consulted with State Department of Land and Natural Resources - Office of Conservation and Coastal Lands, their position is since we will not be disturbing the shoreline, said shoreline contains no sandy beach areas and is composed primarily of smooth solid *pahoehoe* type lava, basalt rocks and boulders, a Certified Shoreline Survey, will not be required.

The proposed action will modify the existing water currents within the fishpond. However, overall changes to water circulation patters are expected to be an improvement over existing conditions. This is due to a combination of factors including deepening of the fishpond basin near the wall, the power of the daily tides moving through an improved *mākāhā* and the on-going mangrove removal

Mr. Christopher J Yuen
February 15, 2008
Page 2

along the shoreline and within the fishpond basin that is allowing more of the water to interact with the currents and winds, thereby increasing the water circulation patterns.

Because the shoreline is "hard" -- contains no sandy beach areas and is comprised of basalt rocks, boulders and smooth solid *pahoehoe* lava -- we anticipate no changes to the natural shoreline from the improved water circulation patterns that are anticipated from this proposal.

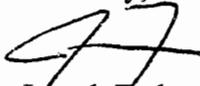
The Army Corps of Engineers has received a copy the Draft Environmental Assessment, and we are awaiting their determination as to what Army Corp permits may be required. We fully intend to consult and collaborate with the Corps throughout this project.

Minnie Ka'awaolua has been interviewed and her recollections as to when the fishpond was constructed are inconclusive. According to Mrs. Ka'awaolua, her father, August Aldridge, built *mākāhā* and worked on the fishpond wall when she was 15 or 20 years old (this would be 1937 – 1942). This is much later than Arthur Lyman's recollections (found in the Cultural Impact Assessment, pages 108 and 115) that the existing stone and cement *mākāhā* was built in 1920 and that the fishpond existed when he was five years old (1917).

Interesting to note: Sam Ka'awaolua, Minnie Ka'awaolua's nephew is slated to be the foreman in this project to rebuild the fishpond wall.

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Notes
60772

RE: KAPOHO BAY
SANCTUARY / Fish Pond

IF THE PROPOSAL WILL
MEAN THAT THIS PART OF
KAPOHO BAY IS NO LONGER
OPEN TO THE GENERAL
PUBLIC THEN I SUPPORT

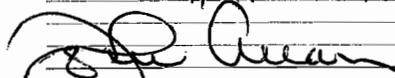
YOUR REFUSAL TO O.K.

THIS PROJECT

JOHN ALLAN

PO BOX 1053

PANOA, HI 96778


© 2004 PlanAhead

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

John Allan
PO Box 1053
Pahoa, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Allan:

Thank you for your letter commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments as addressed in your letter:

You state the following, *“If the proposal will mean that this part of Kapoho Bay is no longer open to the general public, then I support your refusal (DLNR) to OK this project.”*

I am sorry you do not support this project. We feel limiting access to the fishpond is a small price to pay for trying to restore the fishpond and allow it to serve as a marine sanctuary for the larger good.

This project proposes to restore a traditional Hawaiian fishpond and make it a marine sanctuary (a no fishing zone) to help replenish the dwindling fish stocks of Kapoho Bay proper and the reefs beyond. To do this means limiting access to the fishpond waters to enable the marine life to flourish.

Traditional fishponds like this are unique in that they are located in ocean waters but the fishpond wall and all the submerged lands enclosing them are private property. This practice comes from ancient tradition and custom whereby exclusive control of fishpond waters has always been required -- and thus written into Kingdom Law (which continues to this day) -- to ensure a productive fishpond.

The Kapoho fishpond wall is clearly visible during all but the highest tides. The fishpond has never been considered public property. If you refer to the Draft EA: the TMK map (page 15), the Zoning Map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the submerged lands within it.

John Allan
February 15, 2008
Page 2

We appreciate your comments on the proposed project.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

TO: State of Hawaii DLNR
Division of Conservation and Coastal Resources
P O Box 21, Honolulu, HI 96809

FROM: Patrice Belcher and Erik Belcher
P O Box 7310, Hilo, HI 96720
Cell phone 640 4006

RE: KAPOHO FISHPONDS
TMK 1 4 002 036, John Barsells

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

2008 JAN 22 A 9:30

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

January 20, 2008

To whom it may concern:

I was unaware of the request for fishpond restoration and did not know anything was brewing until January 7, 2008 when the newspaper article, "Save it or lose it" appeared in the Hawaii Tribune Herald. There simply is not enough time, given your present deadline for response of January 22, for me to formulate and express my concerns. I request that you please give more time. I am an owner of Kapoho property 1 4 010 044 and I am also a child whose parents bought property in Kapoho in 1961. My parents' property overlooks the fishpond in question. I need more time to examine the EIS and I request that you allow at least another 6 weeks, and preferably 8 weeks, for people to give input in this case. By the way, I would appreciate a call regarding whether a copy of the EA or EIS is available for review on the Big Island? I have had trouble opening such a large file on my computer.

Sincerely,


Patty Belcher and Erik Belcher

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

LAURA H. THIELEN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI
FIRST DEPUTY

KEN C. KAWAHARA
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:DH

CDUA: HA-3447

Patty and Erik Belcher
P.O. Box 7310
Hilo, Hawaii 96720

JAN 24 2008

SUBJECT: Conservation District Use Application (CDUA) HA-3447 to restore and rebuild the 1893 "nameless" fishpond, hereinafter referred to as "Kapoho Fishpond," located at Kapoho Bay, Kapoho Ahupuaa, Puna District, Island of Hawaii located on subject parcel TMK: (3) 1-4-002:036.

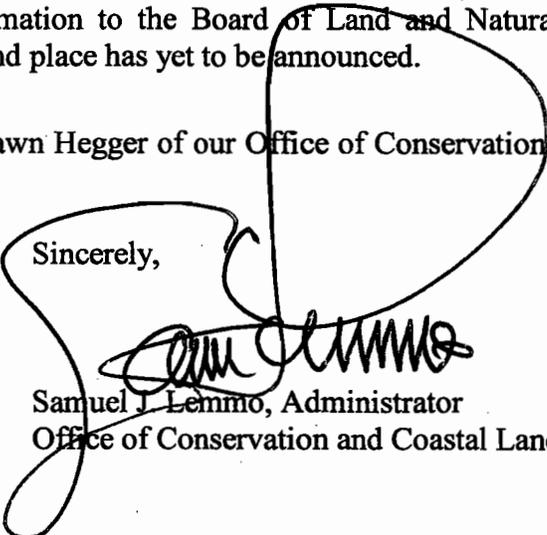
The Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL), received your letter, dated January 20, 2008, regarding more time to respond to CDUA HA-3447.

The OCCL notes a copy of the CDUA and Draft Environmental Assessment (DEA) is located at the Hilo Public Library, 300 Waiuanuenue Avenue, in Hilo, and also at the Hilo District Land Office at 75 Aupuni Street, Room 204, Hilo. However, we have attached a copy of an DEA for you.

In regards to your request for additional time to examine the DEA, the OCCL notes the public comment period was over on January 23, 2008. CDUA HA-3447 DEA was published in the December 23, 2007 Environmental Notice – which has a 30-day public comment period, pursuant to Chapter 343 Hawaii Revised Statutes (HRS). However, you may wish to submit a late comment letter and/or present information to the Board of Land and Natural Resources (BLNR) meeting for which a date, time, and place has yet to be announced.

Should you have questions, please call Dawn Hegger of our Office of Conservation and Coastal Lands staff at 587-0380.

Sincerely,


Samuel J. Lemmo, Administrator
Office of Conservation and Coastal Lands

C: Joe Farber

KAPOHO FISHPOND RESTORATION PROJECT
Attachment
FINAL ENVIRONMENTAL ASSESSMENT

60929

BARBARA BELL

RR 2 Box 3881, Pahoia, HI 96778
808.965.7776 - bbellster@gmail.com

RECEIVED

08 FEB 11 10:56

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

February 7, 2008

Ms. Laura H. Thielen, Chairperson
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street, Room 130
Honolulu, Hawaii 96813

Re: Comments on Draft Environmental Assessment
Kapoho Bay Fishpond Restoration Project
CDUA application HA-3447
Tax Map Key (3) 1-4-002-036 (Kapoho, Puna, Hawaii)
Applicant: John Barsell

RECEIVED
DEPT. OF CONSERVATION
& NATURAL RESOURCES
STATE OF HAWAII
2008 FEB 12 A 9:50

Dear Ms. Thielen,

I am writing to formally comment on the above referenced project for rebuilding a currently unused fish pond at Kapoho Bay. I have some questions regarding fish habitat, the viability of a fish nursery, and whether this project will actually replenish the bay. However I will leave these aside and trust that DLNR and other experts will address these issues in the best way possible. I applaud all efforts to improve the ecology of the bay. My comments are concerned with access.

The applicant must realize that many in the community at large will see this project as at least a partial negative, as a taking of public land. This is because the public, including myself, doesn't care for the concept of submerged lands being legally owned by a private party. The idea that is well established in Hawai'i is that everyone is allowed use of the ocean, as well as a small amount of shoreline. A run down, non-working fishpond doesn't seem like it would qualify as private property, since it obviously is in the ocean.

Should this application be granted, I suggest that the applicant let it be known to the public that anyone who is interested in seeing a re-constructed fish pond is allowed to visit. In particular, students of Kamehameha Schools, UH marine biology classes, Pahoia Elementary and High School science classes, the Kapoho Charter School, and other legitimately interested non-

Page 2

Department of Land and Natural Resources

February 7, 2008

profits, students, citizen groups, and individuals are given access two full days per month, or more. This would go a long way in reversing the image that the owners are merely putting up a large "Keep Out" sign, in the name of culture and history. We all know that they will want to post actual "Keep Out" signs on or near the wall, however a condition of their permit of additional signage to inform the public how they can legally visit the fish pond, with current contact information, would soften the blow.

I assume that the applicant is sincere about providing a community benefit, rather than solely asserting their private property reach, and will take these comments in the spirit that they are meant, to strengthen our community by sharing the common cultural heritage of this area, be it on land or in the sea.

If there is a format for updates, I would appreciate being informed of the progress of this project, either by mail or email. Thank you for this opportunity to comment.

Sincerely,



Barbara Bell

Kapoho Beach Lots resident

cc via USPS: OEQC

cc via email: Sandy and John Barsell
Farber and Associates

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Mrs. Barbara Bell
RR 2 Box 3881
Pahoa, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mrs. Bell:

Thank you for your letter of February 7, 2008 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the Kapoho Bay Fishpond. It was nice to have met you in person at the fishpond over our informal meeting about the project proposal back in the beginning of this month. I hope that meeting helped answer some of your question about the project and Hawaiian fishponds in general.

The following are responses to your comments in the order that they are addressed in your letter:

"I have some questions regarding fish habitat, the viability of a fish nursery, and whether this project will actually replenish the bay."

The fishpond will be operated as a marine sanctuary, a no fishing zone, and this will be beneficial to the surrounding fisheries of Kapoho Bay. Kapoho fishpond is a site where fish fry recharge and help replenish fisheries stocks. Juveniles of several species of important food fish ('ama 'ama, awa, aholehole) migrate into the shallow inshore pond environment where fresh or brackish water inflow is concentrated. Fresh water contains dissolved nutrient such as nitrogen and phosphorus, which feeds marine plant growth supporting a diverse food chain including microorganisms, invertebrates, fish and turtles. The shallow calm waters of enclosed ponds also provide enhanced levels of protection from large predatory fish such as kaku (barracuda), ulua (jacks) and mano (sharks). When juvenile fish have grown to young adult size, most instinctively leave the protection of shallow fishpond environs to feed on reef or deep-water foods and to reproduce. Some of the fish fry ultimately created by those breeding age adults will come inshore to seek shelter in Kapoho bay and others will repopulate other sections of island shoreline.

Mrs. Barbara Bell
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“...The public including myself does not care for the concept of submerged lands being legally owned by a private party. The idea that is well established in Hawai'i is that everyone is allowed use of the ocean, as well as a small amount of shoreline”.

Hawaiian law has always treated fishponds as private property (Boone v. United States 1989). Hawaii's land laws are unique in that they are based on ancient tradition, custom, practice and usage. Indeed, in the case of a fishpond, exclusive control of their waters has always been required -- and thus written into Kingdom Law (which continues to this day) -- to insure a productive fishpond.

Fishponds are considered submerged lands and are recognized and treated as having the same rights as fast land (they are associated with a Tax Map Key Number, can be bought and sold, are assessed property taxes, etc). They are the only submerged lands in the State that can be owned by individuals (the State controls the remainder). In Hawai'i submerged lands are defined as all lands lying between the upper reaches of the waves on the shore and three nautical miles seaward.

“ A run down, non-working fishpond doe not seem like it would qualify as private property, since it obviously is in the ocean.”

Again, fishponds in Hawaii are unique, they are located in ocean waters but the fishpond wall and all the submerged lands enclosing them are private property. The Kapoho fishpond wall is clearly visible during all but the highest tides. The owner purchased the property, obtain a title report, survey and title insurance and it clearly demarks the seaward boundary of his parcel by the fishpond wall. He pays taxes on this submerged land. At no point has the fishpond not been considered private property to anyone challenging that notion. If you refer to the Draft EA: the TMK map (page 15), the Zoning map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the waters within it.

Kapoho Fishpond is indeed a working fishpond. Mangrove is being cleared from the shoreline and basin, improving the water quality. The springs at the back of the pond continue to provide a steady supply of fresh water. The fishpond is a rich sanctuary of various fish species not to mention a refuge for the Hawaiian Green Sea Turtle.

Mrs. Barbara Bell
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"I suggest that the applicant let it be known to the public that anyone who is interested in seeing the reconstructed fishpond is allowed to visit."

The applicant is open to hosting visitors, particularly school classes, on a limited basis. Of primary concern is that fact that this is the applicant's primary residence, it is their home and therefore they need control over who uses the property. Its not just a privacy issue but also involves their safety and security.

That said the owner does allow visits to the fishpond. As he relayed in this email:

"Over the years Sam (the fishpond manager) his friends and relatives have camped out here perhaps an average of once a month. These are sometimes large groups of 50 or so but usually about 20 and they stay for a few days. Sam acts as the community liaison, the gatekeeper and the enforcer. People ask Uncle Sam to use the property. They do not ask me. We have had a porta-potty on a full time basis for 4 years. Once we held a wedding for some local people from South Point. Once a teacher brought her class. For the last year the pavilion has been a place for a women's get together on almost a weekly basis. Several of our friends and neighbors come over to swim on a regular basis without asking. The turtle research group is here every year and last night with our permission were here in force with trucks capturing turtles."

"We all know that they will want to put "Keep Out" signs on or near the wall."

Traditionally, being on a fishpond wall was always kapu (prohibited) and people understood that. However, one has to assume most people today will not know about these restrictions; or know that in fact the wall is private property. Out of respect to the fishpond wall and for their health and safety--just as in the old days--signs will be placed on the wall to notify people that the wall is private property and to keep off of it. A visit to fishponds on Oahu, Maui and Moloka'i all testify to the fact that placing "Keep Off" signs along fishpond walls is a continued and prevalent practice to this day.

A [suggestion] "to put additional signage [on the wall] to inform the public how they can legally visit the fishpond..."

This is good idea and something the applicant is considering doing.

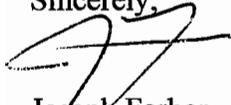
Mrs. Barbara Bell
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Page 4

"I assume that the applicant is sincere about providing a community benefit, rather than solely asserting their private property reach, and will take these comments in the spirit that they are meant, to strengthen our community by sharing the common heritage of this area..."

Yes, thank you for mentioning this and we appreciate your concern about community and culture with regards to the project proposal. The applicant has spent a substantial amount of time, money and energy rehabilitating this fishpond from an abysmal state. He is committed to rebuilding the fishpond wall and making the site a thriving fishpond once again and involving members of community to make this happen. This project is about mālama 'āina, the stewardship and protection of a nearly lost cultural treasure. Rebuilding and maintaining the fishpond will revive many cultural practices nearly lost, particularly in this region, and passing these practices on to the next generation.

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

1/19/08
Scott Henderson
Via Email: shenders@aloha.net

To: Farber & Associates Planning Services

Subject: Comments on Kapoho fishpond project draft EA

To: Farber & Associates Planning Services

I have reviewed your draft EA for the Kapoho Fishpond Restoration Project and provide the following comments.

I am educated as a volcanologist/geophysicist and biologist, my working life was spent largely as a marine biologist in Hawaii. I spent several years as a natural resources manager under employ of the Marine Corps at Kaneohe (Oahu) managing nearly \$3M of projects focusing on habitat restoration and mangrove removal in the 500 acre Nuupia fishpond complex. Most of my early interest in geology and marine biology originated in my experiences as a youngster in Kapoho Bay. I am now retired and live in Hilo.

Our family spent alot of vacation time in the early 50's at Dr. Kasamoto's beach house which is located just north of the Kapoho fish pond. In the 1953-55 time-frame my parents (Robert & Caroline Henderson) bought the lot just inland from Kasamoto's and we built a beach house there. Most of our family's weekends in the 1950's were spent at the Kapoho beach house, largely because the beach lots bay was an ocean wonderland and (we) spent hundreds of hours snorkeling, boating, fishing and exploring the bay. In 1963, our family sold the beach property to long-time friends, Dr. & Mrs. J.A. Mitchell. I vacationed at the property with my family several times in the 1970's through the 1990's.

The Kapoho fishpond (we called it Lyman Pond) was in good shape in the 50s. About once every year or two, local friends of Art Lyman would show up to do maintenance work on the pond walls, generally spending a day or two replacing rocks in sections of wall damaged by surf action. At age 10 to 14 years I recall taking part in the work. When pau, a few of the workers on occasion would place a gill net in the pond and pai pai fish into it harvesting some good size mullet, awa and awa aua and an occasional big kaku. Small reward for back-breaking work. A couple of times I was given permission to cast a small throw net to take a few mullet. In those days unauthorized fishing rarely happened in a privately-owned pond like the Kapoho pond....it was posted with a few "Kapu" signs and they were respected.

In the early 50's I recall that there was a mesh gate in place in the main makaha. I also vaguely recollect that there were actually two gates in place there one in front of the other with about 4 to 8 feet of separation. The gates, I think, were metal (or maybe wooden?) and had a large puka size of maybe 2 inches. The dual gate is consistent with Art Lyman's noting that the concrete parts of the makaha built in the 1920s "was used in the traditional manner to trap fish". In the "trap method" the inner-most gate was left open and on the in-coming tide large fish trying to get to the open ocean would swim into the makaha passage to a point where their path was blocked by the closed outer-most gate. The inner-gate was then dropped to trap them. A few of the large fish were harvested and the remainder released back into the pond.

There were also gates located at 3 or 4 locations in walls of the pua ponds located in the NW corner of the pond. My brother and I agree that those gates were made of what appeared to be galvanized hardware wire of 3/8 to 1/2 inch mesh on wooden frames. The pua ponds were fed by high volume fresh water springs and contained large numbers of baby uouoa, mullet, and aholehole....and schools of large fat aholehole. Eel grass (*Sporobolus?*), milo and hau were the dominant vegetation species along the pond shorelines.

Based on my observations of the low frequency of maintenance and fish harvesting operations associated with the Kapoho pond in the 50's and later, I would guess that the "heyday" of fish culture in the pond occurred sometime before that...maybe in the late 1800's or early 1900's?

The intrusion of the 1960 lava flow had devastating effect on the marine environment of Kapoho bay. Nearly all corals and many species of algae were killed by water temperatures that were super-elevated for several weeks to months after the eruption. Immediately after this event, the bay was colonized by a very fine stringy yellow brown algae (*Cladophora* sp.?) that dominated in the bay for many years. Free-floating clumps and pieces of this algae contributed in large part to a huge increase in organic-caused turbidity in the bay. In short, the bay was converted overnight from a clear-water paradise-like "coral gardens" into a cloudy soupy mess with fish, algae and invertebrate populations severely depleted in numbers and diversity. Today, the bay shows only a few signs of recovery toward the previous status. Deepening of the entire bay by over a foot in the subsidence event of 1975 also changed the previous character of the bay by significantly increasing surf exposure and increasing cloudiness of the bay waters simply through effects of continuous roiling.

Commonly, individuals tend to blame increased turbidity, as seen in Kapoho bay, on effects of pollution such as sewage. Personally, I don't see that as being a significant likely culprit here. The changes in water quality were directly linked in chronologic fashion to the geologic events. And the subsidence event could also have increased flow of ground water into the bay, with concomitant increase in dissolved nutrients which in turn feed planktonic (and benthic) algae, in turn increasing organic levels and turbidity. I've never had any health concerns relative to the consumption of fish that we've caught in the bay, either before or after the geologic events.

Rapid invasion of the bay shorelines by mangrove has also almost certainly contributed to increasing levels of organic debris and turbidity. We saw no visible mangrove in the bay in the 1950s, but by the mid-1970s it was abundant. The same situation is occurring along the Waiopae ("Vacationland") shoreland where mangrove is growing at an alarming rate, with potential to take over most of the popular tidepools in a few decades if not controlled.

I am of the opinion that the positives of alien mangrove removal far outweigh any negatives. In only a few decades, huge areas of calm water and estuarine habitat can be inundated and lost forever to the invasion of mangrove. I do not believe that Hawaiian turtle populations would experience any significant benefits from the long-term presence of mangrove. On the other hand, unchecked spread of mangrove would mean that turtle populations would lose precious inshore habitat and could be subjected to deleterious effects of enriched nutrient regimes causing higher frequencies of pest algae blooms and anoxic water quality events.

As we found in the Nuupia pond complex, use of heavy equipment such as excavators, is by far the fastest and most efficient means of mangrove removal in non-archaeologically sensitive areas. But it requires more effort, time, cost and frustration in the permitting process. Unexpectedly, we found in Nuupia that mechanized removal also left the cleared site nearly free of mangrove seed,

whereas, chainsaw removal leaves large amounts of seed behind, which, if not cleaned up encourages rapid regrowth of mangrove.

A plan also needs to be developed to restore mangrove cleared areas with new environmentally-acceptable vegetation which should be native where practical. Suggested species are milo, sesuvium (native pickleweed), kou, morning glory, hina hina and naupaka. If cleared areas are not revegetated in a timely manner, weed species (including mangrove) will take over. And revegetation is another task that takes a lot of manpower, although much of it can be from volunteers.

In the 1950's and 1960's turtles were extremely rare in Kapoho bay because they were intensely hunted for food. I recall how surprised I was one night in about 1954 when some local folks had laid net across the inlet a couple of houses seaward of our house (across from the fishpond) and they netted a medium-sized turtle. We'd never seen one in there and only recall seeing maybe three or four in the whole bay in the course of several years of diving and fishing experiences. Of course, since the late 1970's the turtle population there has steadily recovered, paralleling the Statewide trend.

If the Kapoho pond wall is restored, the quiet water environment inside the pond should continue to be a favorable feeding and resting place for turtles, much like the landlocked Kiholo pond is. And removal of alien mangrove in the pond system will expose old pahoehoe shoreline creating ideal haul-out and sun basking substrate for the turtles. Furthermore, those basking areas will largely be protected from surf action, dogs and humans. It is worth considering that it might also be beneficial to create a few low rock islands as haul-out/basking sites along the inside margin of the fishpond wall if there is enough residual rock left over from the wall rebuild. Approaching a true "turtle-topia".

Not mentioned in the draft EA is the existence of a network of submerged man-made walls in the waters of the bay outside of the fishpond. Many of these walls can be seen in Figure 7 of the EA. When we snorkeled around these features in the early 50's, especially in the area to the northeast of the fishpond, my brother and I found 3 or 4 broken and intact poi pounders and several dense worked rocks like adze-heads. (Neither my brother or I remember what happened to those artifacts.) A few oldtimers (don't remember who) in the 50s told us that the walls were remnants of old fish ponds and possibly house platforms/enclosures. It was said that these structures were submerged in subsidence events of the 1800's and 1924. It would be interesting to find out if those wall structures were indeed submerged in 1924, as it would possibly shed additional light on the history of the Kapoho fishpond. Note that increased surf action since 1975 has done significant damage to these walls....they are rapidly getting smeared out and in another decade or two may not be recognizable as being man-made. A final thought on these walls is that when you look at them in the aerial photo of Fig. 7, it looks as though they might have been a complex of fishponds...after they were lost to subsidence, maybe Kapoho fishpond was built as a partial replacement? When was the original bay actually formed?

Note that Kapoho means "depression".

There are several important pond culture fish species that are conspicuously missing from the "observed" list in the DEA...understanding that the list includes only those species seen on a single recent survey and is not likely to include wary or cryptic species. I have seen the following species in and nearby the ponds from the 50's to the present: uouoa, aholehole, awa, awa aua, oio, and lai. Nenuae are common outside the pond. In snorkeling in the area in the last couple of years, I notice that there is an abundance of large herbivorous fish in areas outside the pond and

the bay in general. They include tangs (such as palani, pualu, kala, naenae, manini and maiko) and nenu. A relatively small number of these species now dominate fish populations in the bay as compared to the wide diversity of coral-associated species that existed before 1960. A major shift has obviously occurred, favoring herbivorous species.

Although tilapia are (or have been) a nuisance species in some of the landlocked ponds at Kapoho, they fortunately do not seem to have established themselves in the bay or ocean-connected ponds.

There is no mention in the DEA of the nursery/pua ponds that used to exist the back area of the main pond. These ponds are clearly visible in Figure 9 of the DEA. As mangrove clearly progresses, care should be taken to preserve/restore the walls to these ponds.

I support the concept that the Kapoho pond(s) should be a sanctuary where all methods of fishing are banned. The general public and aquatic resource management in the state of Hawaii have been remiss in not providing absolute protection for fish populations in and near to our pond/wetland/brackish water embayments. These areas serve as food sources for adult fish and as nurseries for juvenile fish. All too often they are grossly overfished and overall replenishment of fish stocks in Hawaiian waters suffer greatly as a result. The area should be signed with verbiage that notes that fishing is not allowed as the pond is being managed as a sanctuary. And for obvious reasons, fishing should also not be allowed by the property owner or his employees. Please note that I am an avid ocean and shoreline fisherman.

Aloha,
Scott Henderson

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Scott Henderson

Via Email: shenders@aloha.net

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Henderson:

Thank you for your email of January 19, 2008, commenting on the Draft Environmental Assessment proposal to restore and rebuild the fishpond at Kapoho Bay.

Your insights and observations through the many years you have spent in and around Kapoho Bay and this fishpond are invaluable to this project. Particularly since you are a professional marine biologist and have spent many years working on the Mōkapu Fishponds at Kane'ōhe, 'Oahu. Your input to this project will go a long way toward helping to understand how the fishpond can once again be successful and thriving.

Thank you for your support. We appreciate your comments on the proposed project.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Terrilee Kahealani Kelii
RR 2 Box 3964
Kapoho, Hawaii 96778
808-965-8888

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS

2008 JAN 22 A 9:40

DEPT. OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

State of Hawaii
Department of Land and Natural Resources
Division of Conservation & Coastal Resources
P.O. Box 621
Honolulu, Hawaii 96809
808-587-0377

Project: CDUA HA 3447
Kapoho Fishpond
John Barsell

Dear Sir/Madame:

I think that more research and time is needed before approval or dismissal of above project.

1. Impact to marine animals. I have witnessed Green sea turtles and a Hawaiian monk seal in the area. They will enter area at high tide and leave at low tide. What happens to their entry and exit after wall is done? They must learn to enter a 3 ft makaha? I think that more and more areas are taken away from our marine life, thru population and walls, marine animals have less and less shoreline area to roam. More time is needed and research done on impact to the Green sea turtles and Hawaiian monk seal.

George H. Balazs from NOAA, National Marine Fisheries Service, has been studying the turtle population on a regular basis in the area for years. It would be good to get his view on the impact of this proposal to the marine animals.

2. The pictures in the report are not current. Current pictures will show exactly how much work has been done in the area and the improvements that have taken place. A sight exam would be good. Three Hawaiian hawks (I'o) lived in this area and had a nest. Because of chain saws and cutting down of milo tree's and mangrove, I do not see them around anymore.

3. More research into history of the fishpond area is needed. The makaha is presently made of concrete; would it be more appropriate to restore it in the original manner without concrete? A public notice to ask the community may bring people

(Hawaiian groups, fishermen, local residence) forward that may have valuable information or verbal history about the fishpond.

4. Impact on neighborhood and community. Directly across from where they plan on re-building the wall are five vacation rentals. Most are from the mainland and are visitors. What impact will it have? What happens if someone or a child climbs this wall at low tide when it is fully-exposed? What action or measures are being taken to protect residence and/or visitors?

5. Community and residents were not given sufficient time or notice from property owner. No notice of good faith was given to Kapoho Beach Community Association and surrounding residence. I found out about project from newspaper article dated 1/7/2008 from the Hawaii Tribune Herald. Research for EIS is dated October 2007. I think more time and research of impact to neighborhood and community is needed.

Please stop project until further information and research is done.

Sincerely,

A handwritten signature in black ink, appearing to read "Terrilee Kahealani Kelii". The signature is written in a cursive, flowing style.

Terrilee Kahealani Kelii

PLEASE PROTECT OUR RARE WILD LIFE

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAII 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Terrilee Kahealani Kelii
RR 2, Box 3964
Kapoho, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mrs. Kelii:

Thank you for your letter commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments in the order that they are addressed in your letter:

Impact to Marine Animals, Hawaiian Green Sea Turtles and Hawaiian Monk Seal. You wrote, *“What will happen to their entry and exit after the wall is done? They [turtles, seals] must learn to enter a 3 foot mākāhā?”*

An important component of a functioning fishpond is the utilization of tidal shifts and the water currents they create moving through the fishpond mākāhā and into and out of the fishpond basin. Certainly, at the moment, during higher tides, portions of the fishpond wall are underwater providing access for marine animals. But this access over the wall is periodic and happenstance. Strong currents are what attract marine animals. With an intact wall and mākāhā these water currents will be stronger than what now exists. As marine plants and animals are naturally attracted to ocean currents, seawater flowing into the pond brings microscopic plants and animals that provided food. Baby fish or *pua*, and other fish species and marine mammals such as the sea turtles and seals also enter the mākāhā through incoming tides. Likewise, out-going waters contains a rich combination of microorganisms that serve as food for the reefs, grown fish move out onto the reefs and open ocean to spawn and other marine animals exit the fishpond.

Dated Pictures. Most of the pictures in the Draft Environmental Assessment were taken in the fall of 2007. The aerial photo featured on the EA cover and on page 13 was taken in 2005. Working with a number of aerial stock photo agencies, this was the most current, clear shot of the fishpond wall we could find. Yes, removal of the alien invasive mangrove is ongoing at the project site – thus any pictures would look dated as that work is having a tremendous visual effect upon the viewscape of the area.

Terrilee Kahealani Kelii
February 15, 2008
Page 2

The mangrove removal, by the way, is also having an incredibly positive effect upon the fishpond waters, returning them to a more balanced, oxygen rich body of water.

Mangrove removal will also be beneficial to the endangered Hawaiian water bird populations as mangrove displaces marshlands preferred by native birds and it also provides habitat for water bird predators like the mongoose.

Since removing the mangrove, there has been a noticeable resurgence in marine life, including more turtles. Indeed removing the mangrove from the shoreline has exposed the old pahoehoe shoreline creating an ideal haul-out and sun basking substrate for the turtles. The turtles have taken quickly to using these basking areas as the mangrove is removed and replaced with salt grass (Paspalum vaginatum).

“George Balaz from NOAA, National Marine Fisheries Service, has been studying the turtle population on a regular basis in the area for years. It would be good to get his view on the impact on this proposal to the marine animals.”

Indeed Dr. George Balaz is a renowned expert on the Hawaiian Green Sea Turtle and studies the turtles in and around the fishpond. He was contacted and asked to comment on the Draft Environmental Assessment. However, Dr. Balaz is a Federal NOAA employee and that agency has discrete areas of responsibility concerning the review and comment of EA's. Comments and evaluations come under another office and until that office (The Pacific Regional Office) requests his input, he is prevented from making any comments or opinions about the Draft EA.

“The mākāhā is presently made of concrete; would it be more appropriate to restore it in the original manner without concrete?”

According to Arthur Lyman whose family built the fishpond, the mākāhā you are referring to was built in 1920. It is a reflection of the ongoing evolution and improvements that were made to fishponds over time. That mākāhā, now nearly 90 years old, is in itself a historic artifact and should be left as it is.

“A public notice to ask the community may bring people together (Hawaiian groups, fisherman, local residence) forward that may have a valuable information on the verbal history about the fishpond.”

We did a number of interviews with people in the community about their recollections of the fishpond and thoughts on this project proposal. That information was compiled in the Cultural Impact Assessment and can be found as an appendix to the EA (Appendix B, page 101).

Directly across from where they plan on re-building the wall are five vacation rentals. Most of them are from the mainland and are visitors. What will happens if someone or a child climbs this wall at low tide when it is fully exposed? What action or measures are being taken to protect residence and/or visitors?"

Visitors come to Hawai'i to experience the uniqueness and beauty that these islands offer. Traditional Hawai'i fishponds are singular and unique. Found nowhere else in the world. They are one of the most cherished treasures of Hawaiian culture. They truly are an embodiment of the Hawaiians and their deep, keen knowledge of their environment and sustainable ways. They have much to teach us about living within our means in this modern world.

Of course visitors would not necessarily know about Hawaiian Fishponds or Hawaiian ways. No doubt the visible wall would pique their interest. It maybe a good idea, and one I will suggest to the owners, that they put together a small brochure about the fishpond for those in the neighborhood. Of course in the brochure would be a section on proper etiquette around a fishpond. That section would discuss the traditional restrictions placed on walking or climbing on top of the wall. Being on a fishpond wall was always kapu (prohibited) and people understood that. However, one has to assume most people today would not know about these restrictions; or know that in fact the wall is private property. Out of respect to the fishpond wall and for their health and safety, just as in the old days, signs will be placed on the wall to notify people that the wall is private property and to keep off of it. A visit to fishponds on Oahu, Maui and Moloka'i all testify to the fact that placing "Keep Off" signs along fishpond walls is a continued and prevalent practice to this day.

"Community and residents were not given sufficient time or notice from property owner."

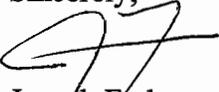
One of the purposes of the environmental review process (Chapter 343, Hawai'i Revised Statutes), which this proposal is undergoing, is the provision to provide public input into the planning process. This is to allow for an open dialogue about the proposal—to clarify issues, answer questions and allow the general public and field experts to make contributions to the plan. As such the public has 30 days from the publication date to comment on the project. We appreciate and have taken into consideration all the comments that have been received from this process and know that such inputs only makes for a better, stronger and more successful project.

According to the applicant both he and his wife are active on the Kapoho Bay Community Association and have almost daily contact with the Board officers. The wall repair was discussed frequently on an informal basis. According to him, no one seems interested in making the project an issue.

Terrilee Kahealani Keli
February 15, 2008
Page 4

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Art and Rene Kimura
P.O. Box 6401
Hilo, HI 96720
Phone/fax (808) 934-7261
Email: art@higp.hawaii.edu

John Barsell
RR 2, Box 3933
Pahoa, HI 96778

January 11, 2008

Dear Mr. Barsell,

Aloha. I read with much interest your plans to restore the Kapoho Bay fishpond. As owners of two homes/lots on Alapaki Drive right across from the fish pond, we applaud your plans for re-building the walls and restoring the fish pond. I have seen the gradual deterioration of the pond walls since the 50's initially as an elementary school child accompanying my parents, not only through the natural wind and waves but through lack of upkeep, and the observable changes in the waters in the channel, the pond and the bay due to the volcanic eruption in the 60's, the continued growth of invasive species such as the mangroves that surround the pond, and the slowly sinking landscapes. These changes have affected the water quality through additional organic debris in the water which undoubtedly have affected the coral growth, the sea turtles and the other marine life which were once abundant in the bay.

We have gratefully observed, since you took ownership of the property, your efforts at removing an already significant amount of the mangrove and other plants that have grown around and into the pond. Each year, during the mangrove seeding periods and high tides, our property is inundated with sometimes up to 7 to 10 wheel barrows of mangrove seeds and other plant parts daily that wash over the low seawalls into our property, taking hours for removal. We look forward to the further removal of these invasive plants as part of your pond restoration project, and to the pond becoming a nursery for a variety of marine life.

We realize the considerable financial investment you are making to make this restoration of the pond possible and can see that it will become a cultural and marine resource in the future. Thank you for taking this initiative to restore the pond. If there is anything we can do to support this effort, please let us know.

Sincerely yours,



Art and Rene Kimura
P.O. Box 6401, Hilo, HI 96720
Phone: 934-7261; email: art@higp.hawaii.edu

Cc: Department of Land and Natural Resources
Farber & Associates
Office of Environmental Quality Control

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Art and Rene Kimura
PO Box 6401
Hilo, HI 9672

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. and Mrs. Kimura:

Thank you for your letter of January 11, 2008, commenting on Mr. Barsell's proposal to restore and rebuild the fishpond on his property at Kapoho Bay.

Your insights about your many years around the fishpond and seeing the changes that have happen to the fishpond and Kapoho Bay are very interesting and helpful. Indeed this area has witnessed many changes over the years what with volcanic activity, earthquakes and the deterioration of the fishpond and inundation with the invasive mangrove.

Yes, Mr. Barsell's efforts should be commended—investing a great amount of time, money and hard work to make this corner of Kapoho Bay thrive once again.

Thank you for your support. We appreciate your comments on the proposed project.

Sincerely,

Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Jan 21, 2008

State of Hawaii Dept of Land and Natural Resources
Division of Conservation & Coastal Resources
PO Box 621
Honolulu, Hawaii 96809

Re: 2007-12-23 Kapoho Bay Fish Restoration

Dear Sirs,

I would like to enter my comments pertaining to the proposed project.

First, I think it is commendable that an individual would want to take on such a large project.

However, a designation of "sanctuary" would prohibit any public access and therefore would allow only adjacent property owners to enjoy the fruits of the project. As it is now, the Beach Lots area has severely restricted any public access to the area and this would add more restrictions.

There is also the question of land ownership and state shoreline establishment. I feel that a shoreline determination would be in line before this project is even considered. Hawaiian rights also need to be considered as the fishing pond was probably owned by royalty with fishing rights for the people, and therefore these rights have passed onto the state and present day Hawaiians.

Because of the potential adverse impact on rights and fishing issues, a full Environmental Assessment should be done.

I feel that this case should be contested and that the permit be denied at this time.

Thanks



James Lehner
RR2 Box 4071
Pahoa, Hawaii 96778

cc Farber and Associates
2722 Ferdinand Ave
Honolulu, Hawaii 96822

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

James Lehner
RR 2, Box 4071
Kapoho, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Lehner:

Thank you for your letter of January 21, 2008, commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments as addressed in your letter:

You state the following, “*..A designation of “sanctuary” would prohibit any public access and therefore would allow only adjacent property owners to enjoy the fruits of the project.*”

This project proposes to restore a traditional Hawaiian fishpond and make it a marine sanctuary (a no fishing zone) to help replenish the dwindling fish stocks of Kapoho Bay proper and the reefs beyond. To do this means limiting access to the fishpond to allow the marine life to flourish. This means limiting access to the fishpond to adjacent property owners as well as the general public.

“There is also a question of land ownership and state shoreline establishment.”

Traditional fishponds like this are unique in that they are located in ocean waters but the fishpond wall and the submerged lands enclosing them are private property. This practice comes from ancient tradition and custom whereby exclusive control of fishpond waters has always been required -- and thus written into kingdom law (which continue to this day) -- to insure a productive fishpond.

The Kapoho fishpond wall is clearly visible during all but the highest tides. If you refer to the Draft EA: the TMK map (page 15), the Zoning Map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the submerged lands within it. The applicant has clear title to the fishpond, has title insurance and pays property taxes on it like any real property in Hawai'i.

James Lehner
February 15, 2008
Page 2

“Hawaiian rights also need to be considered as the fishing pond was probably owned by royalty with fishing rights for the people and therefore these right have passes onto the state and present day Hawaiians.”

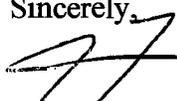
This fishpond is estimated to be about 100 years old. It is not an ancient fishpond built by Ali‘i, royalty. However, this is still a significant historic and cultural property and Hawaiian rights have been considered and addressed in this project proposal. The project embodies the notion of not only protecting native Hawaiian rights, but also enhancing them. This project is about mālama ‘āina, the stewardship and protection of a nearly lost cultural treasure. Rebuilding and maintaining the fishpond will revive many cultural practices nearly lost, particularly in this, and passing these practices on to the next generation.

We feel this proposal will only protect, enhance and develop culturally significant practices and traditional resources in the area. The project proposal will revive a fishpond that was previously derelict and extensively inundated with mangrove. The work is being undertaken by a group consisting of mostly Native Hawaiians. In fact, the project Forman’s great uncle helped build the original wall and mākāhā. The restored fishpond will be managed as a fully functioning historic fishpond and it will again be a productive site for the propagation and grow-out of traditional species such as ‘ama‘ama, awa and aholehole. Because the fishpond will be a marine reserve, no large-scale fish harvesting allowed, the fishpond will in be in effect a nursery and will help restock the larger waters of Kapoho Bay—thus enhancing traditional fishing and gathering practices in the waters adjacent to the fishpond.

“I feel that this case should be contested and the permit be denied at this time.”

I am sorry you do not support this project. We feel restoring this historic fishpond and allow it to serve as a marine sanctuary is the right thing to do to help the environment and to preserve, enhance and perpetuate Hawaiian ways.

We appreciate your comments on the proposed project.

Sincerely,


Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Law Office of ROGER V. MEEKER

RR 2, Box 3964
Kapoho, Hawaii 96778
phone: (808) 557-2223
e-mail: rvmeeker@gmail.com

17 January 2008

Laura H. Thielen, Chairperson
Department of Land and Natural Resources
State of Hawaii
1151 Punchbowl Street, Room 130
Honolulu, Hawaii 96813

RECEIVED
OFFICE OF CONSERVATION
AND COASTAL LANDS
2008 JAN 22 A 9:43
DEPT OF LAND &
NATURAL RESOURCES
STATE OF HAWAII

Re: Comments re: Draft Environmental Assessment
Kapoho Bay Fishpond Restoration Project
CDUA application HA-3447
Tax Map Key (3) 1-4-002-036 (Kapoho, Puna, Hawaii)
Applicant: John Barsell

Dear Ms. Thielen:

I am writing regarding the above-referred draft Environmental Assessment for Applicant's Kapoho Bay Fishpond Restoration Project. Although the 149-page draft EA appears to be thorough in its overview and analysis of the subject property, its immediate environs, and proposed project, certain issues have been inadequately addressed.

We are immediate neighbors of Applicant and his spouse. Our property lies on the shoreline in the center of Kapoho Bay and looks directly at the subject fishpond site, probably only about 100 feet distant. I have been a frequent visitor to Kapoho Bay for the past five years; my wife has been coming here since she was a child in the 1960's.

1. Impact on Hawaiian Green Turtles. Kapoho Bay is quite well known and a popular destination for Big Island residents for two primary reasons: (1) the geothermally-heated swimming pond known as "Champagne Pond" located at the northern end of the Bay, and (2) the Hawaiian Green Turtles population that frequents the area. Section 4.2.3 of the DEA state that "*No impacts on extant turtle populations are expected.*" The DEA further states that "*Post-construction, the makaha will not be gated, sea turtles will be able to move into and out of the fishpond at will so their access to these protected waters will not be impeded.*" Unfortunately, no support for these statements is provided.

At present, the turtles frequent the fishpond area in large numbers. Since much of the existing fishpond wall – hundreds of feet in distance -- is underwater at higher tides, it is probably fair to assume that the turtles' ingress and egress is not done via the makaha.

Over the past couple of years, the frequency with which the turtles visit Champagne Pond has decreased dramatically – no doubt due to the illegally-operated commercial tours to Champagne Pond that have been conducted over that time on State DLNR conservation lands (a matter which is also presently being deliberated by DLNR). Since the turtles have largely left the Champagne Pond area due to this continued harassment, they may well be seeking alternative sanctuary in Applicant's fishpond waters in even greater numbers than before.

Considering the above circumstances, it should be of vital importance to determine whether restoring the fishpond wall and blocking all access to the fishpond waters except via the 3-foot wide makaha gate will have an impact on the turtles' ability to access the fishpond waters. Will the turtles learn to use the gate? What experiences of other fishpond restoration efforts in Hawaii can shed light on this question? I don't know the answer to those questions, and the DEA does not speak to this issue either. It would seem to be of vital importance that a qualified marine biologist be consulted to make this behavioral assessment prior to stating unequivocally that *"no impacts on extant turtle populations are expected."*

2. Impact on Hawaiian monk seal. Section 4.2.2 of the DEA states that *"No known rare, endangered or threatened species of flora or fauna were found at the subject property."* In fact, we have personally observed the endangered and protected Hawaiian monk seal swimming in the Kapoho fishpond waters. Other Kapoho residents have also observed the monk seals in the Kapoho Bay waters, so their presence here is not all that rare. This fact begs the same question as raised above: will blocking all access to Kapoho fishpond waters except for the single makaha gate effectively block access for the seals? Again, only a qualified marine biologist can make this determination.

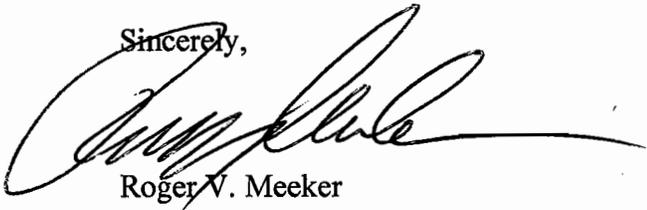
With respect to the above issues, it may be entirely possible that protected marine wildlife like the Hawaiian green turtle and Hawaiian monk seal will in fact learn to use the makaha gate as an access to the fishpond waters; in that event, restoring the fishpond wall would probably create a wonderful sanctuary habitat for these species. At present, however, that determination cannot be made simply because the DEA has not addressed this important issue.

3. Inadequate Notice to Community. This draft Environmental Assessment only came to public attention by way of a front-page news story in the Hawaii Tribune-Herald newspaper in January 7, 2008. My understanding is that the only "notice" provided was via the bulletin posted by the Department of Health's Office of Environmental Quality Control. Applicant's DEA states that *"Those asked within the community are in agreement that a rebuilt fishpond would be a positive for the Puna area ..."*

Who was asked? There is only one formal community organization in the Kapoho Bay area, and it is the Kapoho Beach Community Association (KBCA). This group is quite active and meets regularly. In fact, Applicant's spouse sits on the Board of Directors of KBCA. In view of that fact, it is extremely disappointing that no effort was made to inform the immediate community of Applicant's plans. Only through the fortuitous and timely work of a conscientious newspaper reporter was the Kapoho Bay community and general public even made aware of the proposal and DEA. It would seem only fair and equitable that more time be allowed to provide community members to review and comment on the rather lengthy and detailed DEA.

Neither the purpose nor intent of this letter is to oppose Applicant's fishpond restoration project. In fact, if the issues raised in this letter can be appropriately studied, and if it can be determined that there will be no negative impact on the protected turtle and monk seal populations that frequent this area, the Kapoho fishpond restoration may very well enhance the habitat for these amazing creatures and prove to be a very real positive benefit for Kapoho Bay in general. For that, I applaud Applicant's willingness and desire to undertake such an effort. In any event, however, more time should be allowed to offer the Kapoho Bay community at large to review and comment on the draft EA.

Sincerely,

A handwritten signature in black ink, appearing to read 'Roger V. Meeker', written in a cursive style.

Roger V. Meeker

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Roger V. Meeker
RR 2, Box 3964
Kapoho, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Meeker:

Thank you for your letter of January 17, 2008, commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay. It was nice to have met you in person at the fishpond over our informal meeting about the project proposal back in the beginning of this month. I hope that meeting helped answer some of your question about the project and Hawaiian fishponds in general.

The following are responses to your comments in the order that they are addressed in your letter:

Impact of Hawaiian Green Turtles. "Will the turtles learn to use the gate?"

Yes. Marine plants and animals are naturally attracted to ocean currents. An important component of a functioning fishpond is the utilization of tidal shifts and the water currents they create through the fishpond mā kāhā and into and out of the fishpond basin. Certainly at higher tides portions of the fishpond wall are underwater, providing access to marine animals. But this access over the wall is periodic and happenstance. Strong currents are what attract marine animals. So does, in the case of a fishpond, the detection of a large column of nutrient rich brackish water. With an intact wall and mā kāhā these water currents will be stronger than what now exists and thus provide an improved means for marine life to find their way into and out of the fishpond. Seawater flowing into the pond brings microscopic plants and animals that provided food. Baby fish or *pua*, and other fish species and marine mammals such as the Hawaiian Green Sea Turtle also enter the mā kāhā through incoming tides. Likewise, out-going waters contains a rich combination of brackish water rich with microorganisms that serve as food for the reefs, grown fish move out onto the reefs and open ocean to spawn and other marine animals exit the fishpond.

We have consulted with marine science experts, fishpond operators and have reviewed the body of published knowledge about fishpond and their marine environments. Like all fishponds, Kapoho Fishpond is unique. Each fishpond is a reflection of its history of use and maintenance (or lack of), how and for what purpose it was constructed and the mauka/makai (land and ocean) environment it lies within. Turtles are a rare sighting within most managed fishponds, as they are usually gated, preventing their access. Kapoho Bay and this fishpond

are unique for being a refuge for the Hawaiian Green Sea Turtle. We recognize that and welcome the turtles into the fishpond. The proposal foregoes gating the mākāhā to allow for their access to the protected fishpond waters. We feel that this is a good appropriate compromise, allowing *all* marine life access to what is a traditional Hawaiian fishpond. Raising the wall will increase the area of calm water that should improve upon the fishpond being a favorable feeding and resting place for turtles. Also note the ongoing removal of alien mangrove in the pond system has exposed the old pahoehoe shoreline creating an ideal haul-out and sun basking substrate for the turtles. Furthermore, those basking areas are largely protected from surf action, dogs and humans. The turtles have taken quickly to using these basking areas as the mangrove is removed and replaced with salt grass (*Paspalum vaginatum*).

Impact of the Hawaiian Monk Seal. "Will blocking all access to Kapoho Fishpond waters except for the single mākāhā effectively block access for the seals?"

No, the mākāhā will not block access to the seals. Again, as mentioned above, with an intact wall and mākāhā water currents will be stronger than what now exists. Marine plants and animals are naturally attracted to ocean currents and utilize these currents to access the fishpond. Furthermore, the mākāhā will not be gated to allow access to the fishpond for all marine life.

Inadequate notice to the community.

In conducting oral recollections and thoughts on the fishpond that are found in the Cultural Impact Assessment, Appendix B, page 101, the majority of those interview when questioned thought restoring the fishpond was a good idea.

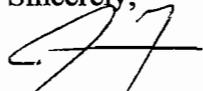
One of the purposes of the environmental review process (Chapter 343, Hawai'i Revised Statutes), which this proposal is undergoing, is the provision to provide public input into the planning process. This is to allow for an open dialogue about the proposal—to clarify issues, answer questions and allow the general public and field experts to make contributions to the plan. As such the public has 30 days from the publication date of the Draft EA to comment on the project. We appreciate and have taken into consideration all the comments that have been received from this process and know that such inputs only makes for a better, stronger and more successful project.

According to the applicant both he and his wife are active on the Kapoho Beach Community Association (KBCA) and have almost daily contact with the Board officers. The wall repair was discussed frequently on an informal basis. According to him, no one seems interested in making the project an issue.

Roger V. Meeker
February 15, 2008
Page 3

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Tristine Rainer
14-5138 Alapai Point Rd.
Pahoa, HI 96778

RECEIVED

'08 JAN 22 A 8:11

January 17, 2008

Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

I am offering comments regarding the draft environmental assessment for John Barsell's creation of fish ponds on his Kapoho Beach Lots property.

My concern is not with the appropriateness of preserving the fish ponds, which sounds like a lovely idea to me, but with the safety of the people who use the road that runs next to the Barsell property from Alapai Point to the Kapoho exit gate. This road is the only escape for the residents on Alapai Point Road in the event of a tsunami or hurricane or even, possibly, a flash flood. Alapai Point is a narrow finger of land surrounded by water on three sides.

I have observed on my walks when I have been at our property on Alapai Point Road this past Christmas holiday and during the summer of 2007 that the contours of the water in front of the Barsell home have changed. The water from their inlet now comes to within five feet of our single exit route. Unfortunately at the spot where the water is now closest there is a dip in the road creating a trough. In the event of a tsunami or hurricane that dip in the road would flood with water from the inlet, blocking cars and people trying to escape from Alapai Point. Since there is no other way out, this could cost many lives.

I am all for saving the sea turtles and other marine life in our beleaguered waters. Please make sure that you also save our human lives. I would appreciate a reply addressing my concern. Please address your reply to:

Tristine Rainer
10578 Arnwood Rd.
Lake View Terrace, CA 91342

Sincerely,

Tristine Rainer
Tristine Rainer

- c. John Barsell
- c. Farber and Ass.
- c. Office of Environmental Quality Control
- c. Peter Sur, Tribune-Herald

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

2008 JAN 24 A 10:19

RECEIVED
LAND DIVISION

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Tristine Rainer
10578 Arnwood. Road
Lake View Terrace, CA 91342

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mrs. Rainer:

Thank you for your letter of January 17, 2008 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments in the order that they are addressed in your letter:

“I have observed on my walks...that the contours of the water in front of the [subject property] have changed. The water from their inlet now comes to within five feet of our single exit route (Alapai Point Road to the Kapoho exit gate).”

The water has always been there, it is just that you can now see the fishpond water from Alapai Point Road because of extensive mangrove removal in that area. This is the western end of the fishpond about 15 feet from the subject property line.

“Unfortunately at the spot where the water is now closest there is dip in the road creating a trough. In the even of a tsunami or hurricane that dip in the road would flood with water from the inlet, blocking cars and people trying to escape from Alapai Point. Since there is no other way out, this could cost many lives.”

It has been pointed out to me by the applicant that there is an alternative way off of Alapai Point—there is a walkable trail from Alapai Point Road near Dan Shapiro's house to Vacationland. The trail until a few years ago was drivable but has now been blocked with boulders.

The entire Kapoho area has a history of ongoing subsidence and is an area of high risk from hurricanes and tsunamis (the entire area is located within the FEMA Special Flood Hazard Area and within the Civil Defense Tsunami Inundation Zone).

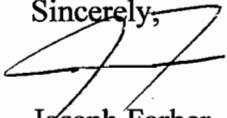
Tristine Rainer
February 15, 2008
Page 2

The Hawai'i County Planning Department commissioned a study of coastal subsidence in Kapoho to help address many shoreline and hazard issues associated with the area. It was published in January 2007. A copy of it in PDF format can be found for download at:
<http://www.hawaii-county.com/planning/kss.html>.

In general, the study concludes many planning issues (shoreline certification and coastal hazard mitigation issues) be given serious consideration during all stages of development in the region. While they site a number of points along Waiopae Road that the water breaches during high tide, the study makes no mention of the area you have concerns about. I would suggest you have a look at this report and contact the Hawai'i County Planning Department and relay your observations and concerns about the low lying areas of Alapai Point Road and the hazards it could present in the event of a hurricane or tsunami.

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

January 19, 2008

Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

Farber and Associates
2722 Ferdinand Ave.
Honolulu, HI 96822

Office of Environmental Quality Control
235 S. Beretania St., Suite 702
Honolulu, Hawaii 96813

Re: "Preserve it or Lose It" Article in the Hawaii Tribune Herald dated
January 7, 2008

Gentlemen & Ladies:

My family owns property in the Kapoho area, close to Mr. John Barsell's property.

I recently read an article in the Hawaii Tribune Herald entitled "Preserve it or Lose it" (see attached). I have some concerns regarding the proposed restoration of the submerged fishpond. Currently, turtles are swimming freely around the pond. With the restoration of the fishpond wall, what will happen to the turtles? Will they be contained in the fishpond? And how would the proposed wall affect the water quality for the rest of the lagoon if the water flow is curtailed?

My second concern is with regards to the submerged land referred to in the article. According to the article, the submerged land is considered private property and there is no public access to the fishpond. Is the submerged land really private property and not state-owned property? My understanding is that ocean land belongs to the State of Hawaii. I would appreciate clarification of this statement as I believe the ocean should be left as is, in the state it has been for many, many years, with public access continuing to be available from the ocean.

Thank you for your assistance in this matter.

Sincerely,

Dale Schwarz
8 Hakalani Place
Wailuku, Hawaii 96793

RECEIVED

'08 JAN 23 A 7:32

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

2008 JAN 25 P 4:26

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OFFICE OF CONSERVATION
LAND DIVISION

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

2008 JAN 25 A 10:01

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LAND DIVISION

Hawaii Tribune Herald

[Print Page](#)

Preserve it or lose it

Man seeking to rebuild aging Kapoho fishpond

By Peter Sur

Tribune-Herald staff writer

A Kapoho man wants to rebuild an old, deteriorated fishpond.

John Barsell, who owns the unnamed fishpond that juts into Kapoho Bay, is seeking public comment on his proposal. The 30-day comment period ends Jan. 22.

The 4.3-acre fishpond is partially encircled by a rock wall that is fully submerged at high tide.

Barsell plans to restore the fishpond wall to a height of 1 foot above the existing gate, or makaha, so that it would remain above the highest tide.

Fishponds were a crucial means of sustenance in pre-Western contact Hawaii.

Built without mortar or mechanical tools, and using only the rocks on hand, Hawaiians built enormous rock walls and created sluice gates, or makaha, to control the passage of fish.

In the 20th century, the practice of harvesting fish from these ponds largely died out, and most of the rock walls succumbed to neglect and natural forces.

"I think it's a form of historical culture preservation in a lot of ways," said Joe Farber, a Honolulu-based environmental planner who wrote the draft environmental assessment.

According to the DEA, the fishpond will be repaired, restored and maintained "for historic and cultural preservation purposes and to serve as a marine sanctuary."

That means no fishing will be done in the pond. There is no public access to the fishpond or the adjacent shoreline from the land. The fishpond is considered to be submerged lands and is private property.

"If you set up a nonfishing area near fishing areas, it creates a body of water where fish can go and the fish can spread."

The pond can then serve as a nursery for young fish, Farber said.

When completed, the fishpond's wall will stretch 1,246 feet, or nearly a quarter-mile. It's built in the "loko kuapa" style, in which one side of the wall faces the sea.

The fishpond's age has not been determined, according to the environmental assessment. An archaeological survey of the site finds that "Portions of the site are in good condition while at least one portion is substantially dilapidated. Based on oral testimony, the fishpond is believed to have been in existence by 1893, but its precise chronological age is difficult to determine."

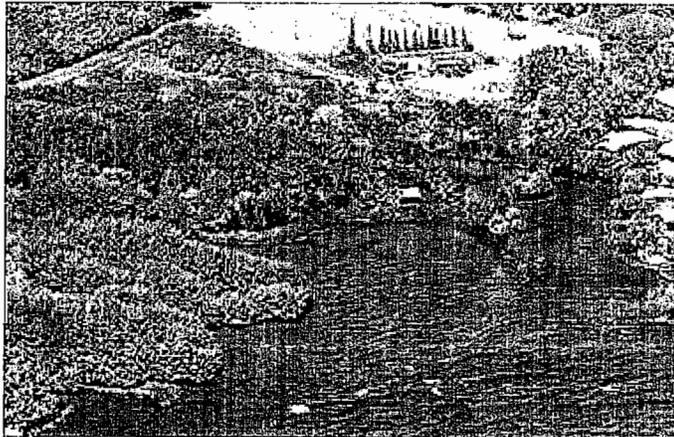
The survey recommended "that the fishpond be preserved, and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions."

Further, the environmental assessment states that if no action were taken, the likelihood of the site's restoration would become less likely over time as natural and human forces make the wall more difficult to rebuild.

"Thus ultimately, no action is to knowingly destroy this historic and cultural site," Farber's assessment states.

The wall faces numerous threats besides human neglect. In 1960, lava from a nearby vent came within 3,000 feet of the fishpond. It's exposed to the ocean, making it vulnerable to high seas and tsunamis. Kapoho is sinking, relative to Hilo, at a rate of 0.7 to 1.6 centimeters per year, according to a January 2007 study by Hawaii County.

"I think it's a wait and see if you have to rebuild it," Farber said. Plans call for periodic maintenance on the fishpond wall as an



This aerial photo shows the old Kapoho Bay fishpond submerged at high tide. The landowner proposes to restore the fishpond and maintain it as a marine sanctuary. - Brian Powers/Hawaiian Images Photography

A three-man crew would be hired to build and maintain the walls, Farber said.

"The guys that are going to be rebuilding that wall are from the area. They are local guys," he said.

The wall will be rebuilt by hand in the traditional uhau humu pohaku method, without using mortar. Pending approval, it will take a year to complete.

Peter Sur can be reached at psur@hawaiitribune-herald.com.

More info

Comments on the draft environmental assessment should be addressed to:

- John Barsell, RR2 Box 3933, Pahoa HI 96778
- Department of Land and Natural Resources, P.O. Box 621, Honolulu, HI 96809
- Farber & Associates, 2722 Ferdinand Ave., Honolulu, HI 96822
- Office of Environmental Quality Control, 235 S. Beretania St., Suite 702, Honolulu, HI 96813

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FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Dale Schwarz
8 Hakalani Place
Wailuku, HI 96793

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Dale Schwarz:

Thank you for your letter of January 19, 2008 commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments in the order that they are addressed in your letter:

“With the restoration of the fishpond wall, what will happen to the turtles? Will they be contained in the fishpond?”

The proposal foregoes gating the mākāhā to allow the turtles to access the protected fishpond waters. We feel that this is a good, appropriate compromise, allowing *all* marine life access to what is a traditional Hawaiian fishpond. Raising the wall will increase the area of calm water that should also improve upon the fishpond being a favorable feeding and resting place for turtles. Also note the ongoing removal of alien mangrove in the pond system has exposed the old pahoehoe shoreline creating an ideal haul-out and sun basking substrate for the turtles. The turtles have taken quickly to using these basking areas as the mangrove is removed and replaced with salt grass (*Paspalum vaginatum*).

An important component of a functioning fishpond is the utilization of tidal shifts and the water currents they create through the fishpond mākāhā and into and out of the fishpond basin. Certainly at higher tides portions of the fishpond wall are underwater, providing access to marine animals. But this access over the wall is periodic and happenstance. Strong currents are what attract marine animals. So does, in this case of a fishpond, the detection of a large column of nutrient rich brackish water. With an intact wall and mākāhā these water currents will be stronger than what now exists and thus provide an improved means for marine life to find their way into and out of the fishpond. Seawater flowing into the pond brings microscopic plants and animals that provided food. Baby fish or *pua*, and other fish species and marine mammals such as the Hawaiian Green Sea Turtle also enter the mākāhā through incoming tides. Likewise, out-going waters contains a rich combination of brackish water rich with microorganisms that serve as food for the reefs,

grown fish move out onto the reefs and open ocean to spawn and other marine animals exit the fishpond.

“How would the proposed wall affect the water quality for the rest of the lagoon if the water flow is curtailed?”

A number of factors in the proposal ensure good water quality will be maintained within the fishpond basin. The power of the daily tides moving through the improved *mākāhā* and rebuilt wall will aid in the flow, exchange and circulation of the fishpond waters. The deepening of the fishpond basin near the wall resulting from the repositioning of the wall stones will also have a favorable impact on maintaining water currents within the fishpond. Trade winds will continue to exert a significant influence on water circulation and water quality, as will the basal ground water springs in the back of the fishpond. The moderate and constant breezes from the northeast help keep pond water moving. As water moves across the ponds with the wind, a vertical mixing that helps replenish oxygen in the deeper parts of the pond also takes place. In addition, the on-going mangrove removal along the shoreline and within the fishpond basin is allowing more of the water to interact with the currents and winds and sunlight, thereby increasing the water circulation patterns and water oxygenation.

“Is the submerged land really private property and not state-owned property?”

Traditional fishponds like this are unique in that they are located in ocean waters but the fishpond wall and all the submerged lands enclosing them are private property. This practice comes from ancient tradition and custom whereby exclusive control of fishpond waters has always been required -- and thus written into kingdom law (which continue to this day) -- to insure a productive fishpond.

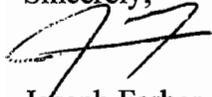
Fishponds are considered submerged lands and are recognized and treated as having the same rights as fast land. They are the only submerged lands in the State that can be owned by individuals (the State controls the remainder). In Hawai'i submerged lands are defined as all lands lying between the upper reaches of the waves on the shore and three nautical miles seaward.

The Kapoho fishpond wall is clearly visible during all but the highest tides. If you refer to the Draft EA: the TMK map (page 15), the Zoning Map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the submerged lands within it. The applicant has clear title to the fishpond, has title insurance and pays property taxes on it like any real property in Hawai'i.

Dale Schwarz
February 15, 2008
Page 3

We appreciate your comments on the proposed project. Should you have any questions, please contact me at (808) 988-3486 or email: joefarber@hotmail.com.

Sincerely,

A handwritten signature in black ink, appearing to be 'JF', written over a dotted line.

Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

January 21, 2008

Department of Land and Natural Resources
Division of Conservation & Coastal Resources
PO Box 621
Honolulu, Hawaii 96809

Re: 2007-12-23 Kapoho Bay Fish Restoration

Dear Sir:

As a resident of Kapoho (Vacationland Subdivision), I wish to register my objection to this project on the following grounds.

The restored fishpond wall and designated ocean sanctuary will exclude the public from a significant portion of Kapoho Bay, which is clearly makai of the shoreline. The waters to be walled off are within easy reach via boat, board, or swimming. The residents of the neighborhood do their best to exclude foot and auto traffic from outside; they should not be able to exclude the public via the waters of the Bay.

The millionaire developer's interest in historical/cultural restoration is not credible. The State of Hawaii should not compound the exclusion of the public which has been ongoing in Kapoho Beach Lots with its traffic gate and lack of aloha of some of its residents.

Very truly yours,


Richard J. Shea
RR2 - Box 4004
Pahoa, HI 96778

cc: Farber & Associates ✓
2722 Ferdinand Ave.
Honolulu, HI 96822

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Richard J. Shea
RR 2, Box 4004
Kapoho, HI 96778

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Shea:

Thank you for your letter of January 21, 2008, commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments as addressed in your letter:

You state the following, "I wish to register my objection to this project on the following grounds. The restored fishpond wall and designated ocean sanctuary will exclude the public from a significant portion of Kapoho Bay, which clearly makai of the shoreline. The waters to be walled off are within easy reach via boat, board or swimming."

I am sorry you do not support this project. Traditional Hawaiian fishponds like this are unique in that they are located in ocean waters but the fishpond wall and all the submerged lands enclosing them are private property. This practice comes from ancient tradition and custom whereby exclusive control of fishpond waters has always been required -- and thus written into kingdom law (which continue to this day) -- to insure a productive fishpond.

The Kapoho fishpond wall is clearly visible during all but the highest tides. The fishpond and its waters have never been considered public property. Hawaiian law has always treated fishponds as private property (Boone v. United States 1989).

If you refer to the Draft EA: the TMK map (page 15), the Zoning Map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the submerged lands within it. The applicant has clear title to the fishpond, has title insurance and pays property taxes on it like any real property in Hawai'i.

This project proposes to restore a traditional Hawaiian fishpond and make it a marine sanctuary (a no fishing zone) to help replenish the dwindling fish stocks of Kapoho Bay proper and the reefs beyond. To do this means limiting access to the fishpond waters to allow the marine life to flourish.

Richard J. Shea
February 15, 2008
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We feel restoring this historic fishpond and allow it to serve as a marine sanctuary is the right thing to do to help the environment and to preserve, enhance and perpetuate Hawaiian ways.

We appreciate your comments on the proposed project.

Sincerely,

Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

YAMANAKA ENTERPRISES, INC.

January 7, 2008

Mr. John Barsell
RR2
Box 3933
Pahoa, Hi. 96778

Re: COMMENTS TO: Draft Environmental Assessment on Lyman Fish Pond
TMK: 3rd Div: 1-4-2:36
That portion being approximately 4.2 Acres in Kapoho, Puna, Hawaii

Dear Mr. Barsell,

I would like to take this means to record comments on the proposed restoration of the Lyman Fish Pond and to address concerns not addressed in your draft Environmental Assessment.

My family owned property in Puna since the early 1900's and in particular Kapoho Beach lots S/D since the 50's. A family partnership also leased the Lyman Fishpond in the 1960's from the Lyman Estate for a number of years where I spent time working on the pond and Makaha. In the mid 1980's our company handled the sales of Lyman Estate Lands among which included the sale of the subject property to Richfield Corporation (KABUSHIKI GAISHA SEIYUKAI) of Japan.

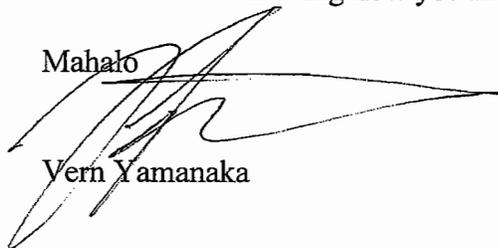
By the 1970's the degradation of the seawalls and land subsidence had reduced the ability to utilize the pond site tremendously. The walls had degraded to the point that at high tide we could paddle our kayaks into what was once pond area to access the shoreline. The Makaha had not been operable since the late 1960's. The profusion of mangrove growth had created a protected breeding area for shrimp and fish that had not previously existed. The fish counts for species like Aholehole, Anae (sea run ama ama), Kumu, papio, white shrimp, etc actually increased with the growth of the mangrove. Green turtles that frequent the bay began to utilize the open pond area as a habitat. Anae and Aholehole that require protected brackish areas to breed began to utilize the now open area in greater numbers during the winter season.

Our family, my children and my grandchildren have utilized this pond fishery area for over fifty years (50 yrs). On a seasonal basis we harvest specific species from the mangrove area and inside the original pond area. We access this area by sea by either swimming or kayak. Your proposed use and improvements could block our access to this resource. We feel that we have established a traditional use of this area after the pond

walls ceased to exist for longer than the period required for adverse use. The high wash of the tide daily designates this area as an area we should be able to access from the seaward boundary.

The restoration of a fish pond will not necessarily provide benefit to the surrounding fishery. Species like the turtles, anae and aholehole would be displaced unless pond management is monitored by knowledgeable resource managers. It would provide value and resources to the person who controls that area to the exclusion of others. We would look forward to hearing how you may address our concerns and interests.

Mahalo



Vern Yamanaka

Cc: Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hi. 96809

✓ Farber & Associates
2722 Ferdinand Ave
Honolulu, Hi 96822

Office of Environmental Quality Control
235 S. Beretania St. Suite 702
Honolulu, Hi. 96813

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Vern Yamanaka
1266 Kamehameha Ave.
Hilo, HI 96720

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Yamanaka:

Thank you for your letter of January 7, 2008 sharing your stories and insight about Kapoho Fishpond and also your comments on the Draft Environmental Assessment (EA) for this proposal.

The following are responses to your comments in the order that they are addressed in your letter:

“The profusion of mangrove growth had created a protected breeding area for shrimp and fish that had not previously existed. The fish counts for fish species like aholehole, Anae, Kumu, Papio, white shrimp actually increased with the growth of the mangrove.”

Mangrove is viewed as an invasive species here in Hawai'i where it has become established on all the major Hawaiian Islands and has replaced native marsh. Mangroves in Hawai'i have substantially altered coastal ecosystems by changing seafloor chemistry, sediment structure, and modifying the animal communities that live there.

Because mangrove is not native to Hawai'i, it has no natural predators to control its growth. Therefore, the mangrove started to grow uncontrollably and now causes three main problems: 1) Mangrove's smothering root systems allow it to out-compete all native Hawaiian plants; 2) It fills in coastal regions with sediment, destroying habitats for native plants and animals; 3) The sediment that mangrove accumulates is anoxic (lacks oxygen) and cannot support life.

“Our family, my children and my grandchildren have utilized this pond fishery for over fifty years. On a seasonal basis we harvest specific species from the mangrove area and inside the original pond area. Access this area by sea by either swimming or kayak. Your proposed use and improvement could block our access to this resource.”

You once had a lease to use this fishpond (as stated in the first paragraph of your letter). You thus fully understand the concept that fishponds are private property and thus exclusionary rights to the

Vern Yamanaka
February 15, 2008
Page 2

fishpond waters are necessary to ensure their proper operation. You need to obtain the owner's permission if you wish to access the fishpond.

The applicant wishes to make improvement to his fishpond. Fishponds are unique; they have always been considered private property under ancient Hawaiian law even though they are located in ocean waters. The fishpond wall and all the submerged lands enclosing them are private property even if the fishpond walls are passable at high tide (Boone v. United States, 44 F.2d 1489 [9th Cir. 1991]; Kaiser Aetna v. United States [1979]).

"We feel that we have established a traditional use of this area after the pond wall ceased to exist for longer than the period required for adverse use."

The fishpond wall has not ceased to exist. Clearly, the fishpond wall is visible and exposed at all but the highest tides. You state this in paragraph two, line two of your letter. Kapoho Fishpond is a working fishpond. Mangrove is being cleared from the shoreline and basin, improving the water quality, fish and turtle counts. The springs at the back of the pond continue to provide a steady supply of fresh water. The fishpond is a rich sanctuary of various fish species not to mention a refuge for the Hawaiian Green Sea Turtle.

The applicant has clear title to the fishpond, has title insurance and pays property taxes on it like any real property in Hawai'i. At no point has the fishpond not been considered private property to anyone challenging that notion. If you refer to the Draft EA: the TMK map (page 15), the Zoning Map (p. 17) and the Land Survey Map (p. 38) you will see the parcel boundaries include the fishpond wall and all the submerged lands within it.

Adverse Use. You may be referring to the term Adverse Possession. Adverse Possession can only occur if, "Open, notorious, continuous and exclusive possession has occurred for at least 20 years (Sister Albertina v. Kapiolani Estate, 14 Haw. 321 (1902)). Your stated "seasonal visits" would not qualify as continuous and exclusive possession of the property. Furthermore, the property is developed. The applicant has built a home on the property and lives there full-time. He has never met you.

The restoration of a fishpond will not necessarily provide benefit to the surrounding fishery. Species like turtles, anae and awholehole would be displaced unless pond management is monitored by knowledgeable resource managers."

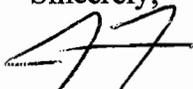
The fishpond will be operated as a marine sanctuary, a no fishing zone, and this will be beneficial to the surrounding fisheries of Kapoho Bay. The applicant does retain people who are

Vern Yamanaka
February 15, 2008
Page 3

knowledgeable about fishpond ecosystems. Kapoho fishpond is a site where fish fry recharge and help replenish fisheries stocks. Juveniles of several species of important food fish ('ama 'ama, awa, aholehole) migrate into the shallow inshore pond environment where fresh or brackish water inflow is concentrated. Fresh water contains dissolved nutrient such as nitrogen and phosphorus, which feeds marine plant growth supporting a diverse food chain including microorganisms, invertebrates, fish and turtles. The shallow calm waters of enclosed ponds also provide enhanced levels of protection from large predatory fish such as kaku (barracuda), ulua (jacks) and mano (sharks). When juvenile fish have grown to young adult size, most instinctively leave the protection of shallow fishpond environs to feed on reef or deep-water foods and to reproduce. Some of the fish fry ultimately created by those breeding age adults will come inshore to seek shelter in Kapoho bay and others will repopulate other sections of island shoreline.

Thank you for your comments.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

Response to Draft Environmental Notice
Kapoho Bay Restoration Project
Kapoho, Puna, Hawaii Island Hawaii

To
John Barsell
RR2 Box 3933
Pahoa, Hawaii 96778
1.3 Land Owner
1.4 Applicant

Land Use Planners: Farber & Associates
2722 Ferdinand Ave.
Honolulu, Hawaii 96822
1.5 Consultant

State of Hawaii Department of Land and Natural Resources
Division of Conservation & Coastal Resources
PO Box 621
Honolulu Hawaii 96809
1.6 Accepting Agency

To whom it may concern
Thank you for the opportunity to comment.

The following comments reflect on a life time in Hawaii in which I have enjoyed the coastal resources of this particular area and the specific bay and ponds that are called Kapoho Bay. My first visit was in 1961 as a young Coast Guards man. In 1963 I married and my children are of Hawaiian decent. The impact on me was to regularly visit and enjoy this aquatic resource. I purchased a lot in Vacationland and continue this enjoyment. In fact I am a member of the Vacationland Community Association. These comments are solely my own and are not to meant to represent the association in any way.

The Hawaiian land system prior to contact was a function of a ruling class or king and his agents (Konahiki) along with land tenants and lesser members or (makaiiana). The land of the King was usually termed a Moku along with subdivisions Ahuapaa, kuleana, lele and Ili (Kings personal residence). The land tenure always had all of the needed resources for the people that lived or visited the area. Trees from mauka for canoes Mauka plantings Makai plantings along with home sites provided all with a sustainable supply of necessities of life... The sea was of major importance for these people because it was the larder for the much needed protein and nutrients in the form of fish, turtle, algae, and sea weed, medicines, corals for traditional tools. The need for access to the sea was always a part of traditional life for sustenance, bathing, along with religious purposes. The sea was the highway for the Hawaiians. The alanui was the sea (Emphasis Added) and to be kept from the sea was not heard of in this context. Traditional fishponds were the property of

the king for his enjoyment. The Supreme Court of Hawaii has ruled that in matters of water that the State is the owner of the States Waters. One of the provisions and guarantees upon Statehood was that the Konahiki law was no more and ownership of land to the outer reef was not allowed. The premise was that private land ownership would be to the high water mark along with the vegetative line.

Hawaiian Fish Pond and Trap

Comment:

The nature of the fish pond was to capture and contain fish and exclude predators. Large fish, shark turtles, seals and people. The Makaha has narrow bars that allow Nehu and other juvenile fish to enter where they get lost and have a hard time finding their way out. Some of the fry might survive and grow once doing so they can not escape and move up the feeding chain. The Hawaiians stocked their favorite fish and set a kapu so they guaranteed only they would eat them. They understood about the constant re-supply of fry that would feed their preferred species

If allowed this pond would rob the near shore environment of a recharge of fry that is important to the rest of the aquatic resources. A MLCD has been created to the south of this pond and guarantees have been given that other fishing areas would be open to fishermen. This is said to be a preserve meaning that no one can go in except by invitation so how does this benefit the public. It does not it only benefits the applicant.

How will this fish pond effect employment, economic opportunity, fisheries, education and cultural values of the people of Hawaii?

Comment:

The Southern MLCD is visited by at least 50,000 visitors a year and the VHCA voluntary process is to keep the access open at great expense to the residents. The applicant has already stated that he has gated and fenced the area and professes that there is no access. Until he fenced the area there was access over land along the shore and from the sea the access thru his property is by invitation but all others are open. The alanui system is still there and is supposed to be maintained by the State and this needs to be researched and clarified. This project will damage many economic and cultural processes if allowed.

Alternative solutions:

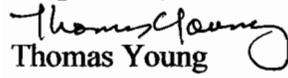
Comments:

This is an area that needs a lot of consultation with historical records, adjacent land owners the community as a whole along with native Hawaiians that will be denied access for their purposes of gathering along with cultural and religious rights

For the purposes of this Environmental Assessment I assert the need for a full Environmental Impact Statement along with a request for a contested case hearing. The record is completely lacking and needs further work to bring to all the facts forward.

Please deny this application as written

Respectively:


Thomas Young
529 Kukuau Street
Hilo Hawaii, 96720

Kapoho Vacationland Property Owner

FARBER & ASSOCIATES

2722 FERDINAND AVENUE, HONOLULU HAWAI'I 96822

PH/FAX (808) 988-3486 E-MAIL: JOEFARBER@HOTMAIL.COM

February 15, 2008

Thomas Young
529 Kukuau Street
Hilo, HI 96720

Subject: Draft Environmental Assessment – Kapoho Bay Fishpond Restoration Project, Kapoho, Puna, Hawai'i: TMK: 1-4-2:36.

Dear Mr. Young:

Thank you for your letter commenting on the Draft Environmental Assessment (EA) for the proposed restoration, reuse and maintenance of the traditional Hawaiian fishpond at Kapoho Bay.

The following are responses to your comments that are addressed in your letter:

You state in your letter that: *“The Supreme Court of Hawai'i has ruled that in matters of water that the State is the owner of the State water.”*

In Hawai'i, State-controlled ocean waters are known as submerged lands. Submerged lands are defined as all lands lying between the upper reaches of the waves on the shore and three nautical miles seaward. Fishponds are the only submerged lands in the State that can be owned by individuals. As fishponds are considered submerged lands they are recognized and treated as having the same rights as fast land (they are associated with a Tax Map Key Number, can be bought and sold, are assessed property taxes, etc).

Hawaiian law has always treated fishponds as private property (Boone v. United States 1989). Hawai'i's land laws are unique in that they are based on ancient tradition, custom, practice and usage. In the case of a fishpond, exclusive control of their waters has always been required -- and thus written into Kingdom Law (which continues to this day) -- to insure a productive fishpond.

“One of the provisions and guarantees of statehood was that the konoiki law was no more and ownership of land to the outer reef was not allowed. The premise was that private land ownership would be to the high water mark along with the vegetative line.”

The passage of the Organic Act of 1900 repealed most of the vested rights [tenancy rights] in Hawaiian Fisheries (known as the Konoiki Rights). The private property interests in fishponds were exempted from this act. Fishponds as private property (submerged lands) continue to this day (Boone v. United States 1989).

Thomas Young
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“They (Hawaiians) understood about the constant re supply of fry that would fed their preferred species.”

The preferred fishpond species you are referring to (‘anae, awa, aholehole) are all herbivore fish. They do not feed on other fish or baby fish, fry (pua). The genius of Hawaiian fishponds is that these fish are stocked in an environment that naturally produces all the food these fish desire (plankton, zooplanktons, algae).

“If allowed this pond would rob the nearshore environment of a recharge of fish fry that is important to the rest of the aquatic resources.”

Quite the contrary. The Kapoho fishpond is a site where fish fry recharge and help replenish fisheries stocks. Juveniles of several species of important food fish migrate into shallow inshore pond environs like Kapoho pond, especially where fresh or brackish water inflow is concentrated. Fresh water contains dissolved nutrient such as nitrogen and phosphorus, which feeds marine plant growth supporting a diverse food chain including microorganisms, invertebrates, fish and turtles. And shallow calm waters of enclosed ponds also provide enhanced levels of protection from large predatory fish such as barracuda (kaku), jacks (ulua) and sharks (mano). When juvenile fish have grown to young adult size, most instinctively leave the protection of shallow fishpond environs to feed on reef or deep-water foods and to reproduce. Some of the fish fry ultimately created by those breeding age adults will come inshore to seek shelter in Kapoho bay and others will repopulate other sections of island shoreline.

“How will this fishpond effect employment, economic opportunity for the people of Hawai’i.”

Under the proposed plan it is anticipated that restoration activities will employ a full-time work force of about three to four workers for about 12 – 18 months. After the pond wall is restored, the fishpond will require one to two full-time staff to maintain it. Such activities will generate employment and economic opportunities and will the purchasing of equipment and supplies.

“How will this fishpond effect fisheries?”

It will improve upon the existing fisheries of Kapoho Bay. Please refer to the above discussion about the fishpond and how it replenishes nearby fisheries stock.

Thomas Young
February 15, 2008
Page 3

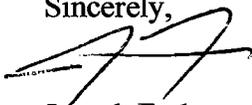
“How will this fishpond effect education and cultural values for the people of Hawai’i.”

We feel this proposal will only enhance, protect and develop culturally significant practices and traditional resources in the area. The project proposal will revive a fishpond that was previously derelict and extensively inundated with mangrove. The work is being undertaken by a group consisting of mostly Native Hawaiians. In fact, the project foreman’s great uncle helped build the original wall and mākāhā. The restored fishpond will be managed as a fully functioning historic fishpond and it will again be a productive site for the propagation and grow-out of traditional species such as ama‘ama, awa, aholeahole. Because the fishpond will be a marine reserve, no large-scale fish harvesting allowed, the fishpond will in effect be a nursery and will help restock the larger waters of Kapoho Bay—thus enhancing traditional fishing and gathering practices in the waters adjacent to the fishpond.

This project embodies the notion of not only protecting native Hawaiian rights, but also enhancing them. This project is about Milam ‘āina, the stewardship and protection of a nearly lost cultural treasure. Rebuilding and maintaining the fishpond will revive many cultural practices nearly lost, particularly in this region, and passing these practices on to the next generation.

We appreciate your comments on the proposed project.

Sincerely,



Joseph Farber
Project Consultant

C: Laura H. Thielen, Chair, Department of Land and Natural Resources
John Barsell

9. LIST OF REFERENCES

Apple, Russell A. and William K. Kikuchi. 1975. *Ancient Hawai'i Shore Zone Fishponds: An Evaluation of Survivors for Historic Preservation*. Honolulu: U.S. Department of the Interior.

ACP, Inc. (1). (Archaeological Consultants of The Pacific, Inc.); Chris Monahan, James Moore, Joseph Kennedy. 2007. *An Archaeological Inventory Survey Report for a Property Located at TMK: (3) 1-4-002:3 6in Kapoho Ahupua'a, Island of Hawai'i. Revised February 2007. Haleiwa, Hawai'i.*

ACP, Inc. (2). (Archaeological Consultants of The Pacific, Inc.); Chris Monahan, James Moore, Joseph Kennedy. 2007. *A Cultural Impact Assessment for a Property Located at TMK: (3) 1-4-002:36in Kapoho Ahupua'a, Island of Hawai'i. Revised February 2007. Haleiwa, Hawai'i.*

Brooks, B. A., Shacat C., and Foster, J. 2006. *Measuring Ground Motion and Estimating Relative Sea Level Change at Kapoho, Hawai'i Using Synthetic Aperture Radar Interferometry (InSAR)*. School of Ocean and Earth Science and Technology, University of Hawai'i.

Cobb, John N. 1902. *Commercial Fisheries of the Hawaiian Islands*. U.S. Bureau of Fisheries. Washington, D.C., U.S. Govt. Print. Office

DHM Planners, Inc. and Public Archaeological Section, Applied Research Group, Bernice P. Bishop Museum. 1989. *Hawaiian Fishpond Study: Islands of O'ahu, Moloka'i and Hawai'i*. Report prepared for the Hawai'i Coastal Zone Management Program, Office of State Planning and the Office of the Governor through the Department of Land and Natural Resources, Honolulu.

DHM Planners, Inc. and Public Archaeological DHM Section, Applied Research Group, Bernice P. Bishop Museum and Moon, O'Connor, Tam and Yuen. 1990. *Hawaiian Fishpond Study: Islands of Hawai'i, Maui, Lana'i and Kaua'i*. Report prepared for the Hawai'i Coastal Zone Management Program, Office of State Planning and the Office of the Governor through the Department of Land and Natural Resources, Honolulu.

Ertekin, R.C. (P.I.) 1996. *Moloka'i Fishponds: A Circulation Study*. National Oceanic and Atmospheric Administration, Sea Grant College Program. Supplement.

Farber, Joseph M. 1997. *Ancient Hawaiian Fishpond: Can Restoration Succeed on Moloka'i?* East-West Center's Pacific Islands Development Program. Neptune House Publications, Encinitas, California.

Ford, John I. 1973. *Ecological baseline study of the Intertidal Zone, Kapoho, Hawai'i : A Preliminary Report.* Sea Grant College Programs, University of Hawai'i , Honolulu, Hawai'i.

Hwang, Dennis J., Reinwald O'Connor & Playdon and Dr. Benjamin Brooks. 2007. *Coastal Subsidence in Kapoho, Puna, Island and State of Hawai'i.* Prepared for: Hawai'i County Planning Department. January.

Kamakau, Samuel Manaiakalani. 1976. *The Works of the People of Old. Na Hana a ka Po'e Kahiko.* Bishop Museum Press: Honolulu.

Kelly, Marion. 1975. *Loko I'a o He'eia fishpond.* Bernice Pauahi Bishop Estate, Dept. of Anthropology: Honolulu.

Kikuchi, William Kenji. 1973. *Hawaiian Aquacultural System.* Phd. Dissertation, Department of Anthropology, University of Arizona.

Macdonald, G.A., Abbott, A.T., and Peterson, F.L. 1983. *Volcanoes in the Sea – The Geology of Hawai'i.* University of Hawai'i Press, Honolulu.

Pala, Christopher. 2007. *No-Fishing Zones in Tropics Yield Fast Payoffs for Reefs.* The New York Times. April 17, 2007.

Summers, Catherine C. 1964. *Hawaiian Fishponds.* Bernice P. Bishop Museum Special Publication 52: Honolulu Hawai'i.

Univeristy of Hawai'i at Hilo, Department of Geography. 1998. *Atlas of Hawai'i.* Edited by Sonia P. Juvik and James O. Juvik; chief cartographer, Thomas R. Paradise. 3rd Ed. University of Hawai'i Press.

U.S. Dept. of Agriculture. 1973. Harry H. Sato, Warren Ikeda, Robert Paeth, Richard Smythe, and Minoru Takehiro, Jr. *The Soil Survey of Hawai'i Island, State of Hawai'i.* United States Department of Agriculture, Soil Conservation Service, in Cooperation with the University of Hawai'i Agricultural Experiment Station. Government Printing Office, Washington, D.C.

U.S. Geological Survey. 1975. *An Isotope Hydrology Study of the Kilauea Volcano Area, Hawai'i.* By M.A. Scholl, S.E. Ingebritsen, C.J. Janik, and J.P. Kauahikaua. U.S. Geological Survey - Water-Resources Investigations Report 95-4213

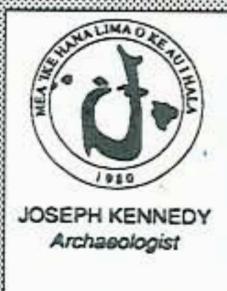
Wyban, Carol. 1995. *Environmental Assessment and Restoration/Revitalization Plan for Huilua Fishpond Kahana Valley State Park.* Ko'olauloa, O'ahu. Prepared for Division of State Parks, Department of Land and Natural Resources.

Appendix A
Archeological Survey

**AN ARCHAEOLOGICAL INVENTORY SURVEY REPORT
FOR A PROPERTY LOCATED AT TMK: (3) 1-4-002: 36 (Por.)
IN KAPOHO AHUPUA'A, PUNA DISTRICT
ISLAND OF HAWAI'I
REVISED FEBRUARY 2007**

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Abstract

Archaeological Consultants of the Pacific, Inc. has conducted an Archaeological Inventory Survey of a property located at TMK: (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i. The current investigations took the form of a 100% surface survey of an approximately 2.8-acre portion of Parcel 36 which will be utilized as a residential house lot along with limited subsurface testing. These investigations determined that the 2.8-acre house lot had been filled (built up) prior to the current survey with loamy sediments, cinder and basalt rocks and then landscaped. No historic properties were identified on the house lot.

In addition to the investigations of the house lot, the remains of a previously recorded fishpond were documented and mapped. For the purposes of this discussion, the fishpond will be referred to as Temporary Site 1. Temporary Site 1 is an unnamed marine fishpond (*loko kuapa* type) located in the eastern portion of Parcel 36, on Kapoho Bay. Portions of the site are in good condition while at least one portion is substantially dilapidated. Based on oral testimony, the fishpond is believed to have been in existence by 1893, but its precise chronological age is difficult to determine. It is possible that some form of this fishpond preceded the existing structure which has been maintained and/or improved over the years.

Summarizing, one site of significance to the interests of historic preservation was identified during the current investigations. Temporary Site 1 is a *loko kuapa* type fishpond located on Kapoho Bay. Archaeological Consultants of the Pacific, Inc. recommends that the fishpond be preserved and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions. The details of preservation will be presented in a separate Archaeological Preservation Plan.

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An Archaeological Inventory Survey Report for a Property Located at TMK (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i

Section 1: Introduction

At the request of Mr. Joe Farber, agent for Mr. John Barsell, Archaeological Consultants of the Pacific, Inc. (ACP) has conducted an Archaeological Inventory Survey of a property located at TMK: (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i (see Figure 1). Mr. John Barsell is the current landowner of the subject property. Because a portion of the subject property consists of a fishpond, it should be noted that in Hawai‘i fishponds have always been privately owned and never subject to public access. In *Boone v. US 944F.2d1489* the court denied the governments attempts to compel public access to a fishpond in part because: “Puko‘o Fishpond, like all Hawaiian fishponds had always been considered private property by landowners and by the Hawaiian government.” Also see *US v. Kaiser Aetna 444 U.S. at 166-67, 179* (Fishponds as private property in Hawai‘i) and *Kaiser Aetna 408 F.Supp. at 52* (Hawaiian fishponds were never subject to any common right of piscary)(i.e., the right to fish in waters owned by another).

The purpose of these archaeological investigations was to perform the tasks and meet the requirements specified by the State of Hawai‘i, Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD). These investigations would allow for the identification of potential historic resources located on the property. These investigations also allow for the making of recommendations concerning the mitigation of the impact of future construction activities upon potentially significant historic resources.

The following report presents a review of the history of the Kapoho area which includes summaries of the previous archaeology conducted in the region, previous land uses and settlement patterns. Following these sections, detailed descriptions of the archaeological features inventoried during the investigation are provided as well as descriptions of the subsurface testing conducted. These descriptions include discussions concerning functional aspects of the features as well as their estimated ages.

Based upon the results of the current investigations, ACP recommends that a determination be made that future construction activities would have an “effect” on a significant historic property, a *loko kuapa* type fishpond (after Kikiuchi 1973) located on Kapoho Bay.. ACP recommends that the fishpond be preserved and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions. The details of preservation will be presented in a separate Archaeological Preservation Plan.

Section 2: Physical Setting

The current subject property consists of two components, a proposed house lot measuring approximately 2.8-acres in size and an adjacent fishpond located on Kapoho Bay. Both of these areas are located in Kapoho Ahupua'a (TMK: [3] 1-4-002: 36 [Por.]), Puna District, Hawai'i Island. The house lot is roughly rectangular in shape located at the northwestern end of Parcel 36 (see Figures 2 & 3). The unnamed fishpond is located along the eastern edge of the parcel. Elevation within the project area varies from 0-20 feet above mean sea level (AMSL); the terrain slopes gently upward from east to west, and the ground surface of the house lot had already been modified by filling and landscaping by the time of this survey.

The current subject property is located within the Kapoho Beach Lots (KBL) subdivision. KBL was subdivided by the Lyman Family in the 1950's. All of the roads to and within the subdivision are private roads not maintained by the County. There is an electronic gate which permits access to the residents of the subdivision. In the past, the gate has been manned by a private security guard. Within the subdivision, there are five or six ocean access paths between private lots. The access paths are restricted to KBL residents. There is public access to Kapoho Bay from Lighthouse Road.

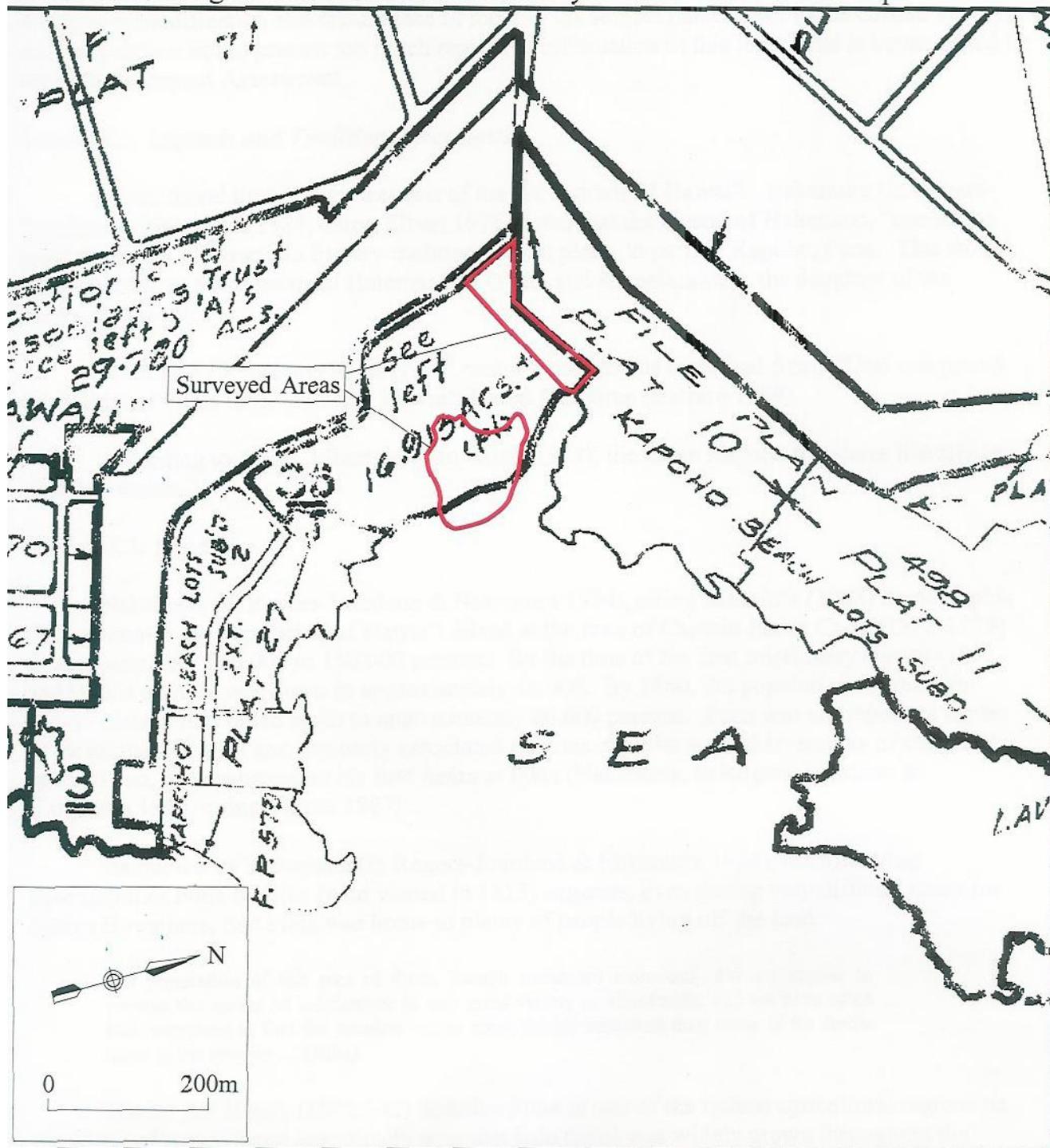
In addition to grasses, weeds and ornamental (landscaping) varieties, vegetation on the subject parcel includes a number of native species including *milo* (*Thespesia polpunea*), *hou* (a native variety of sugarcane), *niu* (coconut palm, *Cocos nucifera*), *naupaka kahakai* (*Scaevola sericea*), and *noni* (*Morinda citrifolia*). Mangrove (*Bruguiera gymorhiza*), an introduced species, is distributed along much of the coast and covers portions of the fishpond wall.

The Puna District, in general, is well known for its numerous historic lava flows issuing from Kīlauea Volcano. According to data compiled by Holcomb (1987) and Burchard (1994), two major lava flows exist on Parcel 36: (1) dated to c. 500-1250 A.D., comprising the northern two-thirds of the Parcel 36; and, (2) dated c. 1600-1789 A.D., comprising the southern one-third of the parcel. The dates of these flows have significant implications for pre-Contact use of this parcel, which is discussed in Section 3 (below). Lava tubes are a common feature of the Kapoho area, an observation that also has important bearing on the types of habitation activity and sites in the project area.

The *Soil Survey of Hawaii Island, State of Hawaii* depicts the expected soils in the area in which the subject property is located as consisting of *pahoehoe* outcrops, Malama extremely stony muck and Opihikao extremely rocky muck (Sato, Ikeda, Paeth, Smythe & Takehiro 1973). Both of these soils are well drained, thin (2-8 inches deep) organic soils formed over lava flows, either fragmental *a'a* lava (Malama) or *pahoehoe* lava bedrock (Opihikao). As stated above, however, it appears that the natural soils and bedrock that would have initially been present in the subject project area had been covered by recent fills by the time of the current survey.

Rainfall on the subject property averages 80 to 100 inches a year (Armstrong 1983), making it a relatively favorable climate for cultivation purposes. There are no streams or intermittent water channels passing through this portion of Kapoho.

Figure 3: Location of the Surveyed Areas on a TMK Map



Section 3: Historic Background

It is worth noting that some aspects of the historic background are described in greater detail in a Cultural Impact Assessment (in preparation) by ACP. Accordingly, and particularly given the widespread modification and disturbance of most of the subject parcel prior to the current survey, ACP has chosen not to present too much repetitive information in this report that is better suited for the Cultural Impact Assessment.

Section 3.1: Legends and Traditional Accounts

In traditional times, Puna was one of the six districts of Hawai‘i. Nakamura (in Rogers-Jourdane & Nakamura 1984, citing Elbert 1979) notes that the legend of Halemano, “one of the great romances of Hawaiian literary tradition,” takes place, in part, in Kapoho, Puna. This story is about the love affair between Halemano of O‘ahu and Kamalalawalu, the daughter of the chiefs of Kapoho.

In the late 15th century to early 16th century, the famous historical figure ‘Umi conquered the district of Puna, thus, reuniting Hawai‘i Island for a time (Barrere 1959).

According to Pukui, Elbert and Mo‘okini (1974), the name Kapoho translates literally as “the depression.”

Section 3.2: Land Use

Nakamura (in Rogers-Jourdane & Nakamura 1984), citing Schmitt’s (1968) demographic data, estimates the population of Hawai‘i Island at the time of Captain James Cook (1778-1779) as approximately 100,000 to 150,000 persons. By the time of the first missionary survey (1831-1832), this number was down to approximately 46,000. By 1850, the population estimate for Hawai‘i Island had fallen again to approximately 26,000 persons. Puna was an important center of traditional Hawai‘i and is closely associated with the exploits and achievements of the priest named Pao, who constructed his first *heiau* at Puna (Nakamura, in Rogers-Jourdane & Nakamura 1984, citing Thrum 1907).

As quoted by Nakamura (in Rogers-Jourdane & Nakamura 1984), the following description of Puna by Ellis (who visited in 1823) suggests, even during very difficult times for Native Hawaiians, that Puna was home to plenty of people living off the land:

The population of this part of Puna, though somewhat numerous, did not appear to possess the means of subsistence in any great variety or abundance; and we have often been surprised to find the desolate coasts more thickly inhabited than some of the fertile tracts in the interior ... (Ellis).

Handy and Handy (1972:542) describe Puna as one of the richest agricultural regions on the island of Hawai‘i and specifically note that *kalo* (taro) was widely grown throughout the district.

Another entry compiled by Nakamura (ibid.), quoting an anonymous traveler from the Bishop Museum's Hawaiian Ethnological Notes Files, indicates that Kapoho was known for several fresh-water springs:

October 15, 1929 ... [p]assing Kapoho, the road went straight on, till we came to the lava, to Kuaokala, a *heiau* on the seaward side of Aa-hala-nui ... Then I saw that Puna is a land where water is found. There are several famous pools, Wai-a-Pele and Wai-welawela in Kapoho, the spring of Ke-ahi-alaka on this side of Poho-iki.

The subject property is included in Land Commission Award 8559, which consisted of 4,060 acres in total (the entire *ahupua'a* of Kapoho). It was awarded to Charles Kaiana, father of William C. Lunalilo (later King Lunalilo from 1873 to 1874) who testified as follows: "All the lands which are written in this document were given in perpetuity for my Ali'i and from me also, from the sea to the mountains. Everything pertaining to these lands is owned and restricted ... we are the ones with the main right, and the commoners are second, and all the stone-walled ponds are for the two of us" (Native Register, V.4, p.347).

Various commercial activities associated with the development of the Hilo Railroad Company began to have an impact in the Kapoho area during the early 20th century including sugarcane, rock quarrying, lumber and rubber exploitation (Nakamura, in Rogers-Jourdane & Nakamura 1984). None of these industries appears to have been located near the subject project area, however, and a more thorough discussion of them can be found in the Cultural Impact Assessment (in preparation) by ACP.

Section 3.3: Previous Archaeology

This section describes previous archaeological research in the vicinity of the project area. No previous archaeological work had been conducted in the project area prior to the current survey. The main purpose of this summary is to predict the types of sites that were expected in the subject project area. Accordingly, ACP has not included studies conducted at higher elevations, away (inland of) the seashore, but, instead, have chosen to focus on sites at low, coastal elevations.

Two site complexes dating to pre-Contact and/or early historic times (State Site Nos. 50-10-46-4254 & 4255) are located at Kapoho Point, immediately southeast of the current project area. These site complexes consist of walled enclosures and platforms, interpreted as remnants of coastal villages. To the north, near Cape Kumukahi, several archaeological sites have been documented, including a "possible grave site" (State Site No. 50-10-46-4251), the King's Pillar (State Site No. 50-10-46-4250) and a cluster of "platform type features" (State Site No. 50-10-46-10002)(Cox 1983; Rogers-Jourdane & Nakamura 1984).

Spear (1992) conducted an archaeological inventory survey of a three parcel project area along the coast located in Ahalanui Ahupua'a (TMK: 1-4-002:005, 006 & 061) approximately one and one-half miles southwest of the current project area. No historic properties were documented, although it was noted that extensive land modification and ground disturbance had taken place before the survey was conducted.

Devereux, Borthwick & Hammatt (1998) conducted an archaeological inventory survey of two separate project areas along the coast, located in Ahalanui Ahupua‘a (TMK: 1-4-002: 005, 006 & 061) and Pohoiki Ahupua‘a (TMK: 1-3-008: 013 & 016, 1-4-002: 008) approximately three miles southwest of the current project area. One historic property was documented at Ahalanui (State Site No. 50-10-46-21352) consisting of a well (or “waterhole”) that was utilized in both pre-Contact and post-Contact times. One historic property was documented at Pohoiki (State Site No. 50-10-46-2507) consisting of a permanent habitation complex consisting of enclosures and walls interpreted as a middle 19th century construction.

Section 3.4: Settlement Patterns

McEldowney (1979) and Burtchard (1994) have proposed useful pre-Contact settlement models including areas in and around the subject property.

McEldowney’s settlement model for windward Hawai‘i was based on ecological and physiographic variables and their potential impact on influencing human settlement (e.g., favorability for cultivation, presence or absence of fresh water, suitability of climate for habitation, availability of various resources, etc.). According to this model, Zone 1, extending from sea level to approximately 50 feet AMSL (or one-half mile inland) was the prime area for permanent human settlement. Zone 1 would have contained numerous villages and the most important available resources would have been access to marine foods, fresh or brackish water and quality volcanic soils for cultivation purposes. These coastal areas were ideal for moisture-loving plants such as taro, bananas and sugarcane.

Burtchard’s settlement model was specifically tailored to Puna District. As with McEldowney’s model, Burtchard (ibid.:26) predicted the ‘Coastal Settlement Zone’ would “... have the greatest density and variety of prehistoric surface features ...” in the area. Certainly, the location of the current project area within the excellent and sheltered Kapoho Bay would have only added to its attractiveness as a place to live for Native Hawaiians living a traditional lifestyle.

Section 3.5: Expected Finds

In summary, this brief overview of the historic background suggests that a wide variety and number of archaeological sites, including both traditional and historic features, could be present within the current project area, assuming they have not been destroyed by bulldozing and/or grading and grubbing. A number of lines of historical and archaeological evidence suggest the project area had a high potential for containing extensive evidence of habitation and cultivation, consistent with its favorable climate. Specifically, previous archaeological studies predict the following types of sites: permanent and temporary habitations, including stone enclosures and platforms; agricultural sites, including garden walls, alignments and terraces; religious shrines; and - almost always a possibility in this general setting - caves and/or lava tubes used for burials, places of refuge and/or temporary habitation.

Section 4: Archaeological Methods

The current archaeological investigations were conducted from June 6 through 8, 2006. All fieldwork was conducted by Field Supervisor Michael O'Shaughnessy, B.S., under the direction of the Principal Investigator, Joseph Kennedy, M.A.. Fieldwork methods consisted of a 100% surface survey of the proposed house lot, limited subsurface testing and the documentation and mapping of the fishpond (see Figure 4).

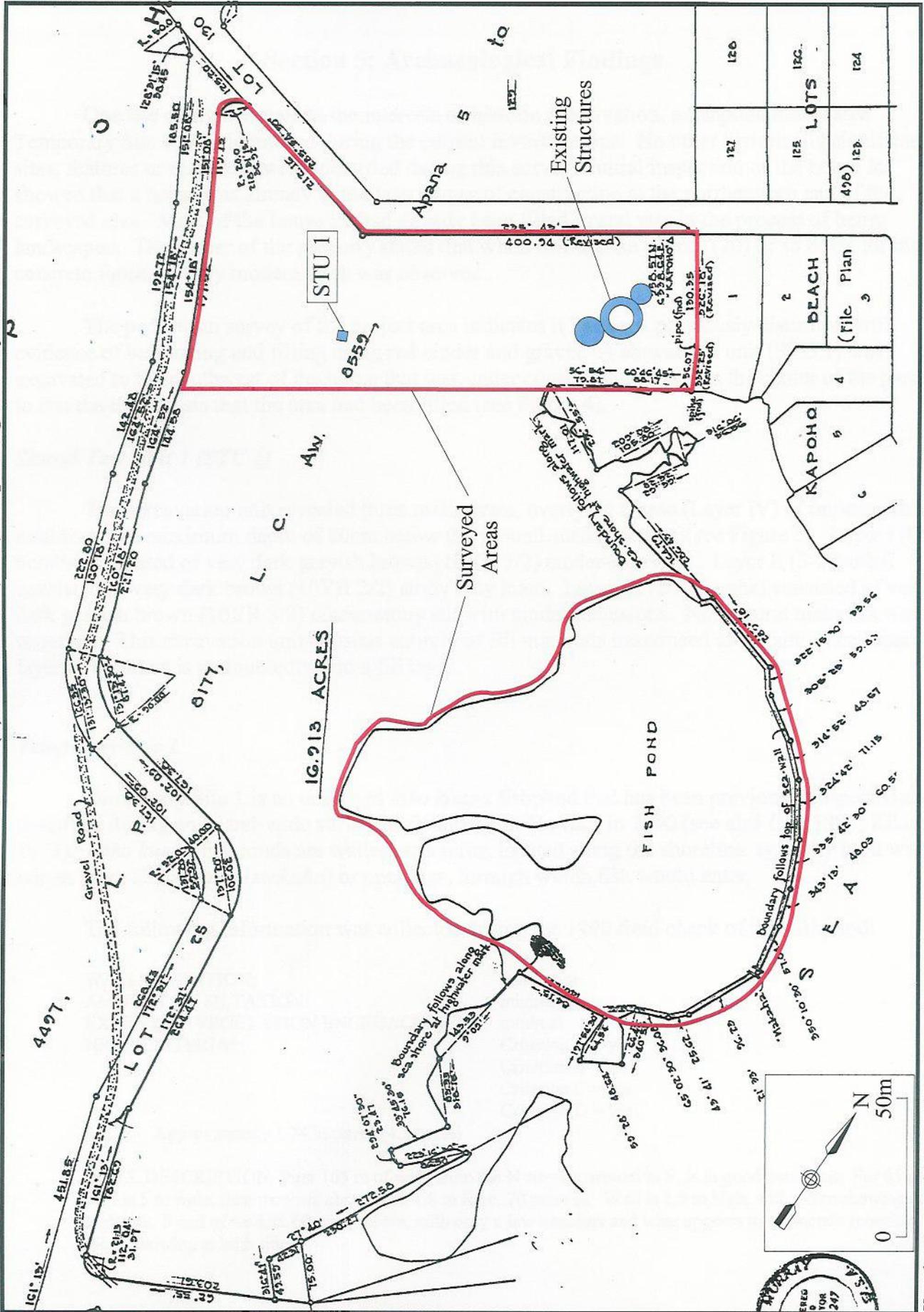
A pedestrian survey was utilized to systematically investigate the entire area of the proposed house lot. The purpose of the pedestrian survey was to identify all potentially significant historic properties that may be located on the surface of the subject property. Visibility across the grounds of the house lot were good with much of the area having already been landscaped by the time of the current investigations. Visibility along portions of the fishpond wall were poor in places due to being overgrown with mangrove.

A scaled, plan view map of the fishpond was drawn using a tape and compass. The fishpond was described in detail, including all relevant characteristics of design, construction techniques and dimensions. Using a mask and snorkel the bottom of the fishpond was examined for soil and sediment accumulation. However, no soils were present and the floor of the pond was found to be *pahoehoe*.

Subsurface investigations took the form of one shovel test unit (1.0m by 1.0m) which was excavated in the northern portion of the house lot in order to test the hypothesis - based on visual examination of the parcel - that it had been artificially filled. The shovel test unit was excavated until an impenetrable layer of large boulders was reached. Given the belief that the parcel consisted entirely of fill, the excavated sediments were not screened.

Samples of the soil and sediments encountered were collected from every strata identified. These soils were analyzed by ACP laboratory personnel and described according to standard archaeological procedures (i.e., Munsell color, consistency, and texture; presence or absence of inclusions and/or microstratigraphy; layer thickness). A representative face of the shovel test unit was drawn to scale. No further laboratory analyses were performed since no cultural materials were recovered in this study.

Figure 4: Plan Map of TMK: (3) 1-4-02:36 (Por.) Depicting Surveyed Areas



source: Murray, Smith & Associates, Ltd. 1999

Section 5: Archaeological Findings

One site of significance to the interests of historic preservation, a fishpond designated Temporary Site 1, was identified during the current investigations. No other historically significant sites, features or resources were identified during this survey. Initial inspection of the house lot showed that a home was already in the later stages of construction at the northeastern end of the surveyed area. Most of the house lot had already been filled in and was in the process of being landscaped. The owner of the property stated that while drilling the twenty (20) or so holes for the concrete footings, only modern trash was observed.

The pedestrian survey of the project area indicates it has been previously disturbed, with evidence of bulldozing and filling using red cinder and gravel. A shovel test unit (STU 1) was excavated to the southwest of the home that was under construction, towards the center of the parcel to test the hypothesis that the area had been filled (see Figure 4).

Shovel Test Unit 1 (STU 1)

This excavation unit revealed three main strata, overlying a base (Layer IV) of impenetrable boulders, to a maximum depth of 80cm below the ground surface (cmbs)(see Figure 5). Layer I (0-5cmbs) consisted of very dark grayish brown (10YR 3/2) cinder-stony silt. Layer II (5-20cmbs) consisted of very dark brown (10YR 2/2) stony silty loam. Layer III (20-80cmbs) consisted of very dark grayish brown (10YR 3/2) cinder-stony silt with cinder inclusions. No cultural materials were observed. This excavation unit consists entirely of fill materials introduced to the site. The basal layer of boulders is undoubtedly also a fill layer.

Temporary Site 1

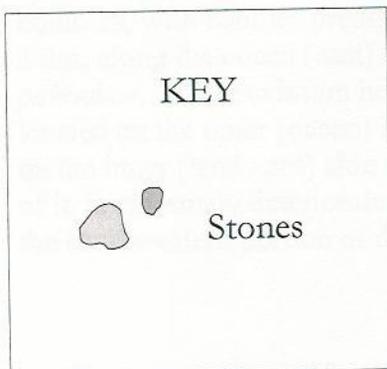
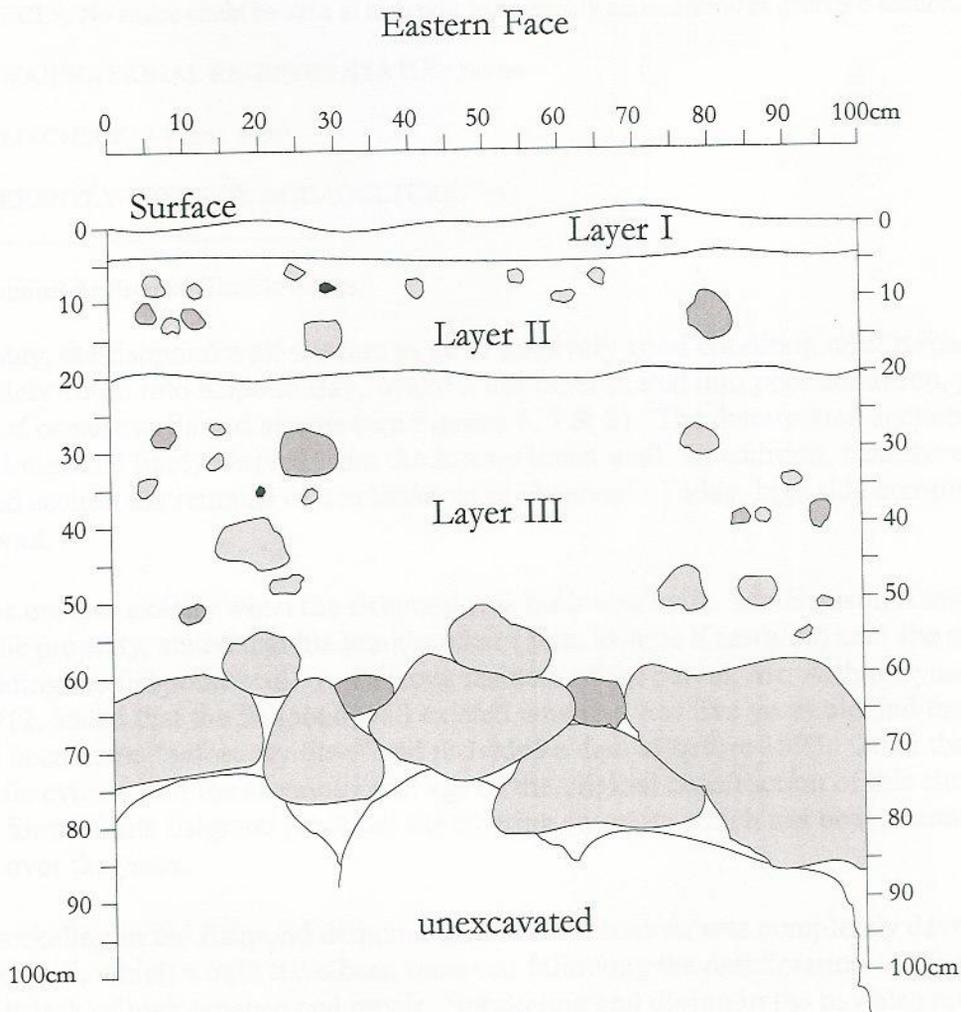
Temporary Site 1 is an unnamed *loko kuapa* fishpond that has been previously inspected and described during an island-wide survey of fishponds of Hawai'i in 1990 (see also Cox 1983; Kikuchi 1973). *Loko kuapa* fishponds are walled structures, located along the shoreline, typically built with one or more sluice gates (*makaha*) or openings, through which fish would enter.

The following information was collected during the 1990 field check of this fishpond:

WALL CONDITION:	good/poor
AMOUNT OF SILTATION:	minimal
EXTENT OF VEGETATION ENCROACHMENT:	minimal
NRHP CRITERIA*:	Criterion A = yes Criterion B = no Criterion C = yes Criterion D = yes
SIZE:	Approximately 1.74 hectares (4.3 acres)

WALL DESCRIPTION: First 165 m of wall, from the N curving around to S, is in good condition. For 85 m wall is 5 m wide, then narrows abruptly to 1.8 m for c. 70 more m. Wall is 1.5 m high, with 0.5 m showing at high tide. S end of wall, c. 60 m, is rubble, with only a few boulders and what appears to a concrete mooring block showing at high tide.

Figure 5: Profile of STU 1



- Layer I: Very dark grayish brown (10YR 3/2) cinder-stony silt
- Layer II: Very dark brown (10YR 2/2) stony silt loam
- Layer III: Very dark grayish brown (10YR 3/2) cinder-stony silt

CONSTRUCTION: The wall has a double-layer angular basalt facing, using boulders 40-70 cm in diameter. The inside fill contains some equally large boulders with many smaller stones and cinders.

SLUICES: No sluice could be seen at high tide, but possibly existed in 60 m damaged section.

HAWAII/NATIONAL REGISTER STATUS: No/no

FIELD CHECK: 14 June 1990

CURRENTLY USED FOR AQUACULTURE: No

*National Register of Historic Places

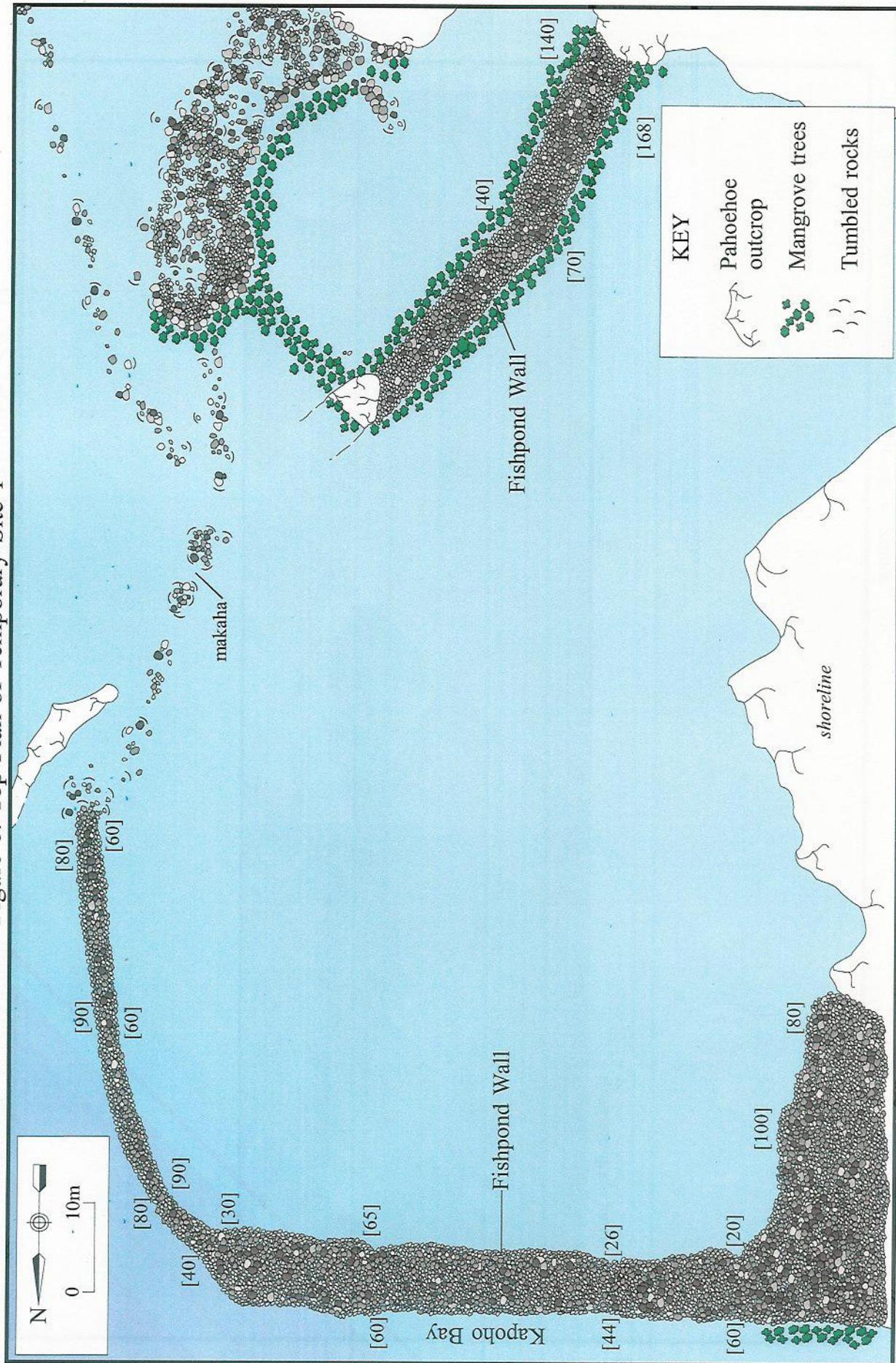
Today, the fishpond wall appears to be in relatively good condition until it reaches approximately 100m into Kapoho Bay, where it has deteriorated into poor condition, probably due to the action of ocean swells and storms (see Figures 6, 7 & 8). The deteriorated section contains scattered stones that likely derived from the former intact wall. In addition, near the center of the deteriorated section the remains of a *mākāhā* were observed. Today, high tide completely covers the fishpond wall.

It is unclear exactly when the fishpond was built. Mr. Samson Kaawaloa, who works at the property, stated that his grandmother (Mrs. Minnie Kaawaloa) said she remembered her father building the fishpond wall. A previous resident of the parcel, Mr. Arthur Lyman, who was born in 1912, stated that the fishpond wall existed when he was five years old and that he was told that it had been there “before my time” and provided a date of before 1893. Other than these clues, there is little evidence of the chronological age of the original construction of this site. It is possible that some form of this fishpond preceded the existing structure which has been maintained and/or improved over the years.

Snorkeling in the fishpond demonstrated that the bottom was completely devoid of any sediment or soil, which would have been removed following the deterioration of the now-broken wall and its lack of maintenance and repair. Snorkeling and diving in the bay also revealed additional the submerged remains of additional deteriorated walls/alignments as can be seen in the aerial photograph of the bay (see Figure 8). This supports the hypothesis that the existing wall has been improved and/or modified over time.

The fishpond wall is constructed of a variety of sizes of basalt rocks, from pebbles to small boulders, with cobbles predominating. The width of the top of the wall varies from approximately 2.0m, along the ocean (east) side, to 14.0m, along the inland (west) side, where it meets up with the *pahoehoe*. The maximum height of the wall varies from 0.20m to 1.0m, with the higher sections located on the outer (ocean) side. Portions of the outer side of the wall are formally faced. Facing on the inner (landward) side is less formal. A large section of the wall, perhaps as much as one-third of it, is extremely deteriorated. There is a nicely paved section of top surface of the wall located in the southwestern portion of the fishpond.

Figure 6: Top Plan of Temporary Site 1



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Kapoho TMK: (3) 1-4-02: 36 (Por.)

Section 6: Evaluation of Site Significance and Recommended Treatments

Significance Evaluations

One site of significance to the interests of historic preservation was identified during the current investigations. Temporary Site 1 is a *loko kuapa* fishpond that is believed to have been originally constructed before 1893. Oral testimony and field observations suggest the wall had likely been maintained and/or improved during the early to mid-twentieth century but in recent years had fallen into disrepair. The site is assessed as historically significant under Criteria A, C and D (i.e., “site is associated with events that have made a significant contribution to the broad patterns of history,” “site embodies the distinctive characteristics of a type, period or method of construction; or is the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity” and “site has yielded, or is likely to yield, information important in prehistory or history”) of the Hawai‘i Register of Historic Places criteria.

Table 1: Summary of Site Significance Evaluations

Site	Description	Function	Significance Evaluations
Temporary Site 1	Fishpond	Aq	A, C & D

Functional Interpretations

Aq: Aquaculture

Code For Significance Evaluation Criteria

- A:** Site is associated with events that have made a significant contribution to the broad patterns of history.
- B:** Site is associated with the lives of persons significant in the past.
- C:** Site embodies the distinctive characteristics of a type, period or method of construction; or is the work of a master; or possesses high artistic values; or represents a significant and distinguishable entity.
- D:** Site has yielded, or is likely to yield, information important in prehistory or history
- E:** Site has Cultural Significance (*heiau*, shrine, burial, etc.).

Criteria A through E represent Hawai‘i Register of Historic Places criteria.

Recommendations

ACP recommends that the fishpond be preserved and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions. The details of preservation will be presented in a separate Archaeological Preservation Plan.

Conclusion

Archaeological Consultants of the Pacific, Inc. has conducted an Archaeological Inventory Survey of a property located at TMK: (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i. The current investigations took the form of a 100% surface survey of an approximately 2.8-acre portion of Parcel 36 which will be utilized as a residential house lot along with limited subsurface testing. In addition to the investigations of the house lot, the remains of a previously recorded fishpond (Temporary Site 1) were documented and mapped. Temporary Site 1. Temporary Site 1 is an unnamed marine fishpond (*loko kuapa* type) located in the eastern portion of Parcel 36, on Kapoho Bay. Based on oral testimony, the fishpond is believed to have been in existence by 1893, but its precise chronological age is difficult to determine. It is possible that some form of this fishpond preceded the existing structure which has been maintained and/or improved over the years.

Summarizing, one site of significance to the interests of historic preservation was identified during the current investigations. Temporary Site 1 is a *loko kuapa* type fishpond located on Kapoho Bay. Archaeological Consultants of the Pacific, Inc. recommends that the fishpond be preserved and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions. The details of preservation will be presented in a separate Archaeological Preservation Plan.

References Cited

- Armstrong, R.W.
1983 *Atlas of Hawaii*. Department of Geography, University of Hawaii. The University Press of Hawaii, Honolulu.
- Barrere, D.B.
1959 "Political History of Puna." In (Eds., Emory *et al.*) *Natural and Cultural History Report on the Kalapana Extension of the Hawaii National Park, Vol.1*. Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..
- Burtchard, G.C.
1994 "Archaeology in the Kīlauea East Rift Zone, Part I: Land-Use Model & Research Design, Kapoho, Kamā‘ili & Kīlauea Geothermal Subzones, Puna District, Hawai‘i Island." IARII, Inc..
1995 "Archaeology in the Kīlauea East Rift Zone, Part I: A Preliminary Sample Survey, Kapoho, Kamā‘ili & Kīlauea Geothermal Subzones, Puna District, Hawai‘i Island." IARII, Inc..
- Cox, D.
1983 "Archaeology Report: Cape Kumukahi, Hawaii, TMK: 1-4-02." U.S. Army Corps of Engineers.
- Devereux, T., D. Borthwick, and H.H. Hammatt
1998 "Archaeological Inventory Survey for Two Proposed Hawaii County Parks, Ahalanui and Pohoiki, Puna, Hawaii Island (TMK Ahalanui 1-4-002: 005,0 06 & 061, Pohoiki 1-3-008: 013, 016 & 1-4-002: 008)." Cultural Surveys of Hawaii, Inc., Kailua, HI..
- Dunn, A., L.J. Franklin, and S.T. Goodfellow
1995 "Archaeological Inventory Survey, A & O Golf Course Project, Lands of Ahalanui, Oneola, and Laepao‘o, Puna District, Island of Hawai‘i, vol.1." PHRI, Inc., Hilo, HI..
- Elbert, S.H. (Ed.)
1979 *Selections from Fornander’s Hawaiian Antiquities and Folk-lore*. 2nd edition. University of Hawaii Press, Honolulu, HI..
- Handy, C.E.S. and E.G. Handy
1972 *Native Planters of Old Hawaii*. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.

Holcomb, R.T.

- 1987 "Eruptive History and Long-Term Behavior of Kilauea Volcano." In *Volcanism in Hawaii* (Eds., R.W. Decker, T.L. Wright, and P.H. Stauffer), pp.261-350. U.S. Geological Survey Professional Paper 1350, Volume 1. U.S. Government Printing Office, Washington, D.C..

Kennedy, J., P. Brennan, M. Maigret, E. Gehr, and L. Reitsema

- 1991 "An Inventory Survey and Subsurface Testing at TMK: 1-4-02: 13, 14, 24, 69 & 70, Puna, Island of Hawaii, Revised June 1991." Archaeological Consultants of Hawaii, Inc., Pupukeya, HI..

Kikuchi, W.K.

- 1973 *Hawaiian Aquacultural System*. Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson, AZ..

McEldowney, H.

- 1979 "Archaeological and Historical Literature Search and Research Design, Lava Flow Control Study, Hilo, Hawai'i." Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..

Pukui, M.K., S.H. Elbert, and E.T. Mookini

- 1976 *Place Names of Hawaii*. University of Hawaii Press, Honolulu, HI..

Rogers-Jourdane, E., and B. Nakamura

- 1984 "Archaeological Reconnaissance and Historical Surveys of Lands at Kapoho, Puna, Hawaii, TMK: 1-4-01: 1,2,19." Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..

Sato, H.H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr.

- 1973 *Soil Survey of the Island of Hawai'i, State of Hawai'i*. U.S. Department of Agriculture, Soil Conservation Service, In Cooperation with the University of Hawai'i Agricultural Experiment Station. Government Printing Office, Washington, D.C..

Schmitt, R.C.

- 1968 *Demographic Statistics of Hawaii: 1778-1965*. University of Hawaii Press, Honolulu, HI..

Spear, R.L.

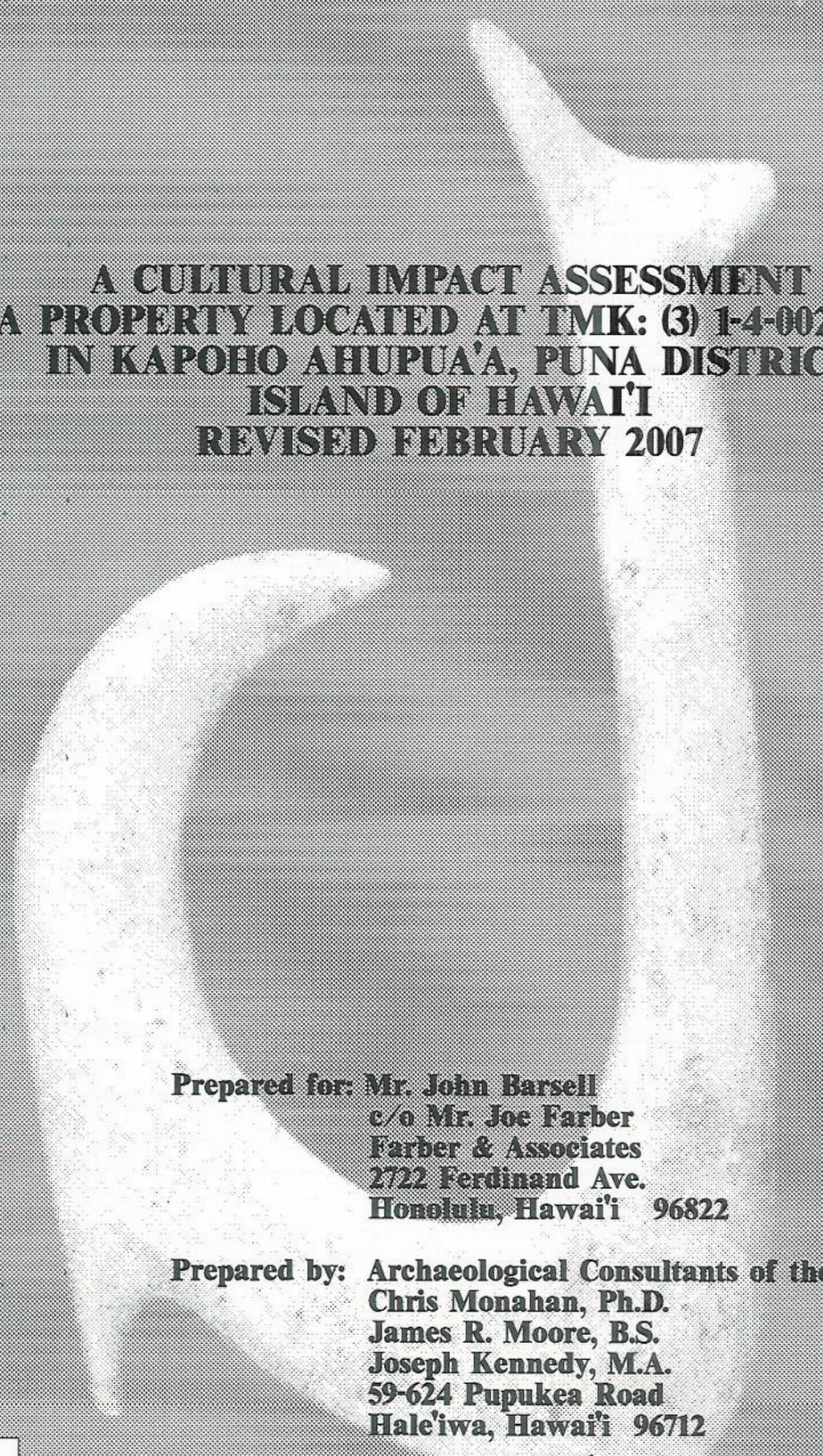
- 1992 "An Archaeological Assessment of the Laepao'o Park Project, Ahalanu'i Ahupua'a, Puna District, Island of Hawai'i, TMK: 1-4-2:5, 6, 61." SCS, Inc., Honolulu, HI..

Thrum, T.G.

- 1907 "Heiaus and Heiau Sites Throughout the Hawaiian Islands." In (Ed., T.G. Thrum) *Hawaiian Almanac and Annual for 1908*, pp. 37-48. Honolulu, HI..

Appendix B

Cultural Impact Assessment



**A CULTURAL IMPACT ASSESSMENT
FOR A PROPERTY LOCATED AT TMK: (3) 1-4-002: 36 (Por.)
IN KAPOHO AHUPUA'A, PUNA DISTRICT
ISLAND OF HAWAII
REVISED FEBRUARY 2007**

**Prepared for: Mr. John Barsell
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**Prepared by: Archaeological Consultants of the Pacific, Inc.
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*Inventory Reports * Data Recovery Reports * Research Design Documents * Monitoring * Due Diligence Work * Historical Studies * Cultural Studies * Burial Treatment Plans * Preservation Plans * Interpretive Reconstructions * Restorations * Qualified Expert Witness Testimony*

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A Cultural Impact Assessment for a Property Located at TMK (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i

Section 1: Introduction

At the request of Mr. Joe Farber, agent for Mr. John Barsell, Archaeological Consultants of the Pacific, Inc. (ACP) has conducted a Cultural Impact Assessment (CIA) for a property located at TMK: (3) 1-4-002: 36 (Por.) in Kapoho Ahupua‘a, Puna District, Island of Hawai‘i (see Figure 1). Mr. John Barsell is the current landowner of the subject property. Because a portion of the subject property consists of a fishpond, it should be noted that in Hawai‘i fishponds have always been privately owned and never subject to public access. In *Boone v. US 944F.2d1489* the court denied the governments attempts to compel public access to a fishpond in part because: “Puko‘o Fishpond, like all Hawaiian fishponds had always been considered private property by landowners and by the Hawaiian government.” Also see *US v Kaiser Aetna 444 U.S. at 166-67, 179* (Fishponds as private property in Hawai‘i) and *Kaiser Aetna 408 F.Supp. at 52* (Hawaiian fishponds were never subject to any common right of piscary)(i.e., the right to fish in waters owned by another).

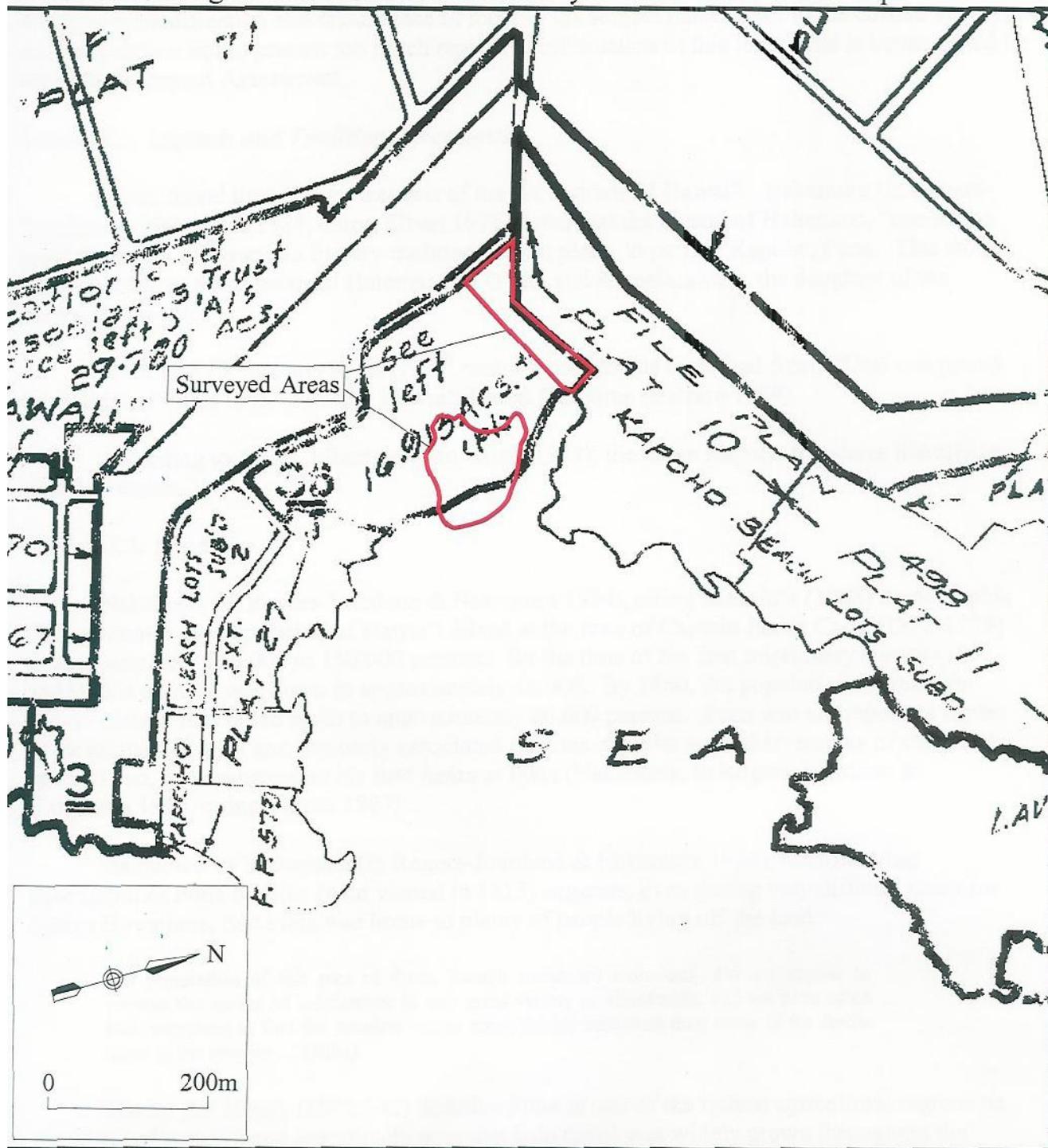
The landowner proposes to restore/stabilize a historically significant fishpond wall located on the property, and the State of Hawai‘i, Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD) requires the preparation of this CIA. An Archaeological Inventory Survey of the subject property was also conducted by ACP the results of which are reported under separate cover.

The purpose of the current investigation was to perform the tasks and meet the requirements specified by Hawaii Revised Statues 343 as administered by the State Office of Environmental Quality Control (OEQC) and as a part of the Environmental Assessment process. These investigations were conducted in an effort to promote and preserve cultural beliefs, practices and resources of native Hawaiians and/or other ethnic groups.

This document demonstrates that Puna District was an important center of human settlement in traditional times, although it was not an important political player in the formation of the unified Island of Hawai‘i, undoubtedly due to the numerous lava flows that have moved through different parts of Puna over the centuries. Coastal Puna, including Kapoho and areas in and around the subject property, were dotted with traditional villages of native Hawaiian farmers, fishers and gatherers well into the 20th century. Community consultations on the fishpond, itself, yielded relatively little information about its traditional, cultural significance. It appears that the wall was built at least 100 years ago, but no additional relevant information was uncovered.

Based upon the results of the current assessment, Archaeological Consultants of the Pacific, Inc. does not foresee any problems with the planned restoration of the fishpond with regards to potential cultural concerns. The fishpond has now been adequately documented and researched.

Figure 3: Location of the Surveyed Areas on a TMK Map



Section 2: Physical Setting

The current subject property consists of two components, a proposed house lot measuring approximately 2.8-acres in size and an adjacent fishpond located on Kapoho Bay. Both of these areas are located in Kapoho Ahupua‘a (TMK: [3] 1-4-002: 36 [Por.]), Puna District, Hawai‘i Island. The house lot is roughly rectangular in shape located at the northwestern end of Parcel 36 (see Figures 2 & 3). The unnamed fishpond is located along the eastern edge of the parcel. Elevation within the project area varies from 0 to 20 feet above mean sea level (AMSL). The terrain across most of the property slopes gently upward from east to west while the ground surface of the house lot had already been modified by filling and landscaping by the time of this assessment.

The current subject property is located within the Kapoho Beach Lots (KBL) subdivision. KBL was subdivided by the Lyman Family in the 1950’s. All of the roads to and within the subdivision are private roads not maintained by the County. There is an electronic gate which permits access to the residents of the subdivision. In the past, the gate has been manned by a private security guard. Within the subdivision, there are five or six ocean access paths between private lots. The access paths are restricted to KBL residents. There is public access to Kapoho Bay from Lighthouse Road.

In addition to grasses, weeds and ornamental (landscaping) varieties, vegetation on the Parcel 36 includes a number of native species, including *milo* (*Thespesia polpunea*), *hou* (a native variety of sugarcane), *niu* (coconut palm, *Cocos nucifera*), *naupaka kahakai* (*Scaevola sericea*) and *noni* (*Morinda citrifolia*). Mangrove (*Bruguiera gymorhiza*), an introduced species, is distributed along much of the coast and covers portions of the fishpond wall.

Puna District, in general, is well known for its numerous historic lava flows issuing from Kīlauea Volcano. Kapoho Ahupua‘a, specifically, is well known for the 1960 eruption of the Kapoho Crater that destroyed the town (Carlquist 1980). According to data compiled by Holcomb (1987) and Burtchard (1994), Parcel 36 - which was not covered by the 1960 flow - had been covered by two major lava flows: (1) dated to c. AD 500-1250, comprising the northern two-thirds of Parcel 36; and, (2) dated to c. AD 1600-1789, comprising the southern one-third of the parcel. The dates of these flows have significant implications for pre-Contact use of this parcel. Lava tubes are a common feature of the Kapoho area, an observation that also has important bearing on the types of traditional habitation activity and sites in the project area.

The *Soil Survey of the Island of Hawaii, State of Hawaii* depicts the expected soils in the area in which the subject property is located as consisting of *pahoehoe* outcrops, Malama extremely stony muck and Opihikao extremely rocky muck (Sato, Ikeda, Paeth, Smythe & Takehiro 1973). Both of these soils are well drained, thin (2-8 inches deep), organic soils formed over lava flows, either fragmental *a‘a* lava (Malama) or *pahoehoe* lava bedrock (Opihikao). As stated above, however, it appears that the natural soils and bedrock that would have initially been present in the house lot portion of the current project area had been covered by recent fills by the time of the current investigation.

Rainfall on the subject property averages 80 to 100 inches a year (Armstrong 1983) making it a relatively favorable climate for cultivation purposes. There are no streams or intermittent water channels passing through this portion of Kapoho.

Section 2.1: Description of the Fishpond

The unnamed *loko kuapa* fishpond has been previously inspected and described during an island wide survey of fishponds of Hawai‘i in 1990 (see also Cox 1983; Kikuchi 1973). *Loko kuapa* fishponds are walled structures, located along the shoreline, typically built with one or more sluice gates (*mākāhā*), or openings, through which fish would enter. A more complete description and documentation can be found in the recent archaeological inventory survey report by ACP (Monahan, Moore & Kennedy 2007).

Today, the fishpond wall appears to be in relatively good condition until it reaches approximately 100m into Kapoho Bay, where it has deteriorated into poor condition, probably due to the action of ocean swells and storms. The deteriorated section contains scattered stones that likely derived from a former intact wall. In addition, near the center of the deteriorated section the remains of a *mākāhā* were observed. Today, high tide completely covers the fishpond wall.

The current owner of the property believes that the current walls of the fishpond did not exist prior to 1906 and that the current wall is a repair or modification of a prior structure. Mr. Samson Ka‘awaloa, who works at the property, stated that his grandmother (Mrs. Minnie Ka‘awaloa) said she remembered her father building the fishpond wall. A previous resident of the parcel, Mr. Arthur Lyman, who was born in 1912, stated that the fishpond wall existed when he was five years old and that he had been told that it had been present before his time, prior to 1893. Other than these clues, there is little evidence of the chronological age of the original construction of this site, but it is likely at least 100 years in age. As hypothesized by the landowner, it is likely that some form of this fishpond preceded the existing structure which has been maintained and/or improved over the years.

Snorkeling in the fishpond demonstrated that the bottom was completely devoid of any sediment or soil, which would have been removed following the deterioration of the now-broken wall and its lack of maintenance and repair. Snorkeling and diving in the bay also revealed additional the submerged remains of additional deteriorated walls/alignments. This supports the hypothesis that the existing wall has been improved and/or modified over time.

The fishpond wall is constructed of a variety of sizes of basalt rocks from pebbles to small boulders with cobbles predominating. The width of the top of the wall varies from approximately 2.0m, along the ocean (east) side, to 14.0m, along the inland (west) side, where it meets with the *pahoehoe* shoreline. The maximum height of the wall varies from 0.20m to 1.0m, with the higher sections located on the outer (ocean) side. Portions of the outer side of the wall are formally faced. Facing on the inner (landward) side is less formal. A large section of the wall, perhaps as much as one-third of it, is extremely deteriorated. There is a nicely paved section of top-surface of the wall located in the southwestern portion of the fishpond.

Section 3: Methodology

This Cultural Impact Assessment (CIA) was prepared in accordance with the *Guidelines for Assessing Cultural Impacts*, prepared by the Hawai'i State Office of Environmental Quality Control (OEQC) in 1997.

Fieldwork and community consultations for this CIA were conducted by Field Supervisor Michael O'Shaughnessy, B.S., and Archaeologist Sandra Ireland, B.A., June 6 through 13 and October 16, 2006 under the direction of the Principal Investigator, Joseph Kennedy, M.A.. As stated above, an Archaeological Inventory Survey of the subject property was also conducted during this time the results of which are reported under separate cover (Monahan *et al.* 2007).

According to the OEQC's (1997) *Guidelines for Assessing Cultural Impacts*:

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs ... The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and cultural which support such beliefs.

In 2000, Act 50 was enacted by the State Legislature under House Bill 2895 which addressed Environmental Impact Statements. In part, Act 50 stated, "... the preparation of environmental assessments or environmental impact statements should identify and address effects of Hawaii's cultural, and traditional and customary rights ..." (H.B. No. 2895).

Act 50 requires an assessment of any impact on the cultural practices of the community and the state. According to this law, "traditional cultural practice" has a fairly broad definition and includes customs, beliefs, practices, life-ways, arts, crafts, music and other community based activities.

As stated in the Introduction, this CIA is required by the SHPD, in advance of the proposed restoration of the fishpond wall. In addition to soliciting interviews and testimony regarding the fishpond, general historic background research was also conducted on Kapoho Ahupua'a including traditional and legendary accounts, land use history from the earliest occupation to present day utilization, a review of previous archaeological investigations and a summary of settlement patterns. Research on previous archaeological investigations was conducted at the SHPD library in Kapolei.

In order to obtain interviews and testimony regarding the fishpond, attempts were made to identify individuals and organizations with expertise concerning cultural resources, practices and beliefs in the project area and those willing were consulted. Initial informant testimony was collected by Mr. O'Shaughnessy who received short statements from local residents Mr. Samson Ka'awaloa and Mr. Robin Hauanio as well as Mr. Arthur Lyman, a previous landowner and former resident of the subject property. Subsequently, Ms. Ireland conducted formal interviews with Ms. Leila Kealoha and Mr. Art Herbst, individuals with specific knowledge of Kapoho Bay and its unnamed fishpond.

Section 4: Traditional Accounts and Land Use in Kapoho Ahupua‘a

Section 4.1: Legends and Traditional Accounts

In traditional times, Puna was one of the six districts of Hawai‘i. Barrere’s (1959) political history of Puna, gleaned from the earlier writings of Abraham Fornander and Samuel Kamakau, suggests that, while Puna was a desirable place to live and cultivate crops, it was not an important political player in the formation of the unified Island of Hawai‘i (e.g., Ka‘u and Hilo were much more important political centers). This is probably at least partially the result of the numerous lava flows that have moved through different parts of Puna over the centuries making it a tenuous location for a strong political center. Still, as described in more detail below, Puna was certainly an important center of human settlement in traditional times.

In the late 15th century to early 16th century, the famous historical figure ‘Umi conquered the district of Puna, thus, reuniting Hawai‘i Island for a time (Barrere 1959).

Nakamura (in Rogers-Jourdane & Nakamura 1984, citing Elbert 1979) notes that the legend of Halemano, “one of the great romances of Hawaiian literary tradition,” takes place, in part, in Kapoho, Puna. This legend is about the love affair between Halemano of O‘ahu and Kamalalawalu, the daughter of the chiefs of Kapoho. Halemano falls in love with the beautiful Kamalalawalu, through dreams, and, with the help of his sister Laenihi, he manages to meet the young woman of his affections in Kapoho. He then steals her away, along with her younger brother Kumukahi, and travels back to O‘ahu.

According to Pukui, Elbert and Mo‘okini (1974), the name Kapoho translates literally as “the depression.” Kapoho is very near the easternmost point on Hawai‘i Island, and, thus, in the entire archipelago, and much of its traditional significance and renown derives from its complex history, along with the rest of Puna District, of cyclical land formation, devastation and reformation due to the actions of Kīlauea Volcano.

Section 4.2: Land Use

Nakamura (in Rogers-Jourdane & Nakamura 1984), citing Schmitt’s (1968) demographic data, estimates the population of Hawai‘i Island at the time of Captain James Cook (1778-1779) as approximately 100,000 to 150,000 persons. By the time of the first missionary survey (1831-1832), this number was down to approximately 46,000. By 1850, we see the population estimate for Hawai‘i Island had fallen again to approximately 26,000 persons. Puna was an important center of traditional Hawai‘i and is closely associated with the exploits and achievements of the priest named Pao who constructed his first *heiau* at Puna (Nakamura, in Rogers-Jourdane & Nakamura 1984, citing Thrum 1907).

As quoted by Nakamura (in Rogers-Jourdane & Nakamura 1984), the following description of Puna by Ellis (who visited in 1823) suggests, even during very difficult times for Native Hawaiians, that Puna was home to plenty of people living off the land:

The population of this part of Puna, though somewhat numerous, did not appear to possess the means of subsistence in any great variety or abundance; and we have often been surprised to find the desolate coasts more thickly inhabited than some of the fertile tracts in the interior ... (Ellis).

Handy and Handy (1972) describe Puna as one of the richest agricultural regions on the island of Hawai‘i and specifically note that *kalo* (taro) was widely grown throughout the district. The more productive cultivation areas appear to have been located inland (west) of the subject project area. They (ibid.:540-541) provide the following quote from Ellis who traveled through Kapoho in 1823:

A cluster of hills, three or four miles round, and as many hundred feet high, with deep indented sides, overhung with trees, and clothed with herbage, standing in the midst of a barren plain of lava, attracted our attention. We walked through the gardens that encircled its base, till we reached the south-east side, where it was considerably lower than on the northern parts. Here we ascended what appeared to us to be one of the hills, and, on reaching the summit, were agreeably surprised to behold a charming valley opening before us ... The sides of the valley, which gradually sloped from the foot of the hills, were almost entirely laid out in plantations, and were enlivened by the cottages of their proprietors.

Handy and Handy (ibid.) go on to state that,

The wet and sometimes marshy pandanus forests from Kapoho through Poho-iki to ‘Opihiako used to be planted with taro in places ...

Seven miles inland from Kapoho through Malama to Kamaili, there are steep slopes largely covered with rich soil. These slopes are now mostly in sugar but anciently were planted throughout with taro. That this was ideal taro land is demonstrated by the flourishing plantations still maintained by several Hawaiian families in the Malama homestead area.

Moblo (in Burtchard 1994:48) states that numerous ancient trails once passed through the Puna District, in general, and “... their full importance may never be known unless they are carefully recorded with reference points of origin, destination and resources found or cultivated along their routes. Trails probably provided for movement of armies during warfare as well as for trade goods.” According to Nakamura (in Rogers-Jourdane & Nakamura 1984), “The famous ‘Ellis Trail,’ travelled [sic] by the missionary William Ellis in 1823, passes through Kapoho, Puna ... ”

Another entry compiled by Nakamura (ibid.), quoting an anonymous traveler from the Bishop Museum’s Hawaiian Ethnological Notes Files, indicates that Kapoho was known for several fresh water springs:

October 15, 1929 ... passing Kapoho, the road went straight on, till we came to the lava, to Kuaokala, a *heiau* on the seaward side of Aa-hala-nui ... Then I saw that Puna is a land where water is found. There are several famous pools, Wai-a-Pele and Wai-welawela in Kapoho, the spring of Ke-ahi-alaka on this side of Poho-iki.

According to Moblo (in Burchard 1994), foreign influence in the Puna District arrived fairly late, not until the 1870's. Early churches in the region were simple, traditional structures, and local ministers were Hawaiian. In the middle 19th century, most of the land in Puna was set aside for high-ranking chiefs or for the government. Most of the large, inland tracts of land were eventually obtained by the sugar barons and commercial sugarcane agriculture began in Puna in 1900. Interestingly, and significantly for the current project, land grants along the coastline were mostly taken by native Hawaiians who continued to practice subsistence agriculture and marine resource exploitation into the 20th century.

The subject property is included in Land Commission Award 8559, which consisted of 4,060 acres in total (the entire *ahupua'a* of Kapoho). It was awarded to Charles Kaiana, father of William C. Lunalilo (later King Lunalilo from 1873-1874), who testified as follows: "All the lands which are written in this document were given in perpetuity for my Alii and from me also, from the sea to the mountains. Everything pertaining to these lands is owned and restricted ... we are the ones with the main right, and the commoners are second, and all the stone-walled ponds are for the two of us" (Native Register, V.4, p. 347).

Various commercial activities associated with the development of the Hilo Railroad Company began to have an impact in the Kapoho area during the early 20th century including sugarcane, rock quarrying, lumber and rubber exploitation (Nakamura, in Rogers-Jourdane & Nakamura 1984). None of these industries appear to have been located near the subject project area, which, as stated above, was most likely part of a network of coastal, native Hawaiian villages practicing subsistence farming, fishing and gathering well into late post-Contact times.

Section 4.3: Previous Archaeology

No previous archaeological work had been conducted in the project area prior to the recent archaeological inventory survey by ACP. The main purpose of this summary is to illustrate the types of sites that have been recorded in the vicinity of the subject project area. Accordingly, ACP has generally not included studies conducted at higher elevations, away (inland of) the seashore but, instead, has chosen to focus on sites at low, coastal elevations.

Two site complexes dating to pre-Contact and/or early historic times (State Site Nos. 50-10-46-4254 & 4255) are located at Kapoho Point, immediately southeast of the current project area. These site complexes consist of walled enclosures and platforms interpreted as remnants of coastal villages. To the north, near Cape Kumukahi, several archaeological sites have been documented including a "possible grave site" (State Site No. 50-10-46-4251), the King's Pillar (State Site No. 50-10-46-4250) and a cluster of "platform type features" (State Site No. 50-10-46-10002)(Cox 1983; Rogers-Jourdane & Nakamura 1984).

Spear (1992) conducted an archaeological inventory survey of a three-parcel project area located along the coast in Ahalanui Ahupua'a (TMK: 1-4-002:005, 006 & 061) approximately one and one-half miles southwest of the current project area. No historic properties were documented, although it was noted that extensive land modification and ground disturbance had taken place before the survey was conducted.

Devereux, Borthwick and Hammatt (1998) conducted an archaeological inventory survey of two separate project areas located along the coast located in Ahalanui and Pohoiki Ahupua'a (TMK: 1-3-008: 013 & 016, 1-4-002: 008) approximately three miles southwest of the current project area. One historic property was documented at Ahalanui (State Site No. 50-10-46-21352) consisting of a well (or "waterhole") that was utilized in both pre-Contact and historic times. One historic property was documented at Pohoiki (State Site No. 50-10-46-2507) consisting of a permanent habitation complex consisting of enclosures and walls, interpreted as a middle 19th century construction.

Section 4.4: Settlement Patterns

McEldowney (1979) and Burtchard (1994) have proposed useful pre-Contact settlement models including areas in and around the subject property.

McEldowney's settlement model for windward Hawai'i was based on ecological and physiographic variables and their potential impact on influencing human settlement (e.g., favorability for cultivation, presence or absence of fresh water, suitability of climate for habitation, availability of various resources, etc.). According to this model, Zone 1, extending from sea level to c. 50 feet AMSL (or one-half mile inland), was the prime area for permanent human settlement. Zone 1 would have contained numerous villages and the most important available resources would have been access to marine foods, fresh or brackish water and quality volcanic soils for cultivation purposes. These coastal areas were ideal for moisture loving plants such as taro, bananas and sugarcane.

Burtchard's settlement model was specifically tailored to Puna District. As with McEldowney's model, Burtchard (ibid.:26) predicted the "Coastal Settlement Zone" would "... have the greatest density and variety of prehistoric surface features ..." in the area. Certainly, the location of the current project area within the excellent and sheltered Kapoho Bay would have only added to its attractiveness as a place to live for Native Hawaiians living a traditional lifestyle.

Section 5: Community Consultations

In order to obtain interviews and testimony regarding the fishpond, attempts were made to identify individuals and organizations with expertise concerning cultural resources, practices and beliefs in the project area and those willing were consulted. Initial informant testimony was collected by Mr. O'Shaughnessy who received short informal statements from local residents Mr. Samson Ka'awaloa and Mr. Robin Hauanio as well as Mr. Arthur Lyman, a previous landowner and former resident of the subject property. Subsequently, Ms. Ireland conducted formal interviews with Ms. Leila Kealoha and Mr. Art Herbst, individuals with specific knowledge of Kapoho Bay and its unnamed fishpond.

Informal Statements Obtained by Mr. O'Shaughnessy

Mr. Samson Ka'awaloa

Mr. Ka'awaloa, who works at the subject parcel, made the following statement to ACP Field Supervisor Michael O'Shaughnessy, B.S.:

I work over here at this fishpond on this property, 16 acres. And this parcel is owned by Mr. Lyman, Arthur Lyman and the people who built this wall was my Auntie Mini's father. Uh, when they build this wall, I don't know, and I think they, all this property maintained [sic]. Get rid of all these exotic plants like Mangrove, mostly Mangrove, and started here about March of last year, 2005, and I've been over here for a year and six months. The job is just maintain this whole area. And ... I don't know.

Mr. Ka'awaloa also stated that his grandmother, Minnie Ka'awaloa, once stated she remembered her father building the fishpond wall.

Mr. Robin Hauanio

Mr. Hauanio, a local resident, made the following statement to ACP Field Supervisor Michael O'Shaughnessy, B.S.:

The question was asked about this particular fishpond down in the lower Puna area, in the area of Kapoho ... in the beach lots area, more specific. To my knowledge, sorry Mike, I don't know much about the place. It has been a mystery for a while. I was not aware of it until, uh, working with the charter school at the hot ponds, Ahalanui, that a class was looking into and researching about the place. The teachers name is Leila Kealoha. You may want to ask her to find out what they found out. Um, that's the best I can do my friend, so *mahalo*. Aloha.

Mr. Arthur Lyman

Mr. Lyman, a previous (non-Hawaiian) landowner and long-time resident of the subject parcel, provided a signed and dated statement to ACP, which reads:

My name is Arthur Lyman. My family owned and later developed the Kapoho Beach Lots property. I was born in 1912. As a boy of five years I and my family lived in a house near the fishpond on the site where John Barsell now proposes to build a house. The house we lived in existed until the 1960's. No trace of the house was present when I viewed the site recently.

When I was a young boy the fishpond wall was substantially intact and was constructed in a dome shape with the stones locked in place by keystones. I and my boyhood friends used the seawall stones including the keystones to throw into the water to chase fish into our nets. The existing stone and cement *makaha* [i.e., gate or sluiceway] was built by my family in 1920. It was used in the traditional manner to trap fish.

Formal Interviews Conducted by Ms. Ireland

The following formal interviews were conducted Oct. 10, 2006 by Ms. Sandra Ireland. These interviews were conducted in order to obtain community input into the proposed restoration/stabilization of the historically significant unnamed fishpond wall located on the current subject property.

Ms. Leila Kealoha

Name: Leila Kealoha

Address: Kau'eleau, Opihikao, Puna

Birth date: 10-21-76

Birthplace: Hilo Hospital - Hilo, Hawai'i

Ethnicity: half-Hawaiian, half-Caucasian

Sandra Ireland (SI): Describe your historical and genealogical association with this place. Include the subject property, Kapoho Bay, Kapoho Ahupua'a and Puna in general.

Leila Kealoha (LK): Um, historical and genealogical association ... well, my family, my Hawaiian family is from Puna - have been for generations and generations. I am a Kealoha, as well as a Makuakane (?) and the Makuakane family is from Kapoho and as well as from Opihikao. And the Kealoha family is from Kalapana. And so, what brings me specifically here to this place of Po'ola (?) which is next to Kapoho is my grandfather used to, and my great-grandfather, used to come through here and gather *lauhala* which was one of their businesses they used to do and they used to hike from here out onto the coast to gather *opa'e*, or *opa'e ula*, for fishing. They'd do *'ōpelu* fishing and stuff like that so that's part of my tie here. I've grown up all my life in Puna. Ahh, when I was younger, like in my early teens, we used to spend a lot of time in Kapoho down at the tide ponds, uh the tide pools and the ponds, and right in this specific place as well. It was very overgrown with trees. There was only a trail that used to go

down there and there used to be, like on the left-hand side, where the bay kinda comes in on the left side of the property, there used to be like a little rope swing that we used to go down there and swim all the time. And like I'm pretty sure where the pond itself is in Koa Bay, um it was fairly overgrown with the mangroves. You could kinda walk out onto the point a little bit and see like some of the remnants of the walls and stuff out there, but ahh, yeah I mean, just pretty much have grown up in Puna and there are a lot of, like from Kalapana all the way up to the northern parts of Puna District. I mean I'm pretty familiar with a lot of the areas out here. Yeah.

SI: OK, next question is describe your geographical association with this place and its significance to you. For example, where do you live and work in regards to the physical location of this property, Kapoho Ahupua'a and Puna?

LK: Well, as I mentioned, I live in Opihikao, or Kau'eleau, and I work right here at Pu'ulaa, which is approximately three miles at the very most I think from the Kapoho Bay and the area where this proposed fishpond or restoration of the fishpond is. I work for Hooula Lahui which is a non-profit organization that is kind of the mother to Kuokala, or the public charter school here. And one of our focuses is to, our main focus, is to integrate the Hawaiian culture or help teach our students here, the local kids of the community, to perpetuate the Hawaiian culture. And so we currently have small fishponds here on our property as well ... a really nice unique type forest. Um, we're currently implementing social studies and science classes here that encompasses Puna's coastal ecosystems. And, so I can see this as being something that we'd be interested in doing if the proposal goes through. Maybe some of our kids could work with them on restoring the fishpond and kinda give us a little more direction in what we could do eventually with our fishponds down here. Um, so we're, you know, geographically we're closer related to the area right down there, yeah.

SI: Ok, next question is describe how you obtained knowledge of this place, Kapoho Bay, and this fishpond.

LK: Kapoho Bay itself, I think I've just known 'cause we've always gone there fishing, growing up as well. We fished all along the coast of Puna with my family, with my father John Kealoha. And like I said when we were teenagers they called it 'champagne ponds' which is right down the road. But all those areas are really nice for swimming. And just about a year ago was when I really, you know, being, I'm 29 now, being more mature and like, you know, understanding about fishponds and stuff like that, Uncle Sam invited us down for my birthday to go down there and, you know, hang out and have a small barbeque and stuff and, ahh, he was talking about the fishponds. I mean I always knew there was lots of fish down there, you know, because we used to fish sometimes down that side but just friends and family, that's how I've known it. Yeah.

SI: In your opinion, would the reconstruction of this fishpond in the Kapoho Ahupua'a alter a place of cultural and traditional importance? And the types of cultural practices and beliefs can include subsistence, commercial, residential, agricultural, recreational, religious and spiritual customs.

LK: Ooh ... that's a pretty wordy question. Um, you know I think its, I think it would be a good thing to reconstruct the fishpond, but I just would like to know what's the purpose. Like what's the real purpose of wanting to reconstruct ... I mean, is it to help perpetuate the breeding grounds of the fish, 'cause that's usually what fishponds are, you know, made for is for breeding grounds of fish so they can multiply and you know, they have safe places to breed. And if it does go through with the reconstruction, I think there should be definite traditional practices implemented into restoring it such as the *makaha* or the tie gate (?). They use the *lama* for the gate itself. You know like if these certain implements put back into it where it was done traditionally, um, I'm sure that it's a place of cultural significance. There's a lot of fish down there. It's definitely a place that should be allowed, for local people that have gone there over the years, to continue the right of, you know, sustenance for food and for living. So I don't having anything against them doing the reconstruction of it, but for them to ask maybe local people in the community, you know, for help on doing the actual reconstruction ... And like I said, just implementing traditional ways of actually doing it.

SI: OK. And then, in your opinion would the reconstruction of the fishpond affect access to a place of cultural, traditional and community importance and if so, what are your recommendations in regards to access?

LK: Hum. Like I said, we used to go there when we were growing up and there was always a fence, but there was always a place where the fence was opened up. Like there was two fences that would, kinda one was in the front and one was in the back, but there would be a place where you could go into and you could go into that area whether it was for fishing or for swimming and, ahh, you know that's a hard question. Because that whole place is kinda blocked off to the community already as it is, which I don't agree with ... them having a gate on the community of blocking access to the coast down there already as it is. And so I'm sure that if the fishpond was restored or reconstructed it definitely would have an affect on the access to the place, especially for cultural and traditional uses. Um, like I said, once again, it should be people that are practicing their Hawaiian gathering rights, yeah. They should be allowed ... they should be allowed access to be able to go there for sustenance uses, you know, not for commercial uses or anything like that. For educational purposes, because there's not very many intact fishponds along this coastline, or in this State in general. Yeah, and so I guess it would be important to the community as well, especially for educational purposes for our kids because it's something that's not seen very much any more. And like I said, I think if this does go through we would like to possibly be a part of helping them with the actual reconstruction of the pond.

SI: OK, well thank you for your interview.

Interview with Mr. Art Herbst

Name: Art Herbst
Address: Hilo
Birth date: 12-17-50
Birthplace: O‘ahu
Ethnicity: Caucasian

Sandra Ireland (SI): Describe your historical and/or genealogical association with this piece of property and include Kapoho Bay, Kapoho Ahupua‘a and lower Puna in general.

Art Herbst (AH): Well, when I was a child my father purchased a piece of property on the north end of Kapoho Bay and, uh, we had the property for quite a few years and then the 1960 eruption took the fishponds and the Hawaiian village on the left of us (you know there was pockets of white sand beach ... there was couple little like “mini-queens” baths that had warm water) and we used to hike to that area which was a very short distance from where our property was. Anyway, so, looked like there was going to be a big lagoon out in front of the place, the eruption had stopped, and a couple days later we went and the lava had oozed up to our lot. Didn’t cover the lot, but just came right up to the boundary of the lot. And so we used to go down there and go fishing and whatnot and on the other side, on the west side of the bay, Truck Hart, The Richardsons’ and a few other people that we knew had houses down there. There was a little cove within the bay and so we used to go tromping all over the bushes back up in there looking for glass balls and fishing and at low tide a portion on that point, or that crescent area, there were rock walls which used to be on dry land. Apparently, I guess it was in 1924 or something, there was a big earthquake and that kind of formed the bay and made it deeper. The old people that I talked to said that there was more reefs sticking out here and there and I remember the fishpond because we could walk on the wall of the fishpond at low tide. And in the back of the fishpond was another type of *makaha* and when you went in, there was narrow, I’d say probably about 2-3 feet, water passageways with round stones on the bottom. I assume they used this for scooping fish with their nets so that, you know, they put smooth stones ... anyway when the tide would come up, the fish would come up these water ways and it was all, not too many people knew about it, but it was all under the *hau* trees there. And one day I came home (I lived in Kapoho for many, many years, built a house down there. It was just a small little community, you know, there weren’t that many houses down there compared to the city it is now) ... and, um, I lived down there, had a son and my wife, and I lived down there and we loved it. But the thing changed, you know, everything was changing. Seems like they were building everywhere and bulldozing everything. And one day we came home and that spot that I’m talking about with the water ways that went back into the *hau* trees (I guess some people from Japan bought that and Green Lake, or Green Mountain, or whatever, you know we call it Green Lake and then I guess sold it. I don’t know when they bought it as far as the bubble or they had to sell it or what). Anyway, one day I was driving home and there it was ... bulldozed, flat, not a thing left. I was kinda blown away because in the back there, there was a round circle of big large round rocks and a big *kou* tree. And under the *kou* tree were small ‘*ili’ili* stones. So obviously it was something ... because it wasn’t new, it was in the bushes back there and not too many people knew about it. But anyway, on the north side of that one area there was all these waterways and

next thing you know it was just flat lava. I couldn't believe it. You know, I mean, it could have been graves in there, anything in there, and they just went and bulldozed it.

SI: I have a question. Approximately what year was that, do you recall?

AH: That I lived down there?

SI: No, when you saw the bulldozing.

AH: Oh, uh, well I moved down there in '75 I think it was -- '73 or '74 or something like that. And I would say it was probably, it was like, gee I can't recall, you know, but I was still living down there.

SI: So you moved back. You had lived there with your parents at one time?

AH: No. Not with my parents. We had a little shack down there. It was just a lot. We were planning to build a little beach house. But we'd go down there every weekend and clean up and plant trees and that kind of thing.

SI: OK. So the place where you saw the bulldozing is near?

AH: Right behind the fishpond.

SI: Right behind the fishpond. OK.

AH: But the fishpond ... it'd be kinda neat if it was fixed up, but unfortunately the bay is polluted now, you know, with so many houses and cesspools. I don't know who would want to eat the fish.

SI: So do you think that by building a fishpond wall there that it might cause more pollution in that area?

AH: No. It would contain the pollution.

SI: OK.

AH: One big cesspool.

SI: OK. Good point. So your knowledge of this place, Kapoho Bay and the fishpond, comes from when you were a small child. That's the first time you saw the fishpond?

AH: Oh yeah. Kapoho was just open. There were no houses. Well, there were a few; you know, just a handful and, um, it was a, there was nobody around, but a lot of the older people that would go down and fish and throw net and stuff, they would tell us stories about how it used to be too, way before. So, I remember before the eruption really well. Kapoho Town was a neat little town. There was a school and a store. Actually there was a big school right on the four

corners down there and quite a community back then. We used to go up into Green Lake and the water actually had, there was goldfish in there and it was all clean. But after the eruption I guess it got plugged up and didn't have the spring feeding it. And at the same time, Warm Springs was there too. And in the front of Warm Springs there's a cemetery there. On the left hand side of that were more fishponds. Yeah, and that's where we used to hike to, on that side. So there was pretty sizable fishponds back there, at one time.

SI: And so the area that we're talking about, where the proposed fishpond wall reconstruction is going on ... as you recall this was also a big area of fishponds or there was just one?

AH: Just that one. You know, it was built in the early 1900's. You know it wasn't an ancient, like a Moloka'i one ... like the ponds on Moloka'i are ancient.

SI: So do you know who built the fishpond wall originally?

AH: Yeah, I think Lyman. I mean people just did what they want, in those days ... bulldoze this, tear down that, you know. And he owned all the property so I guess, you know, if that's what he wanted to build, then go build a fishpond. If I were him, I'd probably do the same thing. There is one other *makaha* down there. It's on a private property further west of the pond. It's ahh, I can't remember her name. Henderson or ... I can't remember what her name was but anyway she had lived down there for years and years and years and she's on the right hand side of that.

SI: OK. So in your opinion, is this reconstruction of the fishpond going to alter this place culturally or traditionally or alter it in ways for recreation, residential, agriculture, subsistence or any kind of religious or spiritual customs that you know of.

AH: Well, you know, if the guy is doing it for a good purpose and not for, well it could be a commercial thing but of course, like I said, I wouldn't want to eat the fish. But, you know, I think it would be a good cultural thing 'cause it's been there for so long. What are you going to do with the stones ... there all piled up there. All they need to do is just be put back in place. And who knows, they may have another earthquake down there and the thing might sink again. So from 1924, and I think it was 1975 or somewhere around that time, we had a big earthquake and the thing sunk more. In fact, the whole coast from Kalapana all the way to Kapoho sank. And then there was a big one in '83 and it sunk some more. So you might need some more stones to get that thing back up into a pond again. It would be nice if it could include the Hawaiian community to get culturally involved. There's a school right down the road heading toward Pohoiki. You know, maybe they could do it as a project too, you know, and be able to use it. If the people, if someone is claiming it as theirs, then that's not right. The ocean belongs to everybody. So, if he's going to reconstruct the pond, what are his purposes ... I mean, what's the purpose of it?

SI: I agree. So then, in that respect do you think that reconstruction as a fishpond would affect the access to this?

AH: It would. That's why I moved out of there. The gate and that thing you can't have friends visit you. You can't walk through there without having somebody know where you're going, what are you doing, you know. They just turned the place into this private little yacht club down there and they don't want anybody else in there. So, I know, I've seen this happen ... "get off my property, private property." There's an access road right down where Bill Sterns (?) used to live and we used to have a little dinghy that we'd paddle out in the bay. And a guy came from (I guess he was from Alaska or somethin') and these fishermen have been going down there for years and there's this road that goes down there and its an access to the ocean, you know. Its just right there and there's a little wall and you step over the wall and steps going right into the ocean. And one day he was out there yelling at them, "hey this is private property. Get off my ocean" and all this stuff. So, you know, and that's when everything started changing. I was like ... what, the ocean is everybody's. You can walk along the shoreline anywhere. So anyway, that changed and I got married down there too, right on the point.

SI: Did the place have some spiritual significance for you?

AH: No. It was beautiful. It's just like Kailua-Kona. I lived there when I was a teenager for summer jobs and ran a boat. But, you know, Kona is destroyed and I think Kapoho is basically gone. It's destroyed. It's not the same. *Mana* you know.

SI: Right. I have another question. The gate that you're talking about, is this the access gate into the Kapoho Beach lot?

AH: Yes. The one with the big spikes on it. Very inviting.

SI: Yeah. Do you have anything else you'd like to add?

AH: No, that's it. I think that culturally, people down there would like to have a fishpond where they can actually go try and eat the fish if they want to and have it as a cultural thing. Maybe that might change the mood of the (I can call them outsiders 'cause I was born and raised here), but just from the attitude of the outsiders it seems to be more money than any respect for anything else. I hate to drive by and see what happened to that *kou* tree with the burial under it. It's probably bulldozed too, you know.

SI: So you believe that near that property there were burials at one time?

AH: There was ... there was something significant there. When you walked up to it, you got chicken skin. And utility guys went by and chopped a big huge log off of this tree 'cause it was like overhanging their lines and it split the tree. So my brother knows all about plants. I called him and said, hey they cut this tree and it just split. It's gonna die you know so what do you do? Anyway, he came down and we chopped up the log that was hanging, that had split the thing. And then he chiseled it and we patched it with some kind of tar black stuff that he got. And the tree was growing. The tree was doing good. We used go get the seeds under there and put them in pots and sell 'em, not sell 'em but give them away to other people. We'd give the seeds to this

one lady and she'd pot 'em up. She had a little nursery and she would sell 'em. But it was neat because you know what a *kou* tree looks like, with the orange flowers ... beautiful.

SI: This kou tree was on the subject property do you think?

AH: Well, if there's 16 acres there and there's a road between there and the fishponds, it would have to go west. So it would have to include that tree.

SI: So this is the tree you talked about that had the small 'ili'ili stones around it?

AH: Well large 'ili'ili, big, round stones and little ones in between ... like someone had decorated this place and planted this tree for a reason 'cause it was in the middle of the bushes. Nobody knew it was there.

SI: OK. Well, thank you very much for this interview. I appreciate it. We're done.

AH: Yeah, you're welcome.

Section 6: Summary and Recommendations

Summary

Archaeological Consultants of the Pacific, Inc. has conducted this Cultural Impact Assessment, as required by the DLNR-SHPD, in advance of the proposed restoration/stabilization of an unnamed fishpond wall located at TMK: (3) 1-4-002: 36 (Por.), Kapoho Ahupua‘a, Puna District, Island of Hawai‘i. In addition to soliciting interviews and testimony regarding the fishpond, general historic background research was also conducted on Kapoho Ahupua‘a including traditional and legendary accounts, land use from earliest occupation to present day, a summary of previous archaeological investigations and a summary of settlement patterns.

Background research demonstrates that, while the Puna District was a desirable place to live and cultivate crops in traditional times, it was not an important political player in the formation of the unified Island of Hawai‘i. Other places, including Ka‘u and Hilo, were more important political centers in pre-Contact times. This is probably at least partially the result of the numerous lava flows that have moved through different parts of Puna over the centuries, making it a tenuous location for a strong political center. Still, there is little doubt that Puna was an important center of human settlement in traditional times.

Historical documents and previous archaeological studies suggest that coastal Puna, including Kapoho and areas in and around the subject property were dotted with traditional villages of native Hawaiian farmers, fishers and gatherers well into the 20th century. In fact, although the majority of lands in the region were given over to commercial activities, including sugarcane, starting about 100 years ago, the coastal areas remained firmly in the hands of Hawaiian commoners well into relatively recent times.

Community consultations on the fishpond, itself, yielded relatively little information about its traditional, cultural significance. It appears that the wall was built at least 100 years ago, but no additional information was uncovered. Based upon the absence of objections by the individuals interviewed for this CIA, ACP does not foresee any problems with the planned restoration of the fishpond, which has now been adequately documented and researched.

Recommendations

Based upon the absence of any known, ongoing cultural practices within the subject property, Archaeological Consultants of the Pacific, Inc. deems the recommendation presented in the recent archaeological inventory survey (AIS) of the subject property (by ACP) to be adequate protection for the archaeological features located within the subject property. In the AIS document, it was stated: “Archaeological Consultants of the Pacific, Inc. recommends that the fishpond be preserved and that any and all dilapidated sections be restored/stabilized using historically appropriate materials and methods consistent with existing conditions. The details of preservation will be presented in a separate Archaeological Preservation Plan.”

References Cited

- Armstrong, R.W.
1983 *Atlas of Hawaii*. Department of Geography, University of Hawaii. The University Press of Hawaii, Honolulu.
- Barrere, D.B.
1959 "Political History of Puna." In (Eds., Emory *et al.*) *Natural and Cultural History Report on the Kalapana Extension of the Hawaii National Park, Vol.1*. Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..
- Burtchard, G.C.
1994 "Archaeology in the Kīlauea East Rift Zone, Part I: Land-Use Model & Research Design, Kapoho, Kamā‘ili & Kīlauea Geothermal Subzones, Puna District, Hawai‘i Island." IARII, Inc..
1995 "Archaeology in the Kīlauea East Rift Zone, Part I: A Preliminary Sample Survey, Kapoho, Kamā‘ili & Kīlauea Geothermal Subzones, Puna District, Hawai‘i Island." IARII, Inc..
- Carlquist, S.
1980 *Hawaii, A Natural History, 2nd Ed.*. SB Printers, Inc., Honolulu, HI..
- Cox, D.
1983 "Archaeology Report: Cape Kumukahi, Hawaii, TMK: 1-4-02." U.S. Army Corps of Engineers.
- Devereux, T., D. Borthwick, and H.H. Hammatt
1998 "Archaeological Inventory Survey for Two Proposed Hawaii County Parks, Ahalanui and Pohoiki, Puna, Hawaii Island (TMK Ahalanui 1-4-002: 005,0 06 & 061, Pohoiki 1-3-008: 013, 016 & 1-4-002: 008)." Cultural Surveys of Hawaii, Inc., Kailua, HI..
- Dunn, A., L.J. Franklin, and S.T. Goodfellow
1995 "Archaeological Inventory Survey, A & O Golf Course Project, Lands of Ahalanui, Oneola, and Laepao‘o, Puna District, Island of Hawai‘i, vol.1." PHRI, Inc., Hilo, HI..
- Elbert, S.H. (Ed.)
1979 *Selections from Fornander's Hawaiian Antiquities and Folk-lore*. 2nd edition. University of Hawaii Press, Honolulu, HI..

- Handy, C.E.S. and E.G. Handy
 1972 *Native Planters of Old Hawaii*. Bishop Museum Bulletin 233. Bishop Museum Press, Honolulu.
- Holcomb, R.T.
 1987 "Eruptive History and Long-Term Behavior of Kilauea Volcano." In *Volcanism in Hawaii* (Eds., R.W. Decker, T.L. Wright, and P.H. Stauffer), pp.261-350. U.S. Geological Survey Professional Paper 1350, Volume 1. U.S. Government Printing Office, Washington, D.C..
- Kennedy, J., P. Brennan, M. Maigret, E. Gehr, and L. Reitsema
 1991 "An Inventory Survey and Subsurface Testing at TMK: 1-4-02: 13, 14, 24, 69 & 70, Puna, Island of Hawaii, Revised June 1991." Archaeological Consultants of Hawaii, Inc., Pupukeya, HI..
- Kikuchi, W.K.
 1973 *Hawaiian Aquacultural System*. Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson, AZ..
- McEldowney, H.
 1979 "Archaeological and Historical Literature Search and Research Design, Lava Flow Control Study, Hilo, Hawai'i." Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..
- Monahan, Chris, J.R. Moore and Joseph Kennedy
 2007 "An Archaeological Inventory Survey Report for a Property Located TMK: (3) 1-4-002: 36 (Por.) in Kapoho Ahupua'a, Puna District, Island of Hawai'i." Archaeological Consultants of Hawaii, Inc., Pupukeya, HI..
- Pukui, M.K., S.H. Elbert, and E.T. Mookini
 1976 *Place Names of Hawaii*. University of Hawaii Press, Honolulu, HI..
- Rogers-Jourdane, E., and B. Nakamura
 1984 "Archaeological Reconnaissance and Historical Surveys of Lands at Kapoho, Puna, Hawaii, TMK: 1-4-01: 1,2,19." Department of Anthropology, B.P. Bishop Museum, Honolulu, HI..
- Sato, H.H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr.
 1973 *Soil Survey of the Island of Hawai'i, State of Hawai'i*. U.S. Department of Agriculture, Soil Conservation Service, In Cooperation with the University of Hawai'i Agricultural Experiment Station. Government Printing Office, Washington, D.C..

Schmitt, R.C.

1968 *Demographic Statistics of Hawaii: 1778-1965*. University of Hawaii Press, Honolulu, HI..

Spear, R.L.

1992 "An Archaeological Assessment of the Laepao'o Park Project, Ahalanu'i Ahupua'a, Puna District, Island of Hawai'i, TMK: 1-4-2:5, 6, 61." SCS, Inc., Honolulu, HI..

Thrum, T.G.

1907 "Heiaus and Heiau Sites Throughout the Hawaiian Islands." In (Ed., T.G. Thrum) *Hawaiian Almanac and Annual for 1908*, pp. 37-48. Honolulu, HI..

Appendix C
Agency and Pre-consultation Letters
Newspaper Articles



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

REPLY TO
ATTENTION OF

September 2, 2004

Regulatory Branch

Mr. John E. Barsell, Jr.
43 Canyon View Drive
Orinda, CA 94563

Dear Mr. Barsell:

Thank you for your response regarding our inquiry on the work conducted on a parcel identified as TMK:1-4-02:36 located in Puna, Hawaii. Based on our review of the information submitted, we have determined that the work conducted on your parcel did not involve the discharge of dredged or fill material into waters of the U.S., to include wetlands which would be subject to regulations under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899.

Furthermore, removal of mangroves will not require a Department of the Army permit if removed by hand, or with the use of a chainsaw, cut above the roots. However, land clearing involving vegetation removal with mechanized equipment such as front-end loaders, backhoes or bulldozers; usually involve soil disturbances which are considered placement of fill material under our jurisdiction.

Should your plans change to incorporate future work in any ponds, fishpond or coastal waters, please contact our office for a written determination on whether a Department of the Army permit would be required. We appreciate your cooperation with the Corps regulatory program. Should you have questions, you may contact Ms. Lolly Silva at (808) 438-7023 or by fax at (808) 438-4060 and reference File No. 200400424.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

Copy furnished:

County of Hawaii Planning Department, 101 Pauahi Street, Suite #3, Hilo, HI 96720
State Historic Preservation Division, 601 Kamokila Blvd., Suite #555, Kapolei, HI 96707
Department of Health, Clean Water Branch, P.O. Box 3378, Honolulu, HI 96801
Department of Land and Natural Resources, Division of Aquatic Resources, 1151 Punchbowl Street,
Honolulu, HI 96813

Office of Planning, Coastal Zone Management Program, P.O. Box 2359, Honolulu, HI 96804

Environmental Protection Agency, Honolulu Branch, P.O. Box 50003, Honolulu, HI 96850



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122, Box 50088
Honolulu, Hawai'i 96850

In Reply Refer To:
2007-SL-0191

MAY 29 2007

Mr. Joseph Farber
Farber and Associates
2722 Ferdinand Ave.
Honolulu, Hawai'i 96822

Dear Mr. Farber:

Thank you for your email dated May 17, 2007, requesting a list of threatened and endangered species that may occur within or near the proposed fish pond restoration project at Kapoho Bay, Puna District (TMK 1-4-002:036) on the island of Hawai'i. The proposed work is to remove mangrove trees and bushes that have overgrown the old Hawaiian fish pond wall, and to restore the wall to its original alignment and configuration, including the fish pond makaha (gate). Stones for rebuilding the wall will be the original stones that are already on site.

We have reviewed the information you provided and pertinent information in our files, including data compiled by the Hawai'i Biodiversity and Mapping Program. To the best of our knowledge, no federally listed or proposed threatened or endangered species or candidate species, or proposed or designated critical habitats occur within or near the proposed remnant sites that you identified in your letter.

We appreciate your efforts to conserve endangered species. If you have questions, please contact Patrice Ashfield (phone: 808/792-9400; fax: 808/792-9581).

Sincerely,

 Patrick Leonard
Field Supervisor

TAKE PRIDE[®]
IN AMERICA 

Harry Kim
Mayor



Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

March 8, 2005

Mr. Thomas L.H. Yeh, Esq.
Tsukazaki Yeh & Moore
85 W. Lanikaula Street
Hilo, Hawaii 96720-4199

Dear Mr. Yeh:

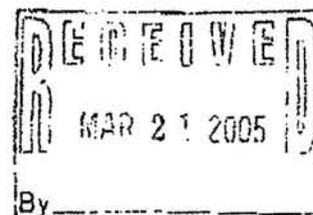
Subject: Special Management Area Assessment Application No. 05-13 (SMAA 05-13)
Applicant: Barsell Pecos, LLC
Land Owners: Barsell Pecos, LLC
Project: Construction of a single-family dwelling & related improvements
Tax Map Key: (3) 1-4-002:036

This is in response to the subject SMAA application, which you submitted on behalf of the applicant on February 17, 2005. The application includes:

1. A completed SMAA application form;
2. An attachment that includes a description of the proposed dwelling and related landscaping improvements and its objectives, a description of the anticipated impacts of the proposed project on the SMA, and a discussion of the proposed development in relationship to the objectives and policies as contained in the SMA Guidelines;
3. A topographic survey, dated April 30, 2004 and revised January 25, 2005, of portion of the subject property where the proposed dwelling is to be situated;
4. A "Landscape Plan" of the subject lot dated January 21, 2005; and
5. A "Landscape Plan At House" dated January 21, 2005.

After careful review of the subject application and our findings, which are presented below, we have determined that the construction of the proposed single-family dwelling and related improvements, as specified in this letter, are exempt from the definition of "development" as provided under Rule 9-4(10)B(i) of the Planning Commission Rules of Practice and Procedure (PC Rules). This determination of exemption is granted with conditions, which are provided later in this letter.

Hawai'i County is an equal opportunity provider and employer



Mr. Thomas L.H. Yeh, Esq

Page 7

March 15, 2005

In response to your client's earlier request (letter dated July 20, 2004) for a waiver from the requirement to include a Certified Shoreline Survey as part of his SMAA application, the Planning Department, by our letter dated August 30, 2004, agreed to accept a topographical survey map that shows elevations referenced to the appropriate low tide datum for the subject area in lieu of a Certified Shoreline Survey. The topographical survey map should include all areas of the subject property in and around which the applicant intends any uses, activities or structures in sufficient detail for us to reasonably estimate the location of the shoreline.

A Letter of Agreement (LOA) dated December 13, 2004 between the Planning Department and Barsell Pecos, LLC served to set forth the terms of settlement regarding the Notice of Violation and Order (ZCV 04-043), SMA Violation (SMA/V 04-04), and Shoreline Setback Violation (SSV 04-01) and to effect the applicant's withdrawal of its Notice of Appeal (BOA 04-20). Pursuant to Part 3 of the referenced LOA, *"...the Owner will submit a topographical survey map with noted elevations referenced to the appropriate low tide datum for the subject property in order to allow the County of Hawaii to determine whether any proposed improvements will be located outside the shoreline setback area, and to determine if any proposed activities within the setback area constitute allowable structures or activities for which prior written (approval) will be necessary."* Part 4 goes on to state that *"prior to commencing any additional work on the property, it (the owner) will submit an SMA Use Permit (Assessment) Application which will contain complete plans for the dwelling and any related improvements, along with a landscaping plan, which includes any past or future development work conducted by Owner on the subject property for the Planning Department's review and approval under Rule 9 of the Planning Commission Rules, and Rule 11 of the Planning Department Rules."*

The subject shorefront lot is approximately 16.913 acres in area and is situated between Kapoho Beach Lots and Kapoho Beach Lots Extension 1 Subdivisions. The property is zoned Single-Family Residential (RS-10) by the County of Hawaii and is situated in the State Land Use Urban district and the County of Hawaii's Special Management Area (SMA).

Existing improvements situated on the subject property include:

1. A shed, identified as an existing "cabana," that was permitted by SMA Minor Permit No. 83-30 approved on August 12, 1983 and Building Permit (BP) #831293 on August 11, 1983. This permit allowed for the construction of a 12x14 unenclosed storage shed to house landscaping equipment and to provide shade for workers. The BP remains open. Please note that, according to Webster's New World College Dictionary, a "cabana" is defined as a cabin or hut, or a small shelter used as a bathhouse at beach or pool. Therefore, said structure shall be henceforth identified as a shed until such time that the building permit is amended to specify another use or uses.
2. An open 15x20 wood pavilion permitted by SMA Minor Permit No. 84-11 (SMM 84-11) approved on March 15, 1984 and BP #840574 issued on April 2, 1984. This

Mr. Thomas L.H. Yeh, Esq.

March 15, 2005

structure is shown on the above-referenced Landscape Plan to be partially situated within the 40-foot shoreline setback area, which is defined in the Background Report for SMM 84-11 and BP #840574. This BP also remains open.

3. Existing sea walls and fish ponds claimed to have been built in approximately 1920.
4. A gate and portion of a cyclone fence along the property frontage with Laimana Road.
5. Existing grass and cinder driveways from the gate to the area near the former beach house, and proposed new dwelling, site and the existing pavilion.

We understand the proposed improvements to include:

1. The construction of a 1,600-square foot single-family dwelling and related improvements;
2. The construction of a new rock wall entrance and gate near the northwest corner of the property at Laimana Road;
3. The installation of approximately 400 feet of chain link fence running along the western boundary of the property to a point approximately 180 feet north of the southwest corner of the lot near the intersection of Alapai Point Road and Wainani Road, at which point the fence runs to the 20-foot front yard setback line approximately 120 feet east of said intersection;
4. Landscaping improvements, including the clearing of existing vegetation and the planting of landscape plants at selective locations depicted on the above-referenced Landscape Plans;
5. Periodic trimming of mangroves along the shoreline area using only hand tools;
6. The maintenance and preservation of sea walls and fish ponds.

Based on the above, this determination of exemption from the definition of "development" shall apply only to the following proposed improvements, uses, and activities on the subject property.

1. The construction of the proposed single-family dwelling shall be allowed within the portion of the subject property shown on the above-referenced Topographic Survey map dated April 30, 2004 and revised on January 25, 2005. In order to establish that the proposed improvements, uses and activities are clearly and unmistakably located at a considerable distance from the shoreline, the proposed dwelling and its related improvements, including, but not limited to, any land altering activities (excavation, grading or filling), landscaping, private waste-water disposal system, above and/or below grade utilities, shall not be within 45 feet of the 4-foot elevation line.
2. The construction of the proposed entry rock wall and gate near the northwest corner of the property at Laimana Road is allowed.

Mr. THOMAS L. H. [unclear]

March 15, 2005

3. The installation, replacement, or repair of chain link fencing along the property lines fronting Lalouana Road, Aiea, Hawaii, and along the property line of TMK parcel 1-4-27:029 is allowed.
4. Except as otherwise excluded by the following conditions, landscaping is permitted outside the areas identified as "undeveloped" and "existing fish ponds" as depicted on the above-referenced Landscape Plan.

The permitted improvements, uses, and activities specified above are subject to the applicant's compliance with the following conditions:

1. The applicant shall secure written approval from the Army Corps of Engineers prior to conducting any land clearing involving vegetation removal with mechanized equipment such as front-end loaders, backhoes or bulldozers, or prior to work in any ponds, fishponds, or coastal waters on or adjacent to the subject property. The applicant shall submit a copy of said written approval to the Planning Department prior to commencement of such activities.
2. The applicant shall secure a National Pollutant Discharge Elimination System (NPDES) permit or written confirmation from the Department of Health that a NPDES permit is not required prior to any construction activities on the subject property. A copy of the NPDES permit or the written confirmation that an NPDES permit is not required shall be submitted to the Planning Department prior to the approval of any land alteration or building permits.
3. The applicant shall erect a construction barrier meeting with Planning Department approval along the length of the 45-foot setback line, as measured from the 4-foot elevation, from the property line adjacent to TMK parcel 1-4-10:029 to not less than 50 feet west of the proposed dwelling location. The construction barrier shall remain in place until final inspection for all building and land alteration permits has been secured.
4. The following improvements, uses and/or activities are prohibited within 45 feet of the 4-foot elevation anywhere on the subject property without first securing a written determination regarding the permissibility of the proposed improvement, use or activity under Rule 9, PC Rules and Rule 11, PD Rules from the Planning Department:
 - a. Storage of construction materials, tools, equipment or supplies;
 - b. Land alteration (including grading, filling, excavation or mechanized grubbing);
 - c. Landscaping;
 - d. Construction activities;
 - e. Fence erection; or

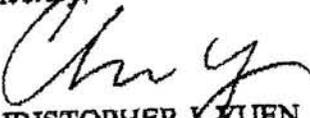
March 17, 2005

- E. Rock wall construction or repair.
5. All clearing of vegetative growth, including the trimming and maintenance of trees, shrubs, pipelines and ponds, shall be conducted by the use of hand tools and/or chainsaws only unless prior permits and approvals have been granted by all federal, state and county authorities as may be applicable. All vegetative waste material shall be either removed from the subject property for appropriate disposal or composted on the subject property at a location with an elevation of not less than 12 feet and more than 45 feet from any 4-foot elevation.
6. Prior to the issuance of any land alteration or building permits for the subject property, the applicant shall provide the Planning Department with verifiable evidence that the existing pavilion structure is not closer than 45 feet from the 4-foot elevation or secure approval from the Planning Commission for a Shoreline Setback Variance.
7. The applicant shall comply with all applicable laws, rules and regulations of the affected federal, state and county agencies.
8. Failure to comply with any of these conditions shall result in the revocation of this determination of exemption.

With regard to the above-referenced Landscape Plan submitted with the subject application, the Planning Department has the following observations and comments. In the absence of a Certified Shoreline Survey, the property lines shown along the makai portions of the lot do not represent the shoreline and, therefore, the 40-foot setback lines shown do not represent the Shoreline Setback Line. Therefore, certain areas of the property near the existing fishponds that are indicated for landscaping improvements may require addition review under the SMA guidelines even though they are outside the "undeveloped" designated area of the lot.

Should you have questions, please feel welcome to contact Larry Brown or Esther Imamura of my staff at 961-8288.

Sincerely,


CHRISTOPHER YUEN
Planning Director

LMB:cd

P:\WP\WING\CM\SM\AA\2005\SM\AA 05-13 Barseil exempt w-cond.doc

Encl: SSV Application

Mr. Thomas L.H. Yeh, Fee

March 15, 2005

cc: Ms. Susan Gagorik - Long Range
Mr. Robert Lisowski

Mr. Denis P. Lee, P.E. Chief
Department of Health, Clean Water Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Mr. George P. Young, P.E.
Department of the Army, Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440

No-Fishing Zones in Tropics Yield Fast Payoffs for Reefs

NEW YORK TIMES

By CHRISTOPHER PALA

Published: April 17, 2007

Sitting on a bench in a thatched hut in this village on Palau's main island of Babeldaob, Islias Yano, 57, looked over the bay he has fished professionally since he was 15 and recalled the fishing practices of his boyhood.

"We fished certain fish in certain seasons," he recalled. "Each reef could only be fished by people from a certain village." Village elders would rotate fishing on reefs, he recounted, to husband their slow-growing main source of food.

Starting in the 1980s, population growth, new seafood markets in Asia and modern ways of thinking washed away the elders' authority and rules.

"Outsiders started coming into our reefs, they used scuba gear and dynamite, and the fish got smaller and fewer," Mr. Yano said, shaking his head.

In the world's tropical seas, full-grown snappers and groupers became as rare as full-grown tuna or cod elsewhere. In Ngiwal, the reaction was not long in coming. Once again, the elders ruled.

In 1994, they banned fishing in a small area of reef that was partly accessible on foot. The village women, who traditionally gather shellfish at low tide, noticed how the fish became more plentiful there in a few years. The reef became locally famous, and other villages started to do the same.

Today, Palau, a tiny island state 600 miles east of the Philippines that is internationally known as a site for recreational diving, is at the forefront of a worldwide movement to ban fishing in key reefs to allow the return of prized species. It now protects a patchwork of reefs and lagoon waters amounting to 460 square miles.

At a November 2005 meeting of the United States Coral Reef Task force in Koror (the Republic of Palau, independent since 1994, still qualifies for certain domestic financing from the United States), President Tommy Remengesau Jr., probably the world's most conservation-minded head of state, caused a splash with his so-called Micronesian Challenge: a call to the rest of the region to set aside for conservation 30 percent of coastal waters and 20 percent of the land area by 2020. Palau already has that amount, though not all of it is policed, but the rest of the region has far less.

"I realized you couldn't have development on one side and conservation on the other, and see which would outwit the other," he said in an interview in Koror, the commercial capital. "If you cared for the future of the country, you had to bring them together," so the nongovernmental organizations became "an integral part of our planning."

Palau's challenge has come at a time when reef-fishing communities around the world are discovering that setting aside no-fishing areas yields dividends in a few years because the resurgent fish populations spill over into areas where fishing is allowed.

Without as much support from their national government as Palauans enjoy, local authorities in Fiji have raised the number of no-take zones to 189 from 2 in 10 years.

Two years after Ratu Aisea Katonivere, a traditional chief, imposed a no-take zone, "The fish are closer and bigger," he said. "They are coming back; it's a miracle." Mr. Katonivere, who rules over 7,000 people in the Great Sea Reef, the world's third-largest barrier reef, spoke in an interview during a conservation conference in Honolulu.

Other participants said that in the Solomon Islands, the protected areas have gone to 30 from 2 in just five years, and in Vanuatu, they exceed 100.

"The old system of controlling fishing with the taboo system is being adapted and improved because people still respect their traditional chiefs," said Alifereti Tawake of the University of the South Pacific in Fiji. "They're used to fishing where they want, but when they see the decline of the fish and the results of the no-take areas, they see it's the way to go."

The Micronesia Challenge has resonated far beyond Micronesia. Five months after Mr. Remengesau issued it, President Susilo Bambang Yudhoyono of Indonesia pledged to increase marine protected areas to 24.7 million acres from 18 million acres by 2010. In the Antilles, the states of Grenada, the Bahamas, Belize and the Grenadines, which have already protected some reef areas, have committed themselves to a Caribbean Challenge and are trying to persuade the other nations to make similar pledges, according to Bill Raynor, the Nature Conservancy's director for Micronesia.

But in the United States, marine protected areas are less than 1 percent of near-shore waters. In Hawaii, where the reefs are largely depleted of fish, a "right to fish" bill recently approved by the state house of representatives would make it almost impossible to create any protected areas by requiring unattainable scientific data.

That Palau has taken the lead in ocean conservation is no accident. Even among Pacific peoples, Palauans have been known for prizing fish and seafood over meat and farmed vegetables, and its fishermen have stood out for their keen understanding of the reefs. A Canadian marine biologist, Robert E. Johannes, was the first to tap the Palauans' knowledge of marine biology by interviewing them and fishing with them in the 1970s.

Palauans, he wrote, showed him that in their archipelago, 55 species of edible fish followed the lunar calendar to gather in enormous groups called spawning aggregations and release sperm and eggs in the water -- "more than twice as many species as biologists had described for the whole world."

When diving became popular, in the 1990s, Palauan fishermen were able to take foreigners to sites with extraordinary numbers and varieties of fishes and corals, and the island became one of the world's top diving destinations. This brought a measure of prosperity to the 14,000 Palauans (unemployment is 2.9 percent), and it reinforced the views of fishermen like Mr.

Yano that plundering reefs is a bad idea. In 1997, 330 square miles in the Rock Islands lagoon favored by divers were closed to commercial fishing and the killing of sharks anywhere in Palau's waters was banned.

Also protected are the Napoleon wrasses, fish that can reach five feet and are worth up to \$10,000 alive in Hong Kong. They have been decimated almost everywhere else, but Palau now boasts one of the world's largest densities of them, a major attraction for divers.

In 1998, a so-called El Niño event involving major sea current changes sent unusually warm water to several countries around the world, causing the corals there to turn white and die. In Palau, the bleaching event killed off a third of its corals on average, but the proportion was much larger in the outer reefs whose dense fish populations, clear water and dramatic drop-offs are the main attractions to divers.

At the time, Noah Idechong, the country's leading environmentalist and founder of the Palau Conservation Society, had recently been elected to the lower house of Parliament.

"We realized that our no-fishing areas could not protect us from global warming and reef bleaching," he said.

With the support of the Nature Conservancy, Mr. Idechong (pronounced idda-ONG) introduced legislation to integrate the patchwork of existing protected areas-- some imposed by the government for tourism, others established by villages along the coast -- and add another 30 percent from those that best resisted bleaching, or recovered fastest from it, he said.

Today, the network design is close to being completed, and by the end of the decade -- 10 years before the president's 2020 pledge -- it should be fully in place, Mr. Idechong said.

Although Palau's reefs are the envy of the region, poaching remains a problem. "There are boats on my reef every night; they are fishing illegally with scuba tanks and spear guns," fumed Brownie Salvador, the governor of Ngarchelong State. "I have no money to hire rangers to stop them."

To monitor the health of the reefs and curb poaching, Palau needs \$2.1 million a year, officials say. Foreign donors are expected to create a \$12 million trust fund, and the rest will come from an added tax on divers, said Mr. Raynor of the Nature Conservancy, in an interview in Pohnpei, in the Federated States of Micronesia.

Because Palau is far ahead of the others, "It's really important we succeed, because the whole world is looking at us," Mr. Raynor added.

At Dalhousie University in Nova Scotia, Boris Worm, author of a seminal paper predicting that there will be little wild fish left to eat by midcentury, is keeping a close eye on the rapid spread of marine-protected areas in the Pacific. "Those bottom-up ones work a lot better than top-down ones; they have better compliance and work well long-term," Dr. Worm said. "Now that we are reaching a global limit, people are asking how can we fix the problem, and they are rediscovering that the old methods really work. It's very significant."

THE MAUI NEWS
Sunday, June 10, 2007

State regulations on the size of fish that can be taken are based on the principle that small fish should be allowed to grow. A good argument could be made that letting the little fish go while taking the big fish is counterproductive.

A typical 6-inch reef fish such as the weke 'ula, or yellow goatfish, spawns once a year, releasing 90,000 eggs. A 12-inch weke spawns four to five times a year, releasing 45 million eggs each time for a total of 180 million eggs a year. The eggs of older fish are also healthier and more likely to survive into adulthood.

What the little-fish, big-fish situation illustrates is the need for ocean nursery areas. Two years after establishing marine reserves off Guam, fishermen reported seeing species they hadn't seen in 20 years with fish populations increasing up to 115 percent in two years. Closer to home, in 1999 the state set aside 35 percent of the Big Island's Kona coast as fish replenishment areas. Populations of yellow tangs, or lau i pala, had been severely depleted by aquarium collectors. In five years, the number of yellow tangs was up 111 percent.

Short-term – a year or so – closures of areas to fishing and hunting don't work. The number of fish increase but then plummet as soon as the areas are reopened. Long-term closures allow fish and corals to replenish themselves and that leads to more fish everywhere. Just ask a fisherman on the shore just outside of the Ahihi-Kinohi Natural Area Reserve.

Those who fish, hunt or simply enjoy a healthy marine environment will be better off when the state is pressured into doing for Maui what it did for Kona.

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

Conservation District Use Application (CDUA)

CONSERVATION DISTRICT USE APPLICATION INSTRUCTIONS

This is the Department of Land and Natural Resources (DLNR), Office of Conservation and Coastal Lands (OCCL), Conservation District Use Application (CDUA) form. This application is to be used to apply for land use(s) within the State of Hawaii Conservation District.

All land uses, pursuant to Title 13 Chapter 5, Hawaii Administrative Rules (HAR), must be an identified land use and require that a CDUA be filed with the Department and approved by the Board of Land and Natural Resources prior to its initiation. An application is not considered accepted for processing until the Department has found it complete. Once an application is considered "complete" by the Department, a letter of acceptance will be issued and the statutory 180-day time period will begin.

Should a "complete" application not be acted upon within the 180-day time limit, the applicant may automatically put said land to the use(s) requested in the application.

Unless provided for by Title 13, Chapter 5, HAR, land uses shall not be undertaken in the State Land Use Conservation District. Please utilize applicable sections of Title 13, Chapter 5 of the Hawaii Administrative Rules to complete this application.

All applications must include the following to be considered "complete" for processing:

- A completed CDUA form with signatures of the landowner(s) and applicant if different from the landowner. Where the landowner is a corporation, trust, association, etc., evidence of authorization for the application shall be included.
- Environmental information required pursuant to Department of Health, Chapter 343, Hawaii Revised Statutes.
- Compliance with applicable county Special Management Area (SMA) Rules and Regulations must be satisfied prior to action on the CDUA.
- The appropriate filing fees as specified pursuant to Title 13, Chapter 5, HAR.

NOTE: No application shall be processed by the Department until violations pending against the subject parcel are resolved pursuant to section 13-5-31(e).

Twenty (20) copies of the completed application and all attachments and twenty (20) copies of the environmental assessment as required must be submitted.

Application(s) and attachment(s) should be mailed to:

Department of Land and Natural Resources
Office of Conservation and Coastal Lands
P.O. Box 621
Honolulu, Hawaii 96809

or hand delivered to:

Kalanimoku Bldg. Room 131
1151 Punchbowl Street
Honolulu, Hawaii 96813

For information call: 587-0377

You may download this form and the Conservation District Rules, Chapter 13-5, Hawaii Administrative Rules, at www.hawaii.gov/dlnr/occl/documents.

REQUIRED ATTACHMENTS

For information presented in the Environmental Assessment (EA), please reproduce and attach relevant information in the CDUA or cite specific section and page references to enable staff to locate it conveniently in the EA.

County Special Management Area Determination

Applications may be subject to County Special Management Area (SMA) requirements. One of the following must be received from the applicable County thirty (30) days prior to Board action on your CDUA:

- A determination that the proposed land use(s) is outside the Special Management Area (SMA) administered by the County
- A determination that the proposed land use is exempt from the provisions of the County ordinances/regulations specific to Section 205A-29 (b), Hawaii Revised Statutes (HRS)
- A Special Management Area permit for the proposed use. (Note: An SMA permit or clearance **must** be received by the Department forty-five days prior to the 180 day expiration deadline on an application.)

Should you believe that the subject area is clearly not within the SMA, please state the reason and the OCCL shall make a determination regarding this matter.

Maps

Maps should include a north arrow and graphic scale. Attach regional, vicinity and parcel maps. Utilities, roads and access should be presented on a map if available and applicable. If applicable, flora and fauna, and historic sites should also be presented on a map. Submit detailed contour maps for ocean areas and areas where slopes are 20% or more. If the area of proposed use is within fifty feet of the boundary of the Conservation District, please include a map

showing the interpretation of the boundary by the State Land Use Commission. This information may be included in the EA.

Photographs

Current color photographs of the area should be submitted with each EA/CDUA . Electronic storage of information such as computer floppies and Cd Roms should be provided to OCCL to help expedite the processing of applications.

Plans

All applications and EA shall contain associated plans such as a location map, site plan, floor plan, elevations, and landscaping plans drawn to scale. Additionally, all plans should include a north arrow and graphic scale.

Location/Area Plan. An area plan should include but not be limited to: the relationship of proposed uses to existing and future uses in abutting parcels; identification of major existing facilities; and names and addresses of adjacent property owners.

Site Plan/TMK. Site plans are maps that should include, but are not limited to: dimensions and shape of lot; metes and bounds (including easements and their use); existing features, (including vegetation, water area, roads, utilities, and existing structures).

Construction Plan. Construction plans should include, but not be limited to: existing and proposed changes in contours; all buildings and structures with indicated use and critical dimensions (including floor plans) in square footage; open space and recreation area(s); landscaping (including buffers and fences); roadways (including widths); off street parking area; existing and proposed drainage; proposed utilities and other improvements; revegetation plans; drainage plans including erosion sedimentation controls; and grading, trenching, filling, dredging and/or soil disposal.

Maintenance Plans. For all uses involving power transmission, fuel lines, drainage systems, unmanned communication facilities and roadways not maintained by a public agency, plans for maintenance shall be included.

Management Plans. If required, refer to Title 13 Chapter 5-39 of the Hawaii Administrative Rules and Exhibit 3, entitled "Management Plan Requirements: September 6, 1994."

Historical or Archaeological Site Plan. Where there exists historic or archaeological sites on the property, a plan must be submitted including a survey of the site(s); significant features; protection, salvage, or restoration plans.

Environmental Requirements

Pursuant to the Department of Health, Chapter 343, Hawaii Revised Statutes (HRS), and in accordance with Title 11, Chapter 200, Environmental Impact Statement Rules for applicant actions, a Draft Environmental Assessment of the proposed use must be attached. The Final Environmental Assessment (FEA) must be published forty-five (45) days prior to the 180-day expiration deadline. Failure to meet this deadline may result in negative action on the applicant by the BLNR.

If the proposed actions are within the scope of exemption as defined in Title 11, Chapter 200-8 of the Hawaii Administrative Rules, the applicant should provide written justification for the exemption. For more information, contact the Office of Environmental Quality Control at (808) 586-4185.

Conservation District Use Application (CDUA) fees

All fees shall be in the form of cash, certified or cashier's check, and payable to the State of Hawaii. Refer to Title 13 Chapter 5, sections 13- 5-32 to 13-5-39 to determine fees and permit type.

Board Permit

\$100 application fee, plus an additional \$100 per potential developed acre, or major fraction thereof, up to a maximum of \$2,000.

Departmental Permit

\$50 application fee

Site Plan Approval

\$50 fee

Emergency Permit

Waived

Subzone Boundary Determination

\$50 fee

Temporary Variance

\$100 application fee

A fee of \$250 will be required for a public hearing pursuant to the Hawaii Administrative Rules (HAR), Title 13, Chapter 5, sections 13-5-33, 13-5-34 and 13-5-36.

A Public Hearing(s) shall be held for all applications involving the following:

- Land use(s) for commercial purposes
- Change of subzone(s) or boundaries
- Land use(s) in the Protective "P" subzone.
- Land uses(s) as determined by the Chairperson where the scope of the proposed use, or the public interest require one

Conservation District Use Application (CDUA)

For DLNR Use	
File #	_____
Reviewed by	_____
Date	_____
Accepted by	_____
Date	_____
180-Day Exp. EA/EIS Required	_____
PH Required	_____
Decision Date	_____

Project Location/Address: Kapoho Fishpond, Kapoho Bay / 14-4964 Kapoho Beach Lots

District: Puna Island/County: Hawai'i

Subzone: Resource Tax Map Key(s): 1-4-02: portion of 36

Total Area of Parcel: Fishpond waters and fishpond wall: 4.3 acres total

Area of Proposed Use: Restore and Rebuild Fishpond Wall,
1,246 feet long x 10 ft. wide = 12,460 sq. feet.

Commencement Date: February 1, 2008 Completion Date: July 2009 (18 months).

Indicate which of the following approvals are being sought, as specified in the Hawaii Administrative Rules (HAR), Chapter 13-5.

- Board Permit**
- Departmental Permit**
- Emergency Permit**
- Temporary Permit**
- Site Plan Approval**

APPLICANT

Legal Name: John Barsell
Street Address: RR2 Box 3933
City, State and Zip+4 Code: Pahoa, HI 96778
Mailing Address: same as above
City, State and Zip+4 Code:
Contact Person & Title: see above
Phone No.:(808) 965-6293 Fax No.:(808) 965-6293
Email: sbarsell@aim.com
Interest in Property: owner

***Signature** _____ **Date** _____
*If for a Corporation, Partnership, Agency or Organization, must be signed by an authorized officer.

AGENT

Name: Joseph Farber, Farber & Associates
Mailing Address: 2722 Ferdinand Ave.
City, State and Zip+4 Code: Honolulu, HI, 96822
Contact Person & Position:
Phone No.:(808) 988-3486 Fax No.:(808) 988-3486
Email: joefarber@hotmail.com

Signature _____ **Date** _____

PROPERTY OWNER(S) (If other than the applicant) SAME

Legal Name: N/A
Street Address:
City, State and Zip+4 Code:
Mailing Address:
City, State and Zip+4 Code:
Contact Person & Title:
Phone No.:() Fax No.:()
Email:
Relationship to applicant:

Signature _____ **Date** _____

CONTRACTOR

Name: N/A Contractor I.D. #
Scope of Work:
Mailing Address:
Contact Person & Position Title:
Phone No.:() Fax No.:()
Email:

Emergency Contact Information

Company/OrganizationName:
Contact Person and Title
Phone No.:() Phone No.:()

PRIOR CONSERVATION DISTRICT USE PERMITS (CDUP)

Please specify all prior CDUP received for the subject parcel.

None known.

PROPOSED USE

Total Area of Proposed Use: (indicate in acres or sq. ft): 12,460 square feet (fishpond wall: 1,2460 feet long x 10 feet wide).

Describe the proposed use in detail. Include secondary improvements such as grading, septic tank placement, utilities, roads, driveways, fences, landscaping, etc. Illustrate general location of improvements on a TMK map; include preliminary architectural renderings with elevations and building footprints with application. Include existing (before) and proposed (after) graphics. If the parcel is or has been the subject of a violation, please include the violation number.

Please refer to attached maps and photos, figures 6 through 18.

The Applicant is proposing to restore and rebuild a deteriorated historic fishpond located along the shoreline at Kapoho Bay for historic and cultural preservation purposes and to serve as a marine sanctuary. The fishpond lies entirely within the applicant's property, a 16.9-acre parcel (12.6 acres land, 4.3 acres fishpond) that contains the applicant's single-family residence. Only the fishpond is zoned conservation. The land surrounding the fishpond is zoned Residential (RS-10).

Presently the fishpond is in a deteriorated state, the wall has been damaged by the forces of nature and neglect and the fishpond basin is heavily inundated with mangrove.

Restoration and rebuilding the fishpond involves the repair of the fishpond wall and *mākāhā* (sluice gate) and periodic post-repair maintenance of the wall and basin.

The restoration will follow the original wall alignment. The existing *mākāhā* (sluice gate) is in excellent shape a result of having been reinforced with concrete (probably around 1930). The excellent condition of the *mākāhā* and adjoining walls provide valuable information as to the original wall dimensions and style. This information will be used as the template to replicate how the wall will be rebuilt.

The proposed project will produce a continuous fishpond wall approximately 1,450 feet in total length; an average wall height of 6 feet; a base width between 10 and 12 feet tapering to a

crown width of 5 to 6 feet. The slope of the outside wall will be approximately 20 degrees, the inside wall slope approximately 15-10 degrees. The stones to rebuild the wall are available onsite (on the existing fishpond wall footprint, immediately adjacent to the pond wall and within the fishpond basin).

To Restore and rebuild Kapoho Fishpond involve the following actions:

1. The physical retrieval, movement and alignment of wall foundation rocks from within the pond basin and along the original wall footprint using manually operated equipment, i.e. 'ō'ō [spade], cargo nets, floating flatbed pontoon;
2. The manual movement of 'ili'ili (smaller rocks, pebbles, loose coral) within the fishpond basin;
3. Restore and rebuild the fishpond wall using the existing onsite rock and 'ili'ili, in the traditional method of dry-stack rock wall construction without mortar, *uhau humu pohaku*.
4. The existing alignment and wall design will be followed and replicated. Where there is little or no wall footprint or foundation stones, the wall will be rebuilt in similar design and boulder size consistent with archaeological findings and the surrounding fishpond wall.
5. Periodic post-construction maintenance activities include the manual replacement of wall stones dislodged as a result of heavy surf action, and the manual removal mangrove from within and surrounding the fishpond basin.

CONSERVATION DISTRICT REQUIREMENTS

Demonstrate that the proposed use is consistent with the following criteria. Refer to HAR, Section 13-5-30, to review criteria. Attach additional sheets if necessary.

Is the proposed land use consistent with the purpose of the Conservation District?

The proposed land use is consistent with the objectives, policies and intent of the Conservation District.

The purpose of the conservation district is to regulate land use for conserving protecting and preserving the important natural resources of the State through appropriate management and use to promote their long-term sustainability and the public health, safety, and welfare (§13-5-1).

The project proposes to restore, rebuild, and maintain this historic Hawaiian fishpond. This proposal will thus foster culture and the arts and promote their linkage to the enhancement of the environment; establish, preserve and maintain a scenic, historic, and cultural site and reestablish and maintain a unique ecological marine preserve.

The proposed project will expand the range of beneficial uses of the environment (improved water circulation and quality, improved bio-diversity, fisheries, bird and aquatic species habitat).

The fishpond will physically change from a derelict and deteriorating historic fishpond with damaged walls and extensive mangrove inundation to that of a rebuilt and restored fishpond wall and basin and the shoreline around the fishpond cleared of mangrove. The fishpond will be maintained, cared for and be a cultural resource, a source of historic preservation and cultural pride and a unique marine preserve.

Is the proposed use consistent with the objectives of the subzone of the land in which the use will occur?

Yes. Conservation district, sub zone: Resource. HAR13-5-13 (a) The objective of the Resource sub zone is to develop, with proper management, areas to ensure sustained use of the natural resources of those areas.

The following are applicable permitted uses within the Resource (R) sub zone pertaining the fishponds:

(A-1) Repair, strengthening, reinforcement or maintenance of a fishpond under an approved conservation district use permit and approved management plan;

(D-1) Restoration or repair of a fishpond under an approved management plan; where restoration is the act or process of restoring the property to a state of utility through repair or alteration which makes possible an efficient contemporary use, such as aquaculture.

The purpose and objective of the proposed project is to revive and manage a neglected cultural and natural resource through the repair, reconstruction and maintenance of Kapoho Fishpond. It will be restored and maintained for cultural, historical purposes and serve as a marine reserve (a no fishing zone) to help replenish the depleted fisheries of the larger Kapoho Bay.

Does the proposed land use comply with provisions and guidelines contained in Chapter 205A, Hawaii Revised Statutes (HRS), entitled "Coastal Zone Management," where applicable?

Yes. The goal of Chapter 205A (HRS) is to preserve, protect, and where possible, restore the natural resources of the coastal zone of Hawaii giving full consideration to ecological, cultural, historic, esthetic, recreational, scenic, and open space values, and coastal hazards, as well as to needs for economic development.

The proposed project complies with these provisions and goals, as the intent of the project is to revitalize and maintain of Kapoho Fishpond for cultural, historical purposes and serve as a marine reserve (a no fishing zone) to help the replenish the depleted fisheries of the larger Kapoho Bay.

Describe how the proposed land use will not cause substantial adverse impact to existing natural resources within the surrounding area, community or region.

Water Quality. The subject property is presently a deteriorated historic fishpond. Wall reconstruction activities such as rock collection, repositioning and placement are expected to result in a short-term increase in the level of silt and suspended solids within the fishpond basin and adjacent waters. Increases in turbidity levels and suspended solids during wall reconstruction are not expected to approach levels that prevail during heavy periods of high winds and seas.

The proposal calls for a design of the rock wall that optimizes water exchange and movement to assure water quality levels within and around the fishpond will not be adversely impacted.

Shoreline. The entire inter-tidal zone is comprised of basalt rocks, boulders and outcroppings of the smooth solid *pahoehoe* type lava. There is no sand or beach along Kapoho Bay. The inter-tidal zone along most of the pond's shoreline is heavily inundated with Red Mangrove (*Rhizophora Mangle*). Mangrove removal by hand is ongoing at the site. Mangrove removal will increase the usable area of fishpond waters and areas of land around it. It will also increase the movement of water within the fishpond. As the entire site is comprised of basalt boulders and solid lava, mangrove removal will not result in any erosion or sediment transport or change in the topography of the area.

Marine Resources. The project will result in an increase in the marine life within the fishpond, and it is believed, this resurgence in marine life will spill out into Kapoho Bay, improving its fisheries. The Applicant views the fishpond as a marine sanctuary, a no-fishing zone. Studies have shown that setting aside no fishing zones in reef fishing areas impacts the overall fisheries in a few years because the resurgent fish populations in the conservation areas spill over to areas where fishing is allowed.

Impacts to the marine life within the fishpond fish fauna in the short-term are expected to be small and of no ecological consequence. Construction activities would cause the fish to flee the site around the wall during wall reconstruction. Fishes routinely move between the fishpond and adjacent waters through existing pond openings and this behavior would likely continue through the construction phase of the project.

Collection, temporary stockpiling, and repositioning of rock will result in the loss of portions of algal community that is presently in the fishpond basin but impacts will be temporary and not significant. Small quantities of silt and organic detritus are likely to be suspended from the fishpond bottom during rock repositioning but are unlikely to cause a significant impact as they would be largely contained to the existing fishpond basin and adjacent near shore waters and would dissipate with the mixing of waters and currents.

As such, there is little potential for silt or detritus to accumulate in concentrations that would be harmful to marine organisms

Adverse impacts to the existing coral community will be limited because of the low densities of coral in and around where restoration activities will take place, i.e., around areas where the wall stones are to dislodge and moved back onto the wall footprint.

Upon rebuilding the wall, the increased vertical relief, together with the use of large foundation boulders and smaller stones, will provide a number of new protected microhabitats and niches for many marine organisms. Such protected habitats are presently few in number because of the limited topographic relief of the existing fishpond wall. Algae and invertebrates are expected to re-colonize the repositioned pond boulders and stones. The collection of existing rocks now spread out along the wall footprint will result in deepening of the fishpond, helping to increase the biodiversity over baseline conditions. In addition, the ongoing clearing of mangrove from the fishpond has the potential to help control the growth of the invasive *Gracilaria salicornia* (Gorilla Ogo).

Flora/Fauna. Impacts to plant communities from the proposal will be minor if at all as a result of people and equipment ingress to and egress from the project site. Mangrove removal by hand is ongoing at the site. Mangrove removal will increase the usable area of fishpond waters as a suitable habitat for wading birds.

Noise and activity associated with manual labor may temporarily dislocate wading birds that may frequent the inshore waters or adjacent areas. Such temporary displacements are not regarded as significant.

The reconstructed fishpond wall will likely create a permanent, and somewhat protected, resting or feeding habitat for wading birds. The deepening of the fishpond basin is also likely to increase biodiversity, resulting in improvements of the pond as a feeding site for seabirds and wading birds. The diversity and density of certain wading birds and seabirds may increase with the operation of the

fishpond due to the greater abundance of fish biomass and foraging fishes within the pond.

Endangered And Threatened Species. The Hawaiian Green Turtle (*Chelonia mydas*), federally listed as threatened under the U.S. Endangered Species Act of 1973, is known to forage and rest in shallow waters in and around Kapoho Fishpond. No impacts on extant turtle populations are expected. Should sea turtles be observed within the vicinity of the active construction site or should sea turtles use the fishpond shoreline, all construction activities would cease in that area. Post-construction, the *mākāhā* will not be gated, sea turtles will be able to move into and out of the fishpond at will so their access to these protected waters will not be impeded. No other Federal or State-listed endangered or threatened plant or animal species or any designated “critical habitat” is foreseen to be affected by the proposed project

Describe how the proposed land use, including buildings, structures and facilities, will be compatible with the locality and surrounding areas, and to the physical conditions and capabilities of the specific parcel or parcels.

The fishpond is over one hundred years old and pre-dates most of the man-made structures that stand in the area. The proposed project will involve the restoration, repair and maintenance of an important cultural and archaeological resource. The restored fishpond will enhance scenic vistas as it now lies in a state of disrepair. The fishpond will serve as a marine reserve (a no fishing zone) to help replenish the depleted fisheries of the larger Kapoho Bay. The restored fishpond will improve the existing natural resources on the parcel and surrounding area (improved water quality, bio-diversity, fisheries, flora, fauna).

Describe how the existing physical and environmental aspects of the land, such as natural beauty and open space characteristics, will be preserved or improved upon.

Kapoho Fishpond has been extensively modified and nearly destroyed by storm waves, tsunami, shoreline subsidence and earthquakes, mangrove inundation and general neglect. The revitalized fishpond will enhance scenic vistas as it now lies in a state of abandonment, disrepair and heavily inundated with mangrove.

If applicable, describe how subdivision of land will not be utilized to increase the intensity of land uses in the Conservation District.

N/A

Describe how the proposed land use will not be materially detrimental to the public health, safety and welfare.

The proposal will enhance and be a benefit the public health, safety and welfare. The fishpond is privately owned. Years of neglect have left the fishpond in a derelict state. Restoring the fishpond by removing encroaching mangrove and restoring the fishpond wall will improve the water circulation patterns and water quality within the fishpond. Mangrove removal will increase the usable area of fishpond waters as a suitable habitat for wading birds. Restoring the fishpond wall and creating a marine sanctuary (a no fishing zone) will result in an increase in the marine life within the fishpond, and it is believed, this resurgence in marine life will spill out into Kapoho Bay improving its fisheries. The revitalized fishpond will enhance scenic vistas as it now lies in a state of abandonment and disrepair.

ADDITIONAL INFORMATION

Articles IX and XII of the State Constitution, other state laws, and the courts of the State require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. The Department of Health (DOH), Chapter 343, also requires an Environmental Assessment (EA) of cultural resources in determining the significance of a proposed project.

If applicable, please provide the identity and scope of "valued cultural, historical and natural resources" in which traditional and customary native Hawaiian rights are exercised in the area.

Kapoho Bay is an area where fishing with pole and net takes place.

Identify the extent to which those resources, including traditional and customary native Hawaiian rights, will be affected or impaired by the proposed action.

The project will be beneficial to these resources (non-commercial fishing and gathering within Kapoho Bay) as the restored fishpond will increase in the marine life and biodiversity within the fishpond, and it is believed, this resurgence in marine life will spill out into Kapoho Bay improving its fisheries.

What feasible action, if any, could be taken by the Board of Land and Natural Resources in regards to your application to reasonably protect native Hawaiian rights?

Grant the CDUA Permit so this fishpond, a historic and cultural site, can be restored.

Does the proposed land use have an effect (positive/negative) on public access to and along the shoreline or along any public trail?

No. The applicant owns the fishpond and all the land surrounding it. There is no existing public access to the ocean from the subject property.

Does the proposed use have an effect (positive/negative) on beach processes?

No. The entire inter-tidal zone is comprised of basalt rocks, boulders and outcroppings of the smooth solid *pahoehoe* type lava. There is no sand or beach along Kapoho Bay.

Will the proposed use cause increased runoff or sedimentation?

No increased runoff. The entire inter-tidal zone is comprised of basalt rocks, boulders and outcroppings of the smooth solid *pahoehoe* type lava.

Sedimentation from moving rocks and placing them back onto the wall will result in minor short-term increases in the level of silt and suspended solids within the fishpond basin and adjacent waters.

The interior waters of the fishpond basin are heavily inundated with Red Mangrove (*Rhizophora Mangle*). Mangrove removal will increase the usable area of fishpond waters and areas of land around it; it will expose these bodies of water to direct sunlight, wind and increased circulation, improving water clarity and quality.

Will the proposed use cause any visual impact on any individual or community?

The restored fishpond will enhance scenic vistas as it now lies in a state of disrepair. Currently the fishpond wall is a scattered pile of rocks, portions that are visible only at medium-low to low tides and the fishpond basin is over grown with mangrove.

Existing Site Information

Are there existing structures on the parcel? Yes No
If yes, please describe below and include/illustrate on a map entitled *existing structures*.

A 1,600 square foot single-family residence and a 168 square foot shed. The home was built in 2006 on the site of the former home, built in around 1915. Permit to build home granted 3/8/05 with SMA Permit (attached). The Land is Zoned RS-10. The fishpond is zoned Conservation; Subzone: Resource.

Will any existing structures be demolished or removed? Yes No
If yes, describe how below. Please indicate/illustrate demolished structure on a map entitled *structures to be demolished/removed*.

Has the parcel been graded or landscaped? Yes No
If yes, describe below. Please describe cubic yards affected and/or area of landscaping on a map entitled *areas previously graded or landscaped*.

The property has been landscaped. No grading. The land is Zoned RS-10. Landscape plan was approved under the SMA Permit dated 3/8/05, a copy which is attached.

Landscaped areas cover about one acre and are centered around the single-family home and include the planting of palms, ferns, lawn areas and a fruit and vegetable garden

Mangrove removal is ongoing and taking place around the shoreline of the fishpond. The Army Corps of Engineers determination letter dated 11/02/04 allowing mangrove removal by hand is attached.

Describe existing utilities. Include electricity, water, telephone, drainage, and sewerage. Please illustrate on a map entitled *existing utilities*.

The property has electricity, water, and telephone.

Sewage system is an engineered and permitted Septic System.

The utilities service the single-family residence.

Describe existing access. Illustrate and include roadways and public trails on a map entitled *existing access*. Give major street names if available.

Please refer to maps, Figures 38 and 40.

The subject property is apart of the private gated community of Kapoho Beach Lots. The property is fenced and gated and accessed is via Laimana Road. Landward access to the fishpond is from the north, as the southern and western portions of the fishpond shoreline are inundated with mangrove. The Applicant owns the fishpond wall, waters and all the shoreline surrounding it. The nearest access path to the shoreline is four houses (100 yards) to the northeast of the subject property. That access lies within the subdivision. The nearest public access to Kapoho Bay is from Lighthouse Road, at the northern end of the bay.

Describe Flora and Fauna. Illustrate general location and types of flora and fauna on a map entitled *resources*. Indicate if rare or endangered native plants and/or animals are present.

Please refer to map, Figure 34; photos, Figures 7, 8, 28-32, 39.

Vegetation surrounding the fishpond is dominated by red mangrove (*Rizophora mangle*) an introduced species that is found along much of the coastline. Mangrove is also covering a portion of the wall on the south end. In addition to grasses and weeds, ornamental (landscaping) varieties include hibiscus, halaconia, palms, papaya, and avocado. Native species on the property include *hala* (*Pandanus tectorius*), *Kukui* (Candlenut tree, *Aleurites moluccana*), *hou* (native sugar cane, *Saccharum officinarum*), *milo* (*Thespesia polpunea*), *niu* (coconut palm, *Cocos nucifera*), *naupaka kahakai* (*Scaevola sericea*), *ti* (*Cordyline fruticosa*) and *noni* (*Morinda citrifolia*).

Birds typically found in the area include the common (Indian) Mynah, *Kolea* (Pacific Golden Plover), 'Auku'u (Black Crowned Night-Heron), several species of dove, cardinal, finch, and sparrow. Animals common to the area include dogs, cats, rats, mice, mongoose.

Endangered And Threatened Species. The Hawaiian Green Turtle (*Chelonia mydas*) is federally listed as threatened under the U.S. Endangered Species Act of 1973 and is known to forage and rest in shallow waters in and around Kapoho Fishpond. No other Federal or State-listed endangered or threatened plant or animal species have been observed at the subject property.

Describe topography and submit a map entitled *topography*. If ocean area, give depths. Submit detailed contour maps for ocean area and areas where slopes are 20% or more. Contour maps will also be required for uses involving tall structures, gravity flow and other special cases.

Please refer to map, Figure 34.

The topography of the site is that of a relatively flat coastal plain. The land area surrounding the fishpond is low lying with minimal slope comprised of *pahoehoe* lava formations, basalt rocks and boulders. The soil is very thin if any (mostly on the north and west portions of the property) but the area is well vegetated. Elevations vary from 0 to 20 feet above mean sea level. The terrain across most of the property slopes gently upward from east to west.

The bathymetry of the fishpond basin ranges from approximately 4 feet to 6 feet. Water depths *makai* seaward and immediately adjacent to the fishpond wall average 3 feet to 8 feet. The fishpond basin is a relatively uniform shelf of smooth solid *pahoehoe* type lava, small rocks, sand, turf algae, crustose (coralline) algae and minute amounts of live lobe coral (*Porites lobata*).

If shoreline area, describe shoreline and surrounding area. Indicate and illustrate if shoreline is sandy, muddy, rocky, cliffs, reefs, or other features (such as access to shoreline) on a map entitled *coastal resources*. A current shoreline certification is required for uses that may affect shoreline resources.

Please refer to maps, Figure 33, 34; photos, Figures 7, 8, 9, 19-32, 39.

The shoreline where the fishpond is located is the inner portion of Kapoho Bay and irregular-- consisting of a series of natural ponds, inlets and coves. The inter-tidal zone along most of the pond's shoreline is heavily inundated with Red Mangrove (*Rhizophora*

Mangle). The exception to this mangrove inundation is along the northern portion of the shoreline where a series of tide pools, ponds and a cove are located and are adjacent to the Applicant's single-family home, built in 2006. The entire inter-tidal zone is comprised of basalt rocks, boulders and outcroppings of the smooth solid *pahoehoe* type lava. There is no sand or beach along Kapoho Bay.

If shoreline area, describe and illustrate any coastal hazards such as erosion, flooding, tsunami, etc. Attach any relevant maps delineating the hazard zone (FEMA, FIRM maps).

Please refer to map, Figure 36.

Coastal Flooding and Tsunamis. The subject area is located within the Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and within the Civil Defense Tsunami Inundation Zone. Because of the low elevation, the project site is vulnerable to coastal flooding from storm waves, hurricanes and tsunamis.

Volcanic Activity. The subject area lies within the very active East Riff Zone of Kilauea Volcano. In January 1960, volcanic activity came within about 3,000 feet of the subject property. The episode destroyed the village of Kapoho and Koa'e, created 3 miles of new shoreline and half a square mile of new land at Cape Kumukahi.

Earthquakes. In Hawai'i earthquakes are linked to volcanic activity. The subject property is located along the south flank of Kilauea volcano, where a series of coastal fault lines paralleling the Eastern Riff Zone trigger ongoing seismic activity. This seismic condition has resulted in both episodic and continuous subsidence along the southern flank. For instance the November 1975 earthquake caused coastal subsidence as high as 3.5 meters at Keahou landing to .24 meters at Kapoho (Hwang 2007). Continuous subsidence at Kapoho is estimated at about 0.08 to 1.7 centimeter per year (Brooks 2006).

Describe existing covenants, easements, and restrictions. If State owned land, indicate present encumbrances.

NONE.

Identify any historic, archeological or cultural sites within or near the parcel. Please submit or include any current management plan. If applicable, indicate location(s) on a map entitled *historical, archaeological, and cultural resources* and describe below.

Please refer to Archeological Survey Map, Figure 6.

The fishpond is a historical, cultural and archeological site. An archaeological inventory survey report and Cultural Impact Assessment have been conducted on the fishpond and are included as appendices in the Environmental Assessment.

This fishpond, which has no historical name attached to it, is believed to have been originally constructed before 1893 (ACP 2007 I). Oral testimony and field observations indicated that the fishpond had been maintained and improved (i.e., *mākāhā* reinforced with concrete) during the early to mid-twentieth century but in recent years has fallen into disrepair (Kennedy 2007 ii). The state-wide fishpond inventory ranked this fishpond as IIA; the second highest ranking on a five scale classification system based on a fishpond's physical condition and historical significance (wall in fair to good condition, no more than moderate siltation, no more than moderate encroachment by vegetation and three or less National Register criteria (DHM Planners 1989). The fishpond site is considered historically significant with three of four National Register Criteria (Criteria A: Property is associated with events that have made a significant contribution to the cultural heritage of the Hawaiian people, Criteria C: Property embodies the distinctive characteristics of a type, period or method of construction, represents a work of a master, and Criteria D: Property has yielded, or is likely to yield, information important in prehistory or history). The criteria were established for use in evaluating and determining the eligibility of properties for listing on the State and National Register of Historic Places.

Adjacent Property Owners

Please list all adjacent property owners. If no address is available indicate north, south, east and west or mauka, makai or other common county directionals.

TMK: 140100290000
Legal Name: Jitsuo Niwao Trust
Street Address: 14-4948 Laimana Road
City, State and Zip code: Pahoa, HI 96778
Mailing Address: c/o Maryln Roberts
2145 Wells St., Suite 402
City, State and Zip: Wailuku, HI 96793
Phone No: (808) 935-4647
Location to TMK: West Side

TMK: 14010045
Legal Name: Kapoho Land & Development
Street Address: Kapoho Beach Road
City, State and Zip code: Pahoa, HI 96778
Mailing Address: PO Box 374
City, State and Zip: Hilo, HI 96720
Phone No: (808) 935-5810
Location to TMK: North Side

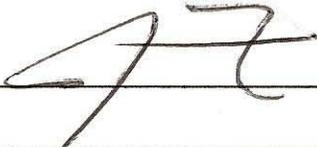
TMK: 14002003
Legal Name: Kapoho Land & Development
Street Address: Alapai Point Road
City, State and Zip code: Pahoa, HI 96778
Mailing Address: PO Box 374
City, State and Zip: Hilo, HI 96720
Phone No: (808) 935-5810
Location to TMK: West Side

TMK: 14027029
Legal Name: Harry Samelson
Street Address: 14-5709 Alapai Point Road
City, State and Zip code: Pahoa, HI 96778
Mailing Address: 14-5709 Alapai Point Road
City, State and Zip: Pahoa, HI 96778
Phone No: (808) 965-1955
Location to TMK: South Side

CERTIFICATION

I HEREBY CERTIFY THAT I HAVE READ THIS COMPLETED APPLICATION AND THAT, TO THE BEST OF MY KNOWLEDGE, THE INFORMATION IN THIS APPLICATION AND ALL ATTACHMENTS AND EXHIBITS IS COMPLETE AND CORRECT. I UNDERSTAND THAT THE FAILURE TO PROVIDE ANY REQUESTED INFORMATION OR MISSTATEMENTS SUBMITTED IN SUPPORT OF THE APPLICATION SHALL BE GROUNDS FOR EITHER REFUSING TO ACCEPT THIS APPLICATION, FOR DENYING THE PERMIT, FOR SUSPENDING OR REVOKING A PERMIT ISSUED ON THE BASIS OF SUCH MISREPRESENTATIONS, OR FOR SEEKING OF SUCH FURTHER RELIEF AS MAY SEEM PROPER TO THE LAND BOARD.

I HEREBY AUTHORIZE REPRESENTATIVES OF THE DEPARTMENT OF LAND AND NATURAL RESOURCES TO CONDUCT SITE INSPECTIONS ON MY OR MY CLIENT'S PROPERTY. UNLESS ARRANGED OTHERWISE, THESE SITE INSPECTIONS SHALL TAKE PLACE BETWEEN THE HOURS OF 8:00 A.M. AND 4:30 P.M.



Signature of Authorized Agent(s) or if no agent, signature of Applicant

AUTHORIZATION OF AGENT

I HEREBY AUTHORIZE Joseph Farber TO ACT AS MY REPRESENTATIVE AND TO BIND ME IN ALL MATTERS CONCERNING THIS APPLICATION.

x 

Signature of Applicant(s)

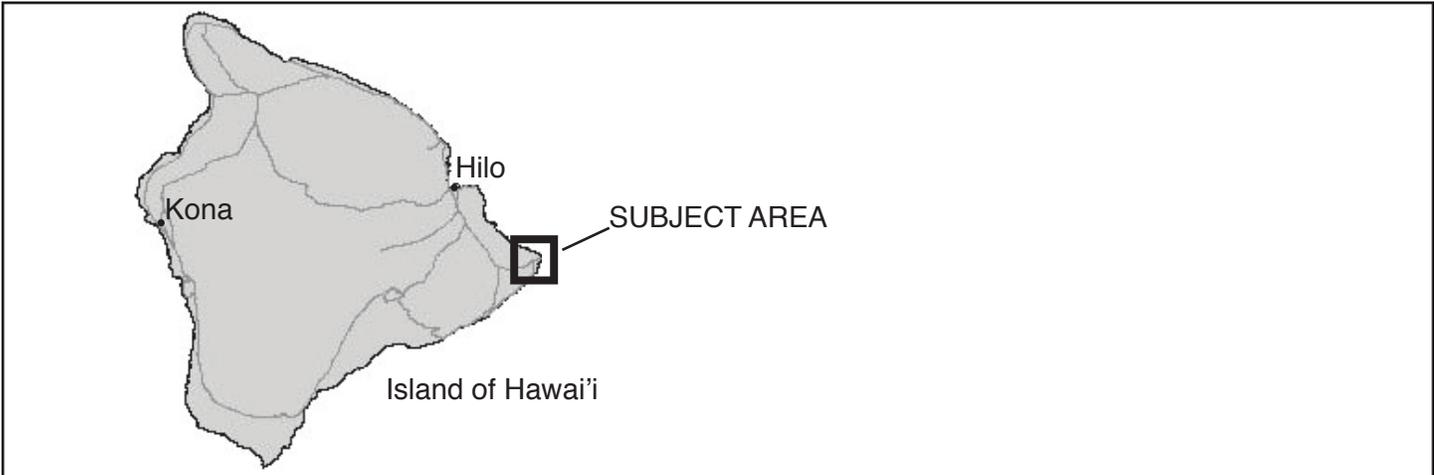


FIGURE 6
REGIONAL LOCATION
 Puna District, Hawai'i Island
 Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i



Figures 7 & 8. Aerial View of Southern Kapoho Bay and Close-up of Subject Fishpond at High Tide (Brian Powers/Hawaiian Images Photography).





Figure 9. Aerial View of Kapoho Fishpond Circa 1970. Note intact wall and islets that are now covered in mangrove (Ford 1973).

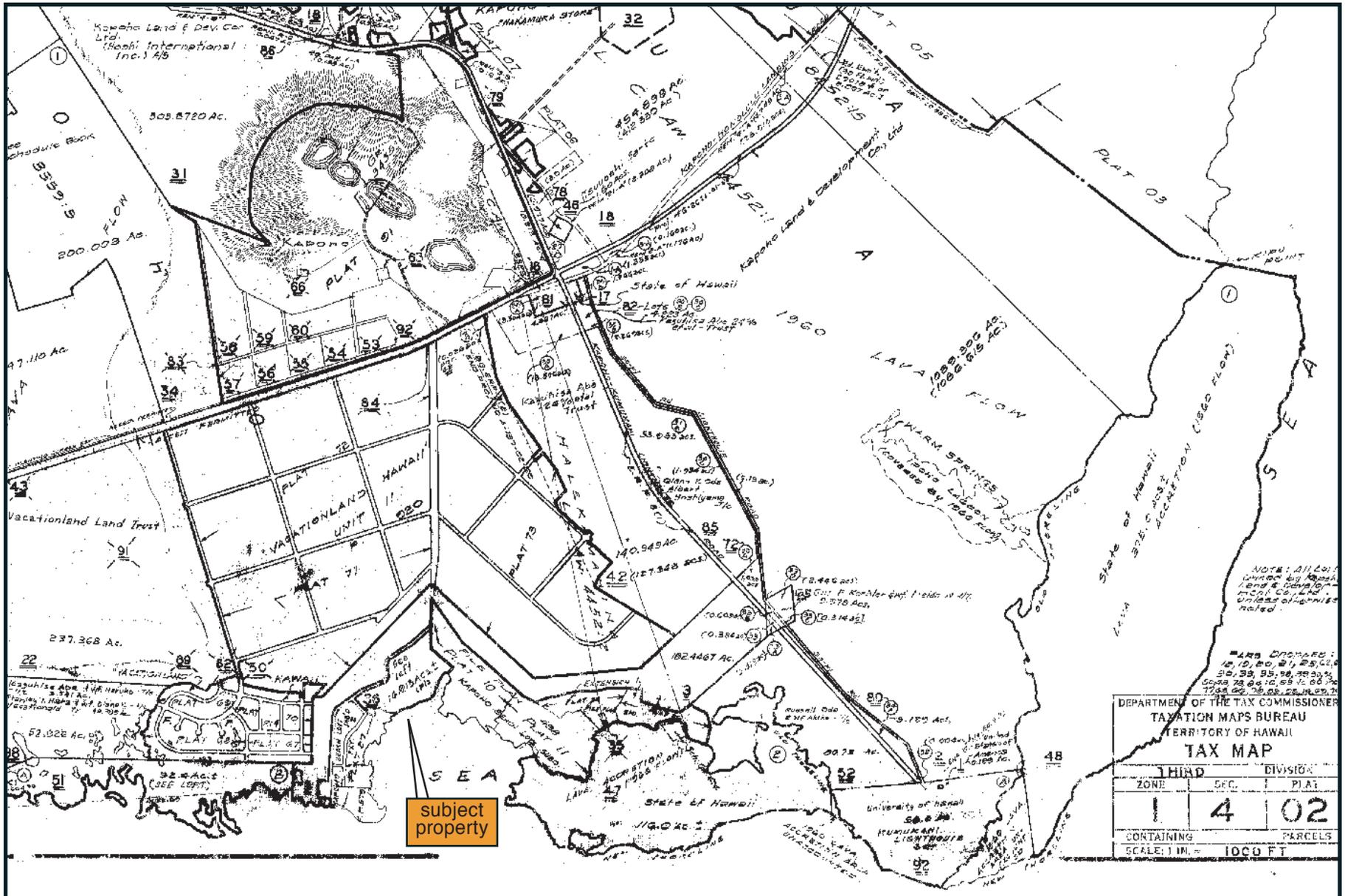


Figure 10
TAX MAP KEY (TMK) MAP: PLAT 1-4-02-36 / 16.913 ACRES
 Fishpond and Adjacent Property. Puna District, Hawai'i Island
 Source: State of Hawaii

**KAPOHO FISHPOND
 RESTORATION PROJECT**

Farber & Associates, 8/2007.

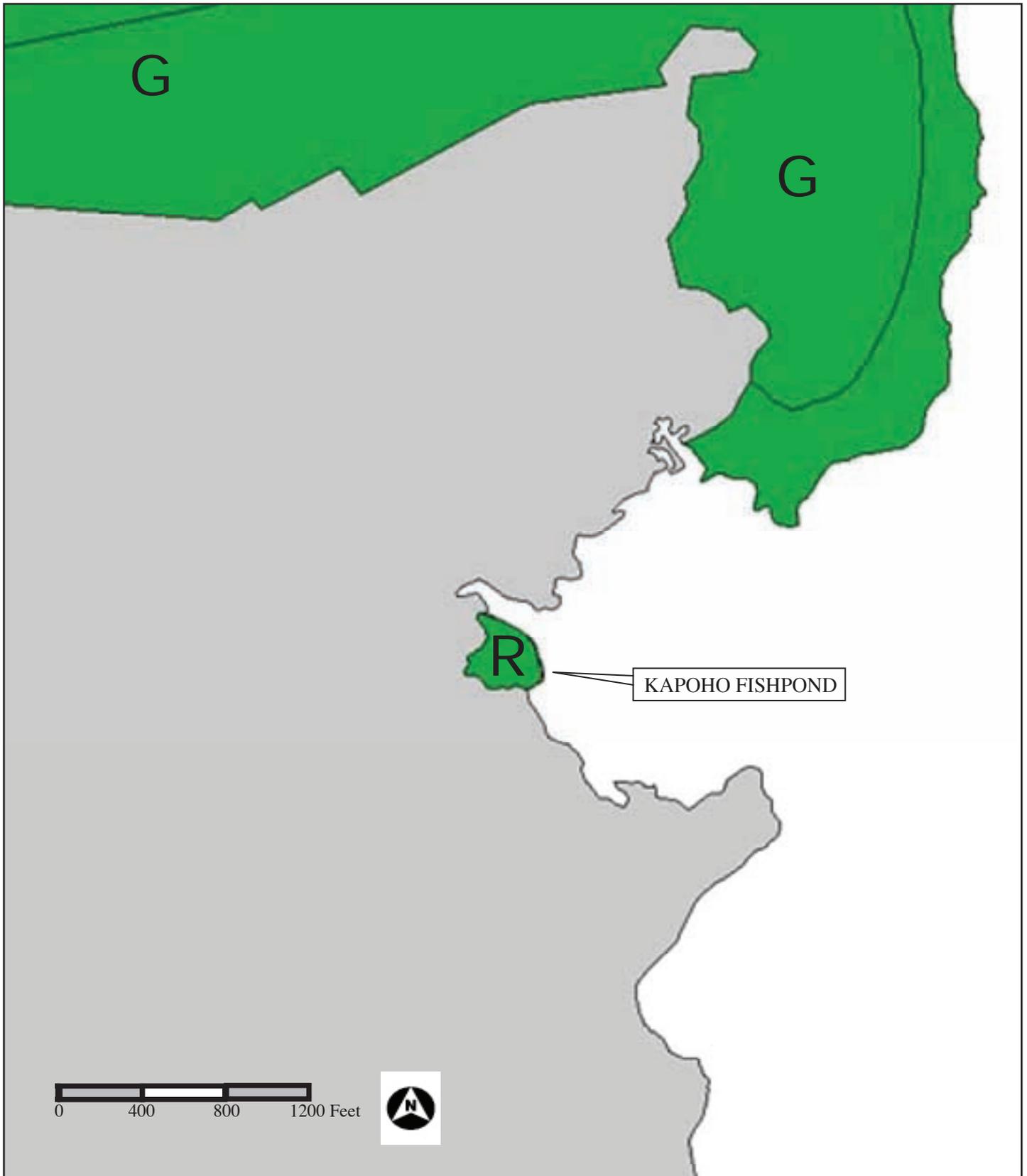


FIGURE 11
 STATE LAND USE DISTRICT BOUNDARIES
 Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i
 Farber & Associates Planning Services 8/2007

KEY	
	CONSERVATION LANDS
	R - Resource
	G - General



FIGURE 12

County of Hawai'i Zoning (SFR - RS-10)

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project

Kapoho, Puna, Hawai'i

Farber & Associates, 8/2007.



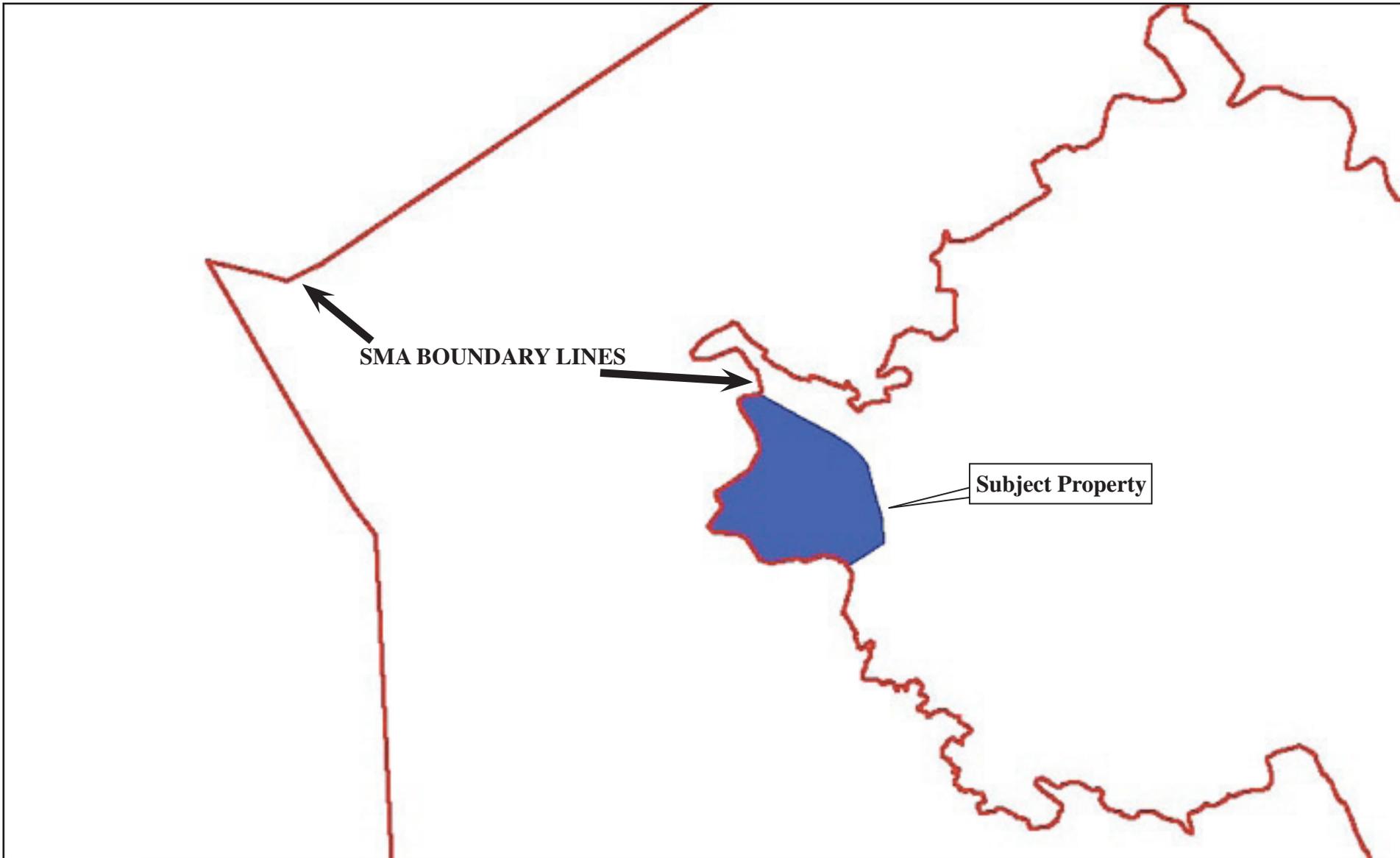


FIGURE 13

Shoreline Management Area (SMA) Boundaries

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project

Kapoho, Puna, Hawai'i

Farber & Associates, 8/2007.



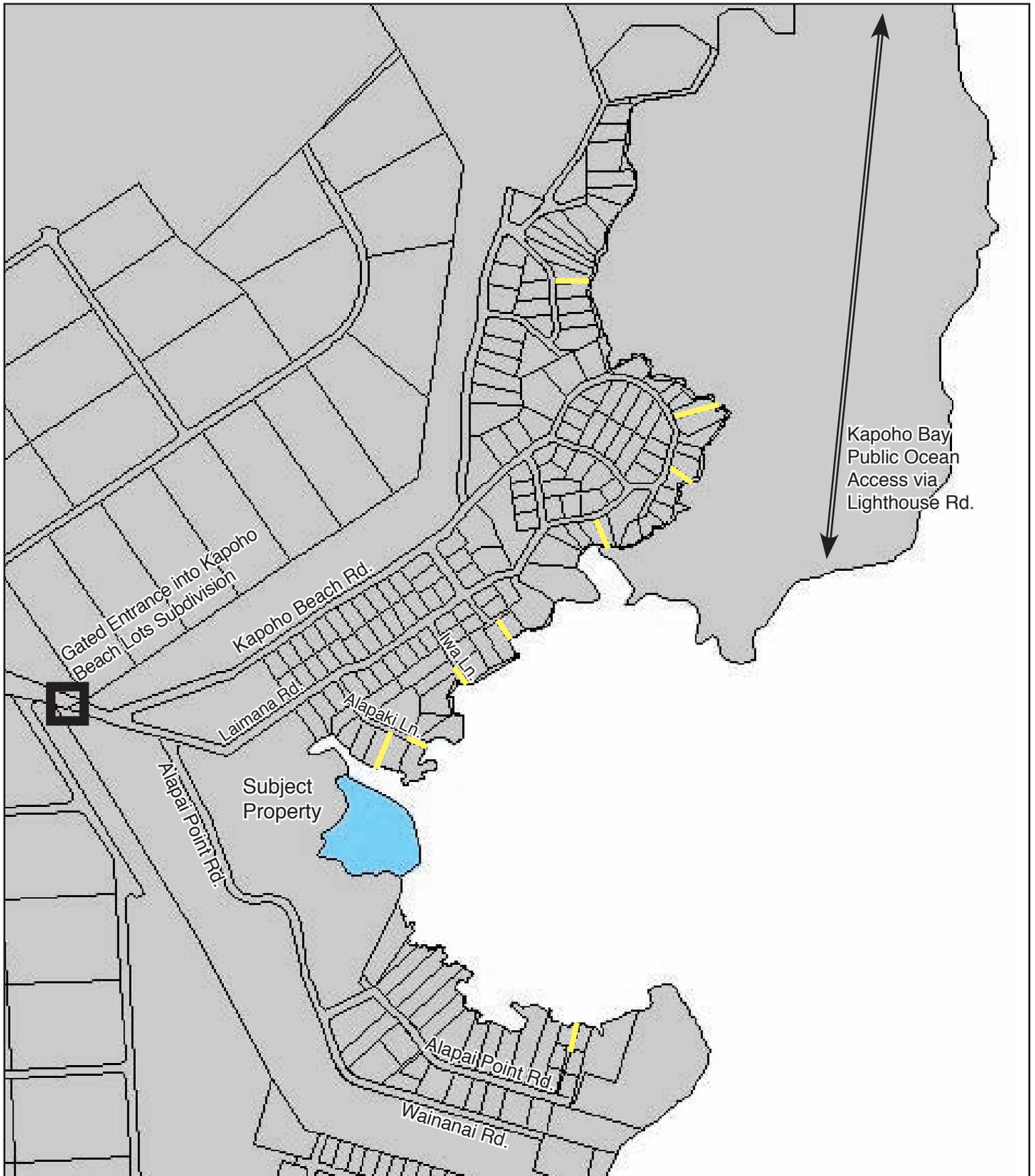


FIGURE 40

Coastal Access

Source: State of Hawai'i GIS

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

Farber & Associates, 9/2007.



— Ocean Access Points
 Within Kapoho Beach Lots

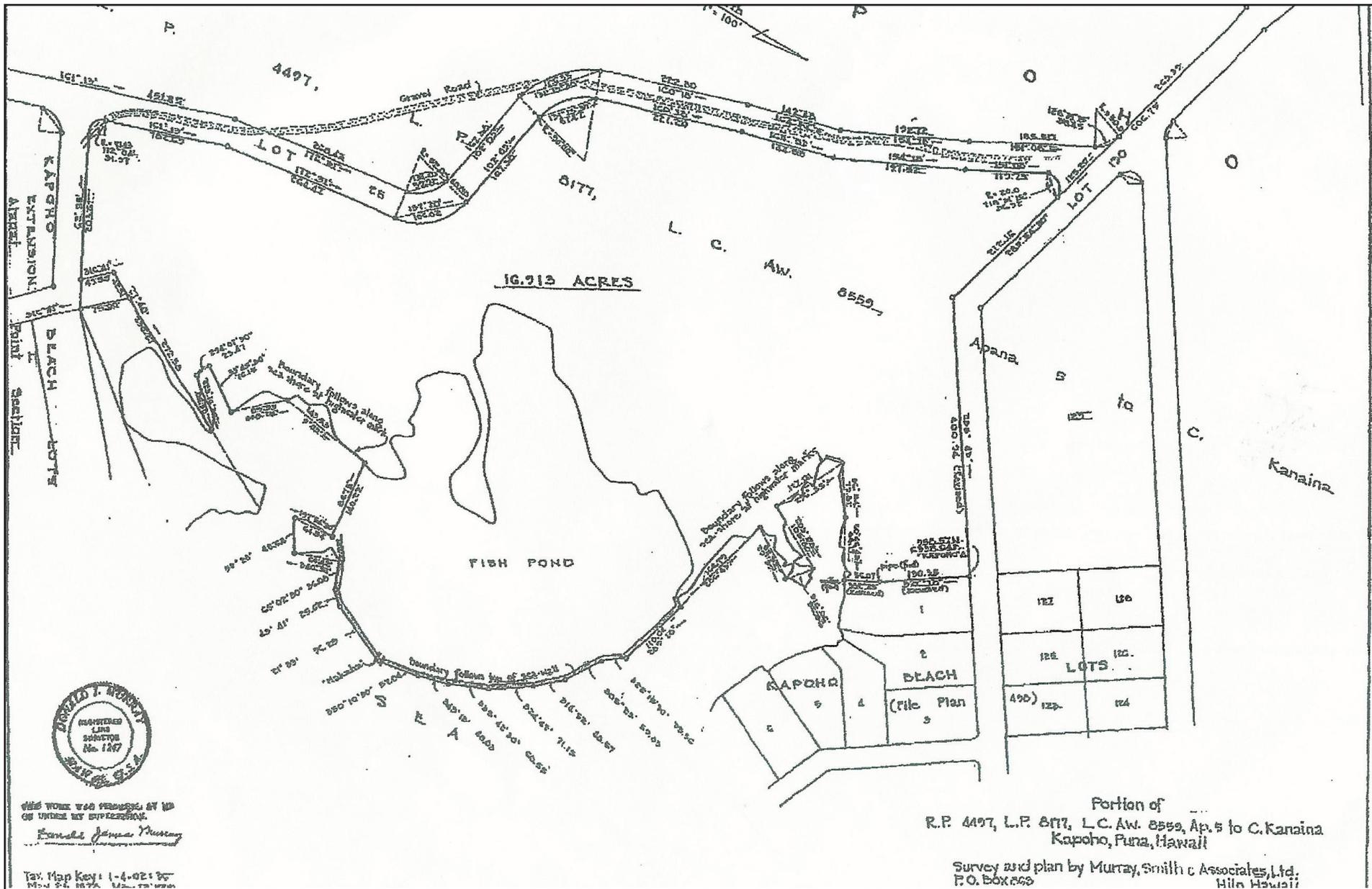


Figure 33
 Land Survey TMK: 1-4-02-36
 Source: Murray, Smith & Associates. Ltd. Hilo, Hawaii.
 Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

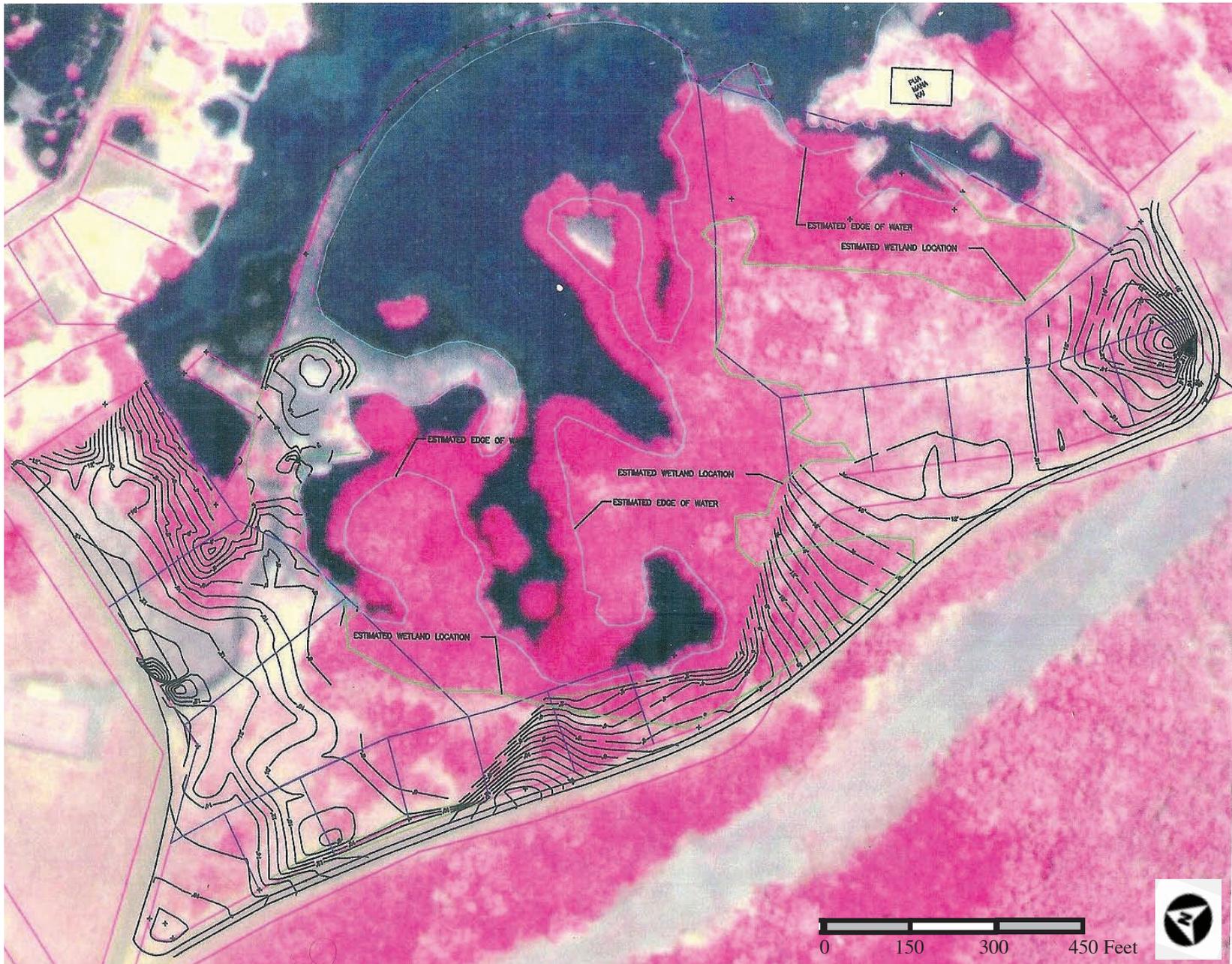


Figure 34
 Shoreline Survey and Topographic Map
 Source: R.M. Towill Corp.
 Farber & Associates, 8/2007.

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

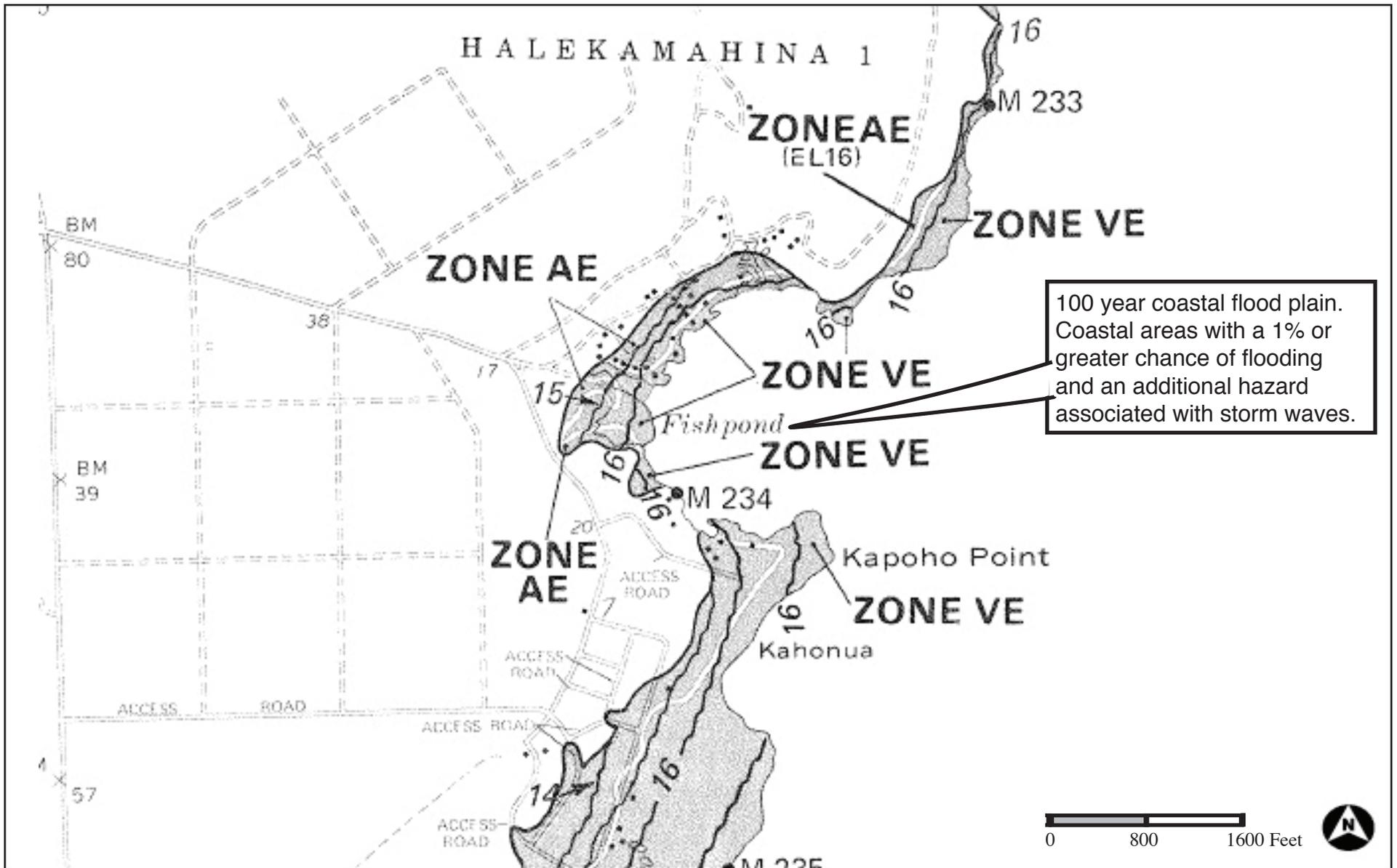
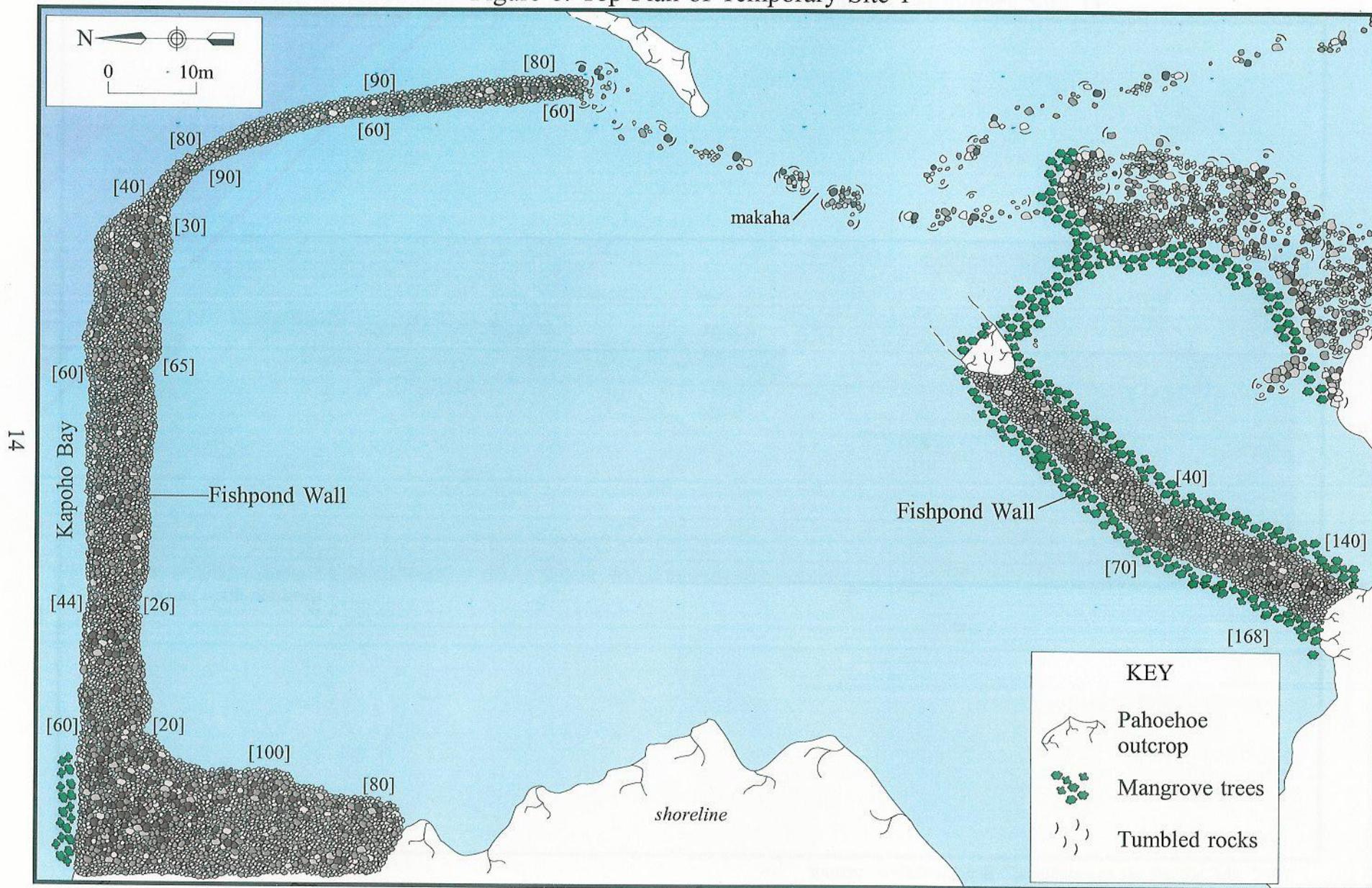


FIGURE 36
 Flood Zone Map
 Source: County of Hawai'i

Kapoho Fishpond Restoration Project
 Kapoho, Puna, Hawai'i

Farber & Associates 7/2007

Figure 6: Top Plan of Temporary Site 1



Kapoho TMK: (3) 1-4-02: 36 (Por.)

Archaeological Consultants of the Pacific, Inc. 2007

Three Views of Fishpond Wall Moving from North to South at Low Tide.



Fig 19. Beginning of Fishpond Wall at Northern End Where it Meets the Shore-line.



Figure 20. Next Portion of Wall Moving South. This section of the wall is the best preserved. Note the uniformity of the outer wall line.



Figure 21. Wall with Mākāhā in the Background. This Section of wall is exposed to high wave energy thus many of the wall stones are found inside the fishpond basin. The horizontal rock formation in the background right before the makaha is exposed reef.



Fig 28. View of Fishpond Waters Looking West from the Makaha. Note extensive mangrove infestation in the foreground. Applicant's home is just barely visible on the far right.



Figure 29a. Applicant's single-family home (1,600 sq. ft.).



Figure 30. Back of Fishpond basin west end. Percolating springs are visible in this area of the fishpond basin. Note western property line delineated by chain link fence (right above gentleman's hat).



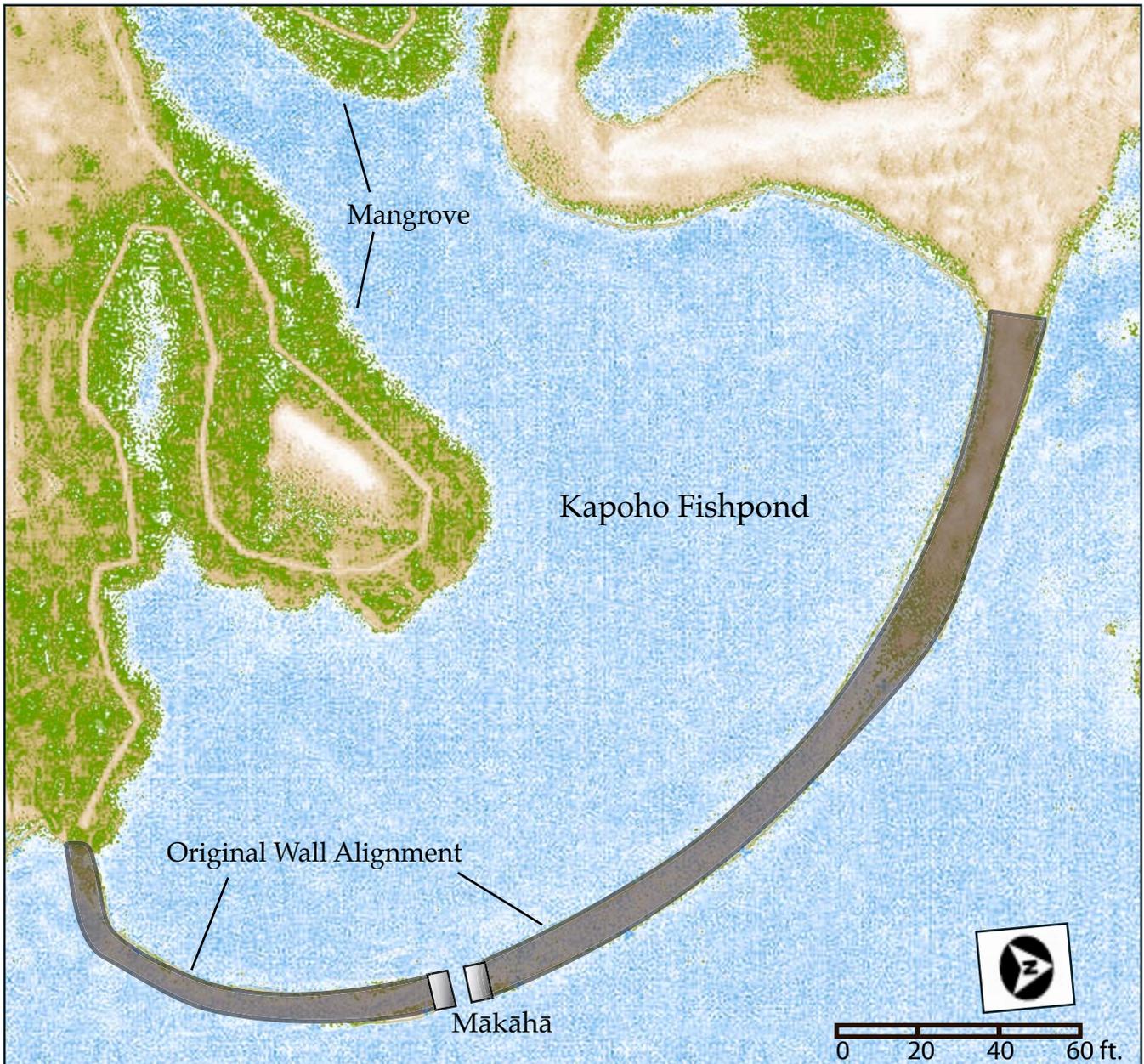
Figure 31, View of Mākāhā and Southern Portion of Fishpond Wall. Inside wall footprint is discernible as an arch containing the calm waters of the fishpond basin (yellow line). The southern terminus of the wall is at the edge of the mangrove (arrow).



Figure 32, View from the Southern Terminus of the Wall towards the mākāhā. Wall is in poor condition due to exposure to heavy wave energy and currents.



Figure 39, View from Western Edge of Fishpond Basin Looking North-east. Note heavy mangrove encroachment, springs in foreground.



SITE PLAN

Kapoho Fishpond. Size: 4.3 acres, wall length 1,250 feet.

Purpose: Restore and rebuild the fishpond wall for historic and cultural preservation and to serve as a marine sanctuary (a no fishing zone).

Method: By hand following the existing wall alignment and design, uhaū humu pohaku, the traditional mortarless dry-stack rock wall style.

Dimensions: 6 feet tall, base width 10 -12 feet, crown width of 5 to 6 feet. All rocks to rebuild the wall are available on-site.

On-going maintenance includes manual removal of mangrove from within and surrounding the fishpond basin (green areas).

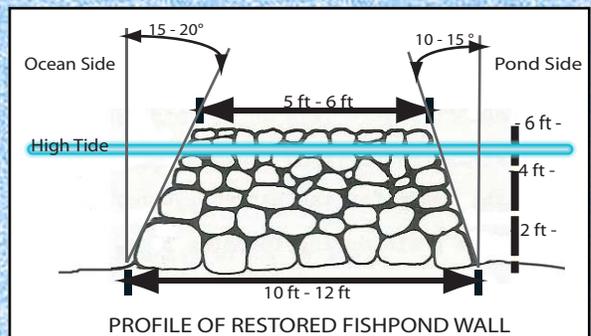


FIGURE 15 - SITE PLAN

Kapoho Fishpond Restoration Project
Kapoho, Puna, Hawai'i

Base Map Source: R.M. Towill Corp.
Farber & Associates 8/2007

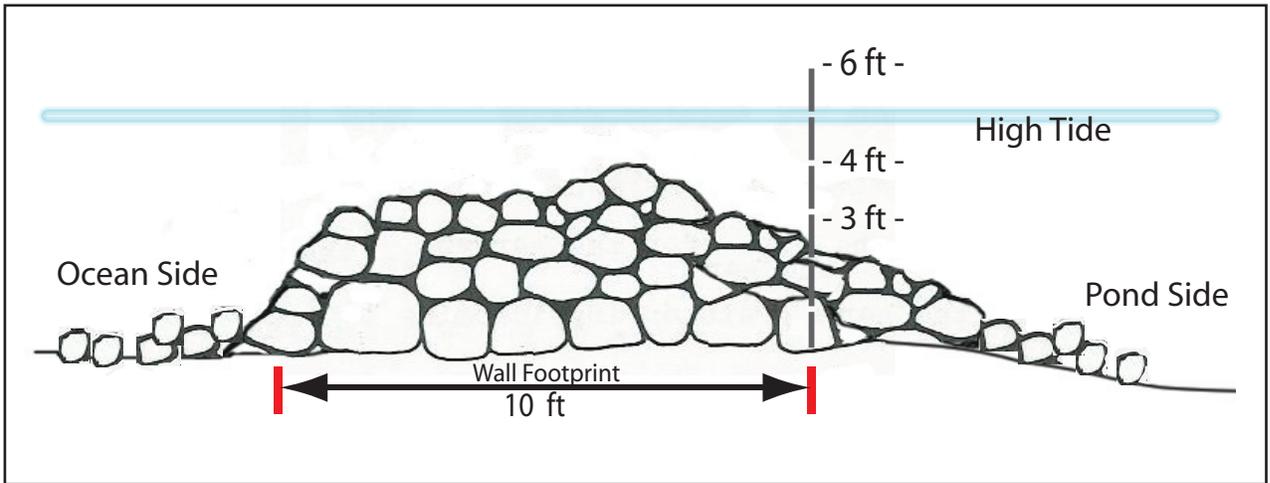


Figure xx. Kapoho Fishpond . Cross-section of Existing Wall.

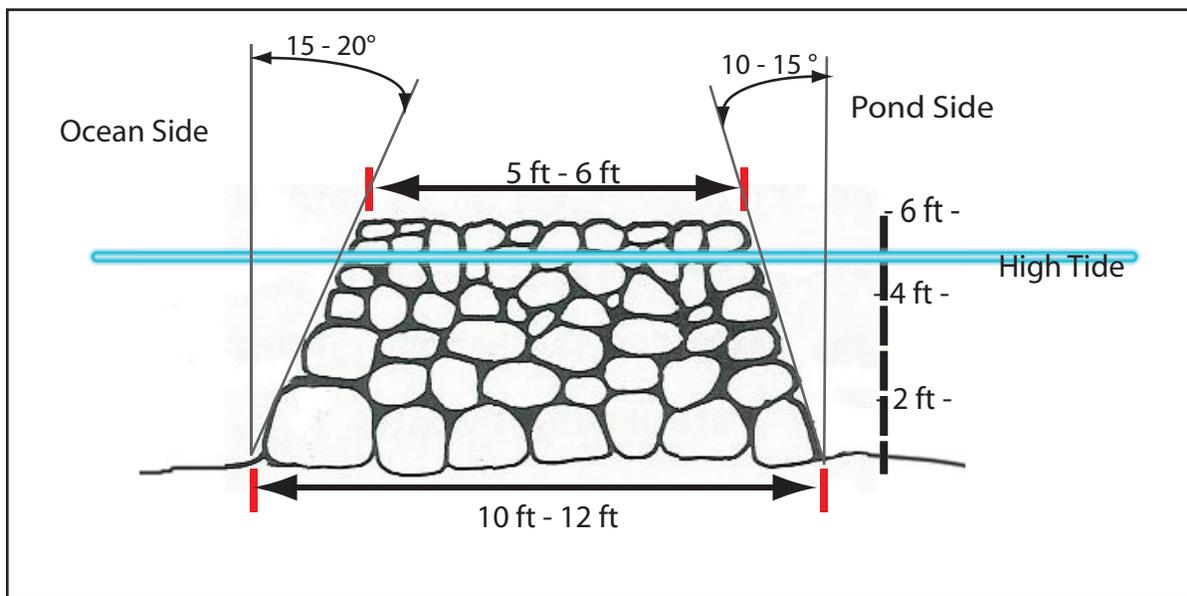


Figure xx. Kapoho Fishpond . Cross-section of Restored Wall.

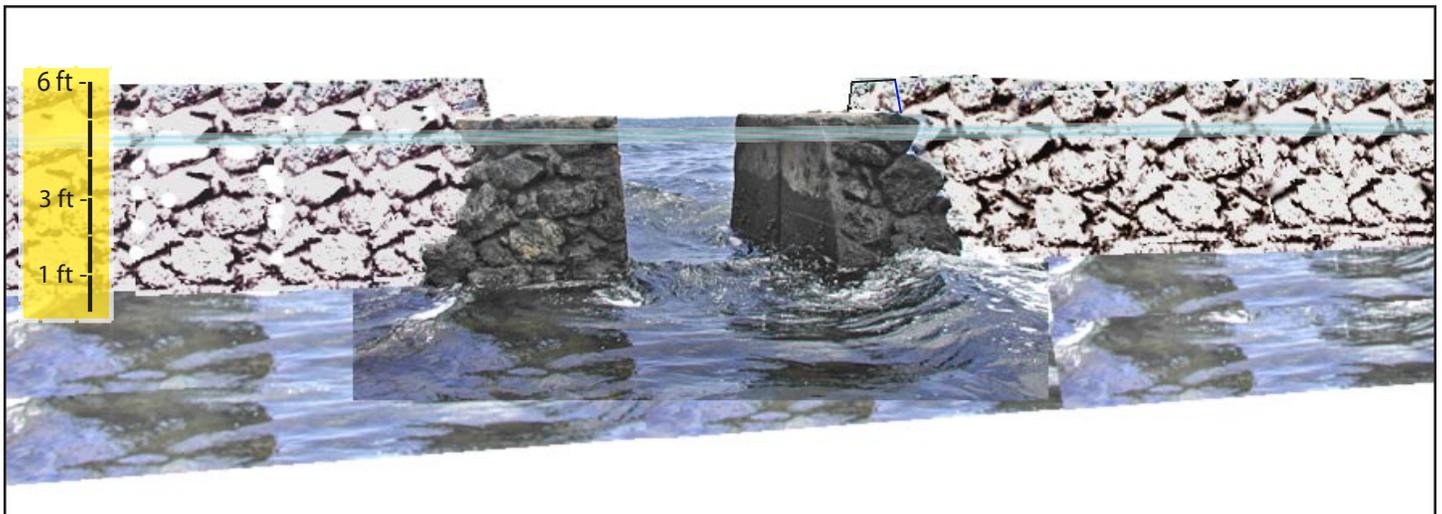


Figure xx. Kapoho Fishpond . Restored Wall at Mākāha Looking Makai. Note that the wall will be rebuilt one foot higher than the existing mākāhā to assure the wall will be exposed at high tide (blue line is approximate high tide).



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

REPLY TO
ATTENTION OF

September 2, 2004

Regulatory Branch

Mr. John E. Barsell, Jr.
43 Canyon View Drive
Orinda, CA 94563

Dear Mr. Barsell:

Thank you for your response regarding our inquiry on the work conducted on a parcel identified as TMK:1-4-02:36 located in Puna, Hawaii. Based on our review of the information submitted, we have determined that the work conducted on your parcel did not involve the discharge of dredged or fill material into waters of the U.S., to include wetlands which would be subject to regulations under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899.

Furthermore, removal of mangroves will not require a Department of the Army permit if removed by hand, or with the use of a chainsaw, cut above the roots. However, land clearing involving vegetation removal with mechanized equipment such as front-end loaders, backhoes or bulldozers; usually involve soil disturbances which are considered placement of fill material under our jurisdiction.

Should your plans change to incorporate future work in any ponds, fishpond or coastal waters, please contact our office for a written determination on whether a Department of the Army permit would be required. We appreciate your cooperation with the Corps regulatory program. Should you have questions, you may contact Ms. Lolly Silva at (808) 438-7023 or by fax at (808) 438-4060 and reference File No. 200400424.

Sincerely,

A handwritten signature in black ink, appearing to read "George P. Young".

George P. Young, P.E.
Chief, Regulatory Branch

Copy furnished:

County of Hawaii Planning Department, 101 Pauahi Street, Suite #3, Hilo, HI 96720
State Historic Preservation Division, 601 Kamokila Blvd., Suite #555, Kapolei, HI 96707
Department of Health, Clean Water Branch, P.O. Box 3378, Honolulu, HI 96801
Department of Land and Natural Resources, Division of Aquatic Resources, 1151 Punchbowl Street,
Honolulu, HI 96813
Office of Planning, Coastal Zone Management Program, P.O. Box 2359, Honolulu, HI 96804
Environmental Protection Agency, Honolulu Branch, P.O. Box 50003, Honolulu, HI 96850

Harry Kim
Mayor



Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii
PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

March 8, 2005

Mr. Thomas L.H. Yeh, Esq.
Tsukazaki Yeh & Moore
85 W. Lanikaula Street
Hilo, Hawaii 96720-4199

Dear Mr. Yeh:

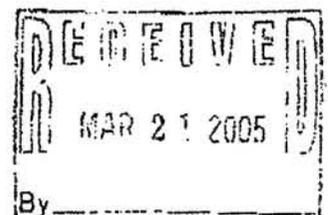
Subject: Special Management Area Assessment Application No. 05-13 (SMAA 05-13)
Applicant: Barsell Pecos, LLC
Land Owners: Barsell Pecos, LLC
Project: Construction of a single-family dwelling & related improvements
Tax Map Key: (3) 1-4-002:036

This is in response to the subject SMAA application, which you submitted on behalf of the applicant on February 17, 2005. The application includes:

1. A completed SMAA application form;
2. An attachment that includes a description of the proposed dwelling and related landscaping improvements and its objectives, a description of the anticipated impacts of the proposed project on the SMA, and a discussion of the proposed development in relationship to the objectives and policies as contained in the SMA Guidelines;
3. A topographic survey, dated April 30, 2004 and revised January 25, 2005, of portion of the subject property where the proposed dwelling is to be situated;
4. A "Landscape Plan" of the subject lot dated January 21, 2005; and
5. A "Landscape Plan At House" dated January 21, 2005.

After careful review of the subject application and our findings, which are presented below, we have determined that the construction of the proposed single-family dwelling and related improvements, as specified in this letter, are exempt from the definition of "development" as provided under Rule 9-4(10)B(i) of the Planning Commission Rules of Practice and Procedure (PC Rules). This determination of exemption is granted with conditions, which are provided later in this letter.

Hawai'i County is an equal opportunity provider and employer



Mr. Thomas L.H. Yeh, Esq

Page 7

March 15, 2005

In response to your client's earlier request (letter dated July 20, 2004) for a waiver from the requirement to include a Certified Shoreline Survey as part of his SMAA application, the Planning Department, by our letter dated August 30, 2004, agreed to accept a topographical survey map that shows elevations referenced to the appropriate low tide datum for the subject area in lieu of a Certified Shoreline Survey. The topographical survey map should include all areas of the subject property in and around which the applicant intends any uses, activities or structures in sufficient detail for us to reasonably estimate the location of the shoreline.

A Letter of Agreement (LOA) dated December 13, 2004 between the Planning Department and Barsell Pecos, LLC served to set forth the terms of settlement regarding the Notice of Violation and Order (ZCV 04-043), SMA Violation (SMA/V 04-04), and Shoreline Setback Violation (SSV 04-01) and to effect the applicant's withdrawal of its Notice of Appeal (BOA 04-20). Pursuant to Part 3 of the referenced LOA, *"...the Owner will submit a topographical survey map with noted elevations referenced to the appropriate low tide datum for the subject property in order to allow the County of Hawaii to determine whether any proposed improvements will be located outside the shoreline setback area, and to determine if any proposed activities within the setback area constitute allowable structures or activities for which prior written (approval) will be necessary."* Part 4 goes on to state that *"prior to commencing any additional work on the property, it (the owner) will submit an SMA Use Permit (Assessment) Application which will contain complete plans for the dwelling and any related improvements, along with a landscaping plan, which includes any past or future development work conducted by Owner on the subject property for the Planning Department's review and approval under Rule 9 of the Planning Commission Rules, and Rule 11 of the Planning Department Rules."*

The subject shorefront lot is approximately 16.913 acres in area and is situated between Kapoho Beach Lots and Kapoho Beach Lots Extension 1 Subdivisions. The property is zoned Single-Family Residential (RS-10) by the County of Hawaii and is situated in the State Land Use Urban district and the County of Hawaii's Special Management Area (SMA).

Existing improvements situated on the subject property include:

1. A shed, identified as an existing "cabana," that was permitted by SMA Minor Permit No. 83-30 approved on August 12, 1983 and Building Permit (BP) #831293 on August 11, 1983. This permit allowed for the construction of a 12x14 unenclosed storage shed to house landscaping equipment and to provide shade for workers. The BP remains open. Please note that, according to Webster's New World College Dictionary, a "cabana" is defined as a cabin or hut, or a small shelter used as a bathhouse at beach or pool. Therefore, said structure shall be henceforth identified as a shed until such time that the building permit is amended to specify another use or uses.
2. An open 15x20 wood pavilion permitted by SMA Minor Permit No. 84-11 (SMM 84-11) approved on March 15, 1984 and BP #840574 issued on April 2, 1984. This

Mr. Thomas L.H. Yeh, Esq.

March 15, 2005

structure is shown on the above-referenced Landscape Plan to be partially situated within the 40-foot shoreline setback area, which is defined in the Background Report for SMM 84-11 and BP #840574. This BP also remains open.

3. Existing sea walls and fish ponds claimed to have been built in approximately 1920.
4. A gate and portion of a cyclone fence along the property frontage with Laimana Road.
5. Existing grass and cinder driveways from the gate to the area near the former beach house, and proposed new dwelling, site and the existing pavilion.

We understand the proposed improvements to include:

1. The construction of a 1,600-square foot single-family dwelling and related improvements;
2. The construction of a new rock wall entrance and gate near the northwest corner of the property at Laimana Road;
3. The installation of approximately 400 feet of chain link fence running along the western boundary of the property to a point approximately 180 feet north of the southwest corner of the lot near the intersection of Alapai Point Road and Wainani Road, at which point the fence runs to the 20-foot front yard setback line approximately 120 feet east of said intersection;
4. Landscaping improvements, including the clearing of existing vegetation and the planting of landscape plants at selective locations depicted on the above-referenced Landscape Plans;
5. Periodic trimming of mangroves along the shoreline area using only hand tools;
6. The maintenance and preservation of sea walls and fish ponds.

Based on the above, this determination of exemption from the definition of "development" shall apply only to the following proposed improvements, uses, and activities on the subject property.

1. The construction of the proposed single-family dwelling shall be allowed within the portion of the subject property shown on the above-referenced Topographic Survey map dated April 30, 2004 and revised on January 25, 2005. In order to establish that the proposed improvements, uses and activities are clearly and unmistakably located at a considerable distance from the shoreline, the proposed dwelling and its related improvements, including, but not limited to, any land altering activities (excavation, grading or filling), landscaping, private waste-water disposal system, above and/or below grade utilities, shall not be within 45 feet of the 4-foot elevation line.
2. The construction of the proposed entry rock wall and gate near the northwest corner of the property at Laimana Road is allowed.

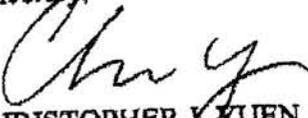
March 17, 2005

- E. Rock wall construction or repair.
5. All clearing of vegetative growth, including the trimming and maintenance of trees, shrubs, pipelines and ponds, shall be conducted by the use of hand tools and/or chainsaws only unless prior permits and approvals have been granted by all federal, state and county authorities as may be applicable. All vegetative waste material shall be either removed from the subject property for appropriate disposal or composted on the subject property at a location with an elevation of not less than 12 feet and more than 45 feet from any 4-foot elevation.
6. Prior to the issuance of any land alteration or building permits for the subject property, the applicant shall provide the Planning Department with verifiable evidence that the existing pavilion structure is not closer than 45 feet from the 4-foot elevation or secure approval from the Planning Commission for a Shoreline Setback Variance.
7. The applicant shall comply with all applicable laws, rules and regulations of the affected federal, state and county agencies.
8. Failure to comply with any of these conditions shall result in the revocation of this determination of exemption.

With regard to the above-referenced Landscape Plan submitted with the subject application, the Planning Department has the following observations and comments. In the absence of a Certified Shoreline Survey, the property lines shown along the makai portions of the lot do not represent the shoreline and, therefore, the 40-foot setback lines shown do not represent the Shoreline Setback Line. Therefore, certain areas of the property near the existing fishponds that are indicated for landscaping improvements may require addition review under the SMA guidelines even though they are outside the "undeveloped" designated area of the lot.

Should you have questions, please feel welcome to contact Larry Brown or Esther Imamura of my staff at 961-8288.

Sincerely,


CHRISTOPHER YUEN
Planning Director

LMB:cd

P:\WP\WING\CM\SM\AA\2005\SM\AA 05-13 Barseil exempt w-cond.doc

Encl: SSV Application

Mr. Thomas L.H. Yeh, Fee

March 15, 2005

cc: Ms. Susan Gagorik - Long Range
Mr. Robert Lisakowski

Mr. Dennis P. Lee, P.E. Chief
Department of Health, Clean Water Branch
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Mr. George P. Young, P.E.
Department of the Army, Regulatory Branch
U.S. Army Engineer District, Honolulu
Fort Shafter, Hawaii 96858-5440



Fig 28. View of Fishpond Waters Looking West from the Makaha. Note extensive mangrove infestation in the foreground. Applicant's home is just barely visible on the far right.



Figure 29. Interior of Fishpond Basin, North West Corner. The peninsula in the foreground has been cleared of heavy mangrove infestation. The fishpond wall is just visible in the background (arrows).



Figure 30. Back of Fishpond. Fishpond basin west end. Percolating springs are visible in this area of the fishpond basin. Note western property line delineated by chain link fence (right above gentleman's hat).