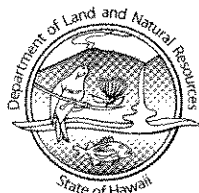


LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS

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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

REF:OCCL:DH

CDUA: OA-3274

MEMORANDUM

TO: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control

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

Samuel J. Lemmo
MAR 10 2006

SUBJECT: Final Environmental Assessment (FEA) for Conservation District Use Application (CDUA) OA-3274 for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014

The Department has reviewed the CDUA OA-3274, and Final Environmental Assessment (FEA) for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014. The Draft Environmental Assessment (DEA) for CDUA OA-3274 was published in OEQC's December 23, 2005 Environmental Notice for the subject project.

The FEA is being submitted to OEQC. We have determined that this project will not have significant environmental effects, and have therefore issued a FONSI. Please publish this notice in OEQC's upcoming March 23, 2006 Environmental Notice.

We have enclosed four copies of the FEA and CDUA OA-3274 for the project. The OEQC Bulletin Publication Form is attached. Comments on the draft EA were sought from relevant agencies and the public, and were included in the FEA.

Please contact Dawn Hegger of our Office of Conservation and Coastal Lands staff at 587-0380 if you have any questions on this matter.

Enclosures

cc: Board of Water Supply

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL
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ENVIRONMENTAL ASSESSMENT FOR
CONSTRUCTION OF FERAL UNGULATE
EXCLUSION FENCES IN
MAKAHA VALLEY, OAHU, HAWAII

FEBRUARY 2006

Prepared by:

HONOLULU BOARD OF WATER SUPPLY
630 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96843

DEPARTMENT OF THE ARMY
HEADQUARTERS,
25TH INFANTRY DIVISION (LIGHT) &
US ARMY, HAWAII
SCOFIELD BARRACKS,
HAWAII 96857-5013

ENVIRONMENTAL ASSESSMENT CONSTRUCTION OF FERAL UNGULATE EXCLUSION FENCES Makaha Valley, Oahu, Hawaii

This document was originally produced to meet federal NEPA requirements (HAR §11-200-25). Appendices E, F, G, and H, and Figure 5 have been added to meet the requirements of Chapter 343, Hawaii Revised Statutes.

FEBRUARY 2006

Prepared by:

HONOLULU BOARD OF WATER SUPPLY
630 SOUTH BERETANIA STREET
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DEPARTMENT OF THE ARMY
HEADQUARTERS,
25TH INFANTRY DIVISION (LIGHT) &
US ARMY, HAWAII
SCOFIELD BARRACKS,
HAWAII 96857-5013

PROJECT SUMMARY

Proposed Action: Construction of Feral Ungulate Exclusion Fences
Makaha Valley, Waianae, Island of Oahu

Applicant: Honolulu Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Approving Agency: Department of Land and Natural Resources
State of Hawaii
PO Box 621
Honolulu, Hawaii 96809

Need for Assessment: Use of Conservation District Land §13-5-31, HAR

Tax map Key: 8-4-002:001 (1329 acres)
8-4-002:014 (2745 acres)

Project Site: 100 acres
Landowner: Applicant

Existing use: Watershed

State Land Use District: Conservation
Subzone: Protective
Community Plan: Oahu
Land Use Designation: P-1
Special Management Area: Not in Special management Area

Anticipated Determination: Finding of No Significant Impact

Contact: Office of Conservation and Coastal Lands
Department of Land and Natural Resources
Kalanimoku Building, Room 131
1151 Punchbowl Street
Honolulu, Hawai'i 96809

Telephone: 587-0377

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

The US Army Garrison, Hawaii (Army) and Board of Water Supply (BWS) are participating members of the Makua Implementation Team (MIT), a group charged with assisting the Army with outlining steps to stabilize 28 endangered species from Makua Military Reservation (MMR). The MIT developed a Makua Implementation Plan (MIP) for the long-term protection of endangered species potentially impacted by live fire training in Makua Valley. As one of several conservation projects that include both onsite and offsite actions to stabilize the 28 species covered in the MIP, the Army proposes to construct feral ungulate exclusion fences in Makaha Valley, Oahu, Hawaii. Eleven of these species are found on BWS land in Makaha Valley. Building the Makaha Valley fences included in this proposal would support the MIP in protecting eight of these species. The proposed fence project is one component of a comprehensive threat management program that includes control of rats, weeds and non-native invertebrates and rare plant reintroduction. The MIP has been finalized and approved by the Army, however, US Fish and Wildlife Service (USFWS) approval is still pending. This Environmental Assessment (EA) is focused on analyzing the potential environmental impacts of constructing fences to protect endangered species located in Makaha Valley. Once the MIP is approved, the Army will be completing environmental impact analyses of other proposed MIP actions to satisfy its National Environmental Policy Act requirements.

1.2 Purpose and Need

The US Army Garrison, Hawaii is proposing to construct feral ungulate exclusion fences in the Makaha Valley area. The purpose and need for the proposed action is to protect a large-scale ecosystem and three smaller endangered species populations from the destructive impact of pigs and goats. Feral pigs pose the greatest threat to existing areas of native forest resources in Makaha Valley. Pigs consume and destroy understory plants, create conditions favoring non-native plant establishment and infestation, prevent the establishment of native plants, and disrupt soil nutrient cycles. Their wallows create breeding areas for mosquitoes, which transmit avian malaria and pox virus to native forest birds. Feral goats have similar detrimental effects to the native ecosystem. Goats are known to consume vegetation down to the roots, leaving bare soil susceptible to erosion, as well as to the establishment and spread of alien plant species. The cumulative effect is the decline of native forest ecosystems that serve as habitat for threatened and endangered forest birds, plants, and invertebrates. Degradation of native forest ecosystems also has a direct impact on the forests' value as a watershed. The fenced exclosures would serve to effectively exclude pigs and goats, thereby eliminating their destructive impact in the project area, as well as help protect surface and ground water quality. The protection of the watershed in the upper reaches of the Makaha drainage will also benefit the Waianae Coast Community on Oahu by protecting nearshore ocean habitats, which are impacted by Makaha stream water quality.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Alternative 1. Implement the Proposed Action to Construct Feral Ungulate Exclusion Fences

The proposed action would entail the construction of one large fence and three small fences in Makaha Valley, Waianae Mountain Range on the island of Oahu, an area owned by the Honolulu Board of Water Supply. The BWS has set Makaha Valley aside because of its significance as a watershed. The proposed fence site would lie within an area known as the *ahupuaa* of Mākaha under the traditional Hawaiian land division system (Figure 1). The Makaha ahupuaa is bordered to the south by Waianae and to the north by Keeau. On the coastline, the geographic boundaries are the northern face of Kamaileunu down to Mauna Lahilahi at the south end of the valley and Kepuhi point at the north. There are two long beaches on the coast, Kahaloko (known today as Makaha surfing beach) and Papaoneone (Turtles).

This approach is recommended because constructing a large-scale fence would minimize the ratio of area impacted by the fence line clearing to the area protected by the fence. In addition, it would be more cost effective to build one large fence rather than many small enclosures. However, two of the three small enclosures proposed are in more remote areas not encompassed by the large-scale fence. The third small fence, to protect the endangered plant *Cyanea longiflora*, would be built in an area proposed for a larger fence in the future. However, due to the amount of feral ungulate activity in the area, it is important to fence this population now to prevent its extirpation due to ungulate activity. In order to effectively control pig impacts to natural resources in the Makaha Valley, both a large-scale fence and several small-scale fences are needed in conjunction with feral pig control. The location of the proposed fences are shown in Figure 2.

Large Fence. The proposed large fence would encompass roughly 100 acres and range from an elevation of 1,600-2,600 feet. The route proposed is about 9,843 ft (3,000 meters) long and transverse a diversity of terrain types. This project would utilize vertical cliffs in some sections to serve as natural barriers to pigs. Starting at vertical cliffs below the 2,800 ft peak along the Kumaipo Ridge, the fence travels east along the crest of the Kumaipo Ridge toward Mt. Ka'ala for approximately 1,017 ft (310 meters). The fence cuts off the Kumaipo Ridge in a north-northwest direction following a sub-ridge for approximately 1,854 ft (565 meters). At this point the fence route crosses a small gulch to follow one sub-ridge to the west. The fence follows the crest of the ridge for approximately 623 ft (190 meters) where it cuts into a gulch to the west. The fence then heads west, crossing two sub-gulches and covering a distance of 1,312 ft (400 meters). After crossing the two sub-gulches, the fence turns south traveling along a major ridge for 3,280 ft (1 km). The fence terminates at the base of a vertical cliff at about 2,400 ft elevation. A combination of strategic fencing and natural barriers will be employed along the major ridge crest to prevent ingress of goats and pigs from the south into the fence unit.

Small Fences. The three small fences would be constructed around populations of two endangered plant species, *Cyanea longiflora*, and *Sanicula mariversa* (Figure 3). Each of these populations is very small, and imminently threatened by ungulate activity.

- ***Cyanea longiflora* Population.** The Makaha Valley population represents the largest concentration of plants of this species outside of Makua Military Reservation. Over the last decade feral pigs have reduced the numbers of plants in the Makaha population by at least 75% through uprooting plants and spreading seeds of weedy plant species. A 985 ft (300 meter) perimeter fence around the population is proposed to protect it from ungulate activity. The fence would be at about 2,400 ft elevation, and run along the north side of the Kumaipo Ridge and extend 164 ft (50 meters) down into the Makaha side of the ridge.
- ***Sanicula mariversa* Populations.** The two populations of *Sanicula mariversa* in Makaha are critical to this species as a whole because they represent two-thirds of the populations outside of Makua Military Reservation. Presently, the two populations are significantly threatened by goats.

Northern Population. On recent visits to the northern population of *Sanicula mariversa*, extensive goat damage was observed. This population is located at 2,600 feet just off of the Kamaileunu Ridge crest near Puu Kawiwi in steep terrain. The proposed fence would be approximately 174 ft (53 meters) in length, with fencing located strategically to keep out goats.

Southern Population. The southern population of *Sanicula mariversa*, near Puu Kepauula, has been impacted by goat traffic in the area. The proposed fence would be at 2,800 feet, and enclose an approximately 1,938 square ft (180 square meter) area around the population.

Fence Construction. Fence materials would be transported via a private Board of Water Supply paved road to a paved area in lower Makaha Valley. From there, materials would be flown by helicopter a short distance to 'drop zones' along the fence line. The 'drop zones' are areas cleared of overhanging vegetation so fencing materials can be lowered to the ground using a long-line from the helicopter. The fencing crew would either hike to the project areas or be flown to existing helicopter landing zones at the ridgeline and hike from there. The proposed fence line would utilize 42 inch-high beznal coated hogwire fence (Figure 4). The fence fabric would be supported by steel fence posts and treated wood posts placed no more than 10 feet apart the entire length of the fence line. Shorter galvanized steel pins would be used as anchors where necessary. In areas of uneven terrain, 52" x 16' hot-dipped galvanized livestock panels would be used in place of hogwire. The fence would have an apron of hogwire laid horizontally along the ground outside the fence to prevent pigs from digging under. The fence alignment would be cleared by hand to a width of no more than 6 feet. The construction is proposed to begin in the fall of 2005, and would be completed in approximately six months.

2.2 Alternative 2. No Action Alternative

This action would be the maintenance of the status quo in Makaha Valley. Under this alternative the feral ungulate exclusion fences would not be constructed. Without a physical barrier, pigs and goats would continue to threaten the native natural communities and endangered species populations.

Although this alternative would not meet the needs of the Army to protect native species populations that could potentially be affected by training activities at MMR, and would go against participating parties' goals and mandates, for the purpose of comparing the impacts of the proposed fence, the No Action Alternative is discussed in Section 4.0 of the Environmental Assessment.

2.3 Alternative Eliminated from Further Consideration. Utilize Strategic (Non-enclosed) Fencing and Hunting to Reduce Pig and Goat Populations.

Use of limited fencing along ungulate access points was considered, however, the topography of upper Makaha Valley does not provide many natural barriers to pig or goat movement. Strategic fencing is ineffective in an area such as this where the goal of the project is to secure a pig and goat free ecosystem. In addition, hunting may be an effective mechanism to lower pig populations in some areas, but it is virtually impossible to eradicate pigs from hunting alone in an unsecured or unfenced area. The nature of the Makaha Valley landscape renders this alternative infeasible, and this alternative was not further considered.

3.0 AFFECTED ENVIRONMENT

This section presents baseline information on the resources potentially affected by the construction of the feral ungulate exclusion fences. Potentially affected resources identified include topography and soils, land use, ecosystems and biological resources, visual quality and aesthetics, water resources, air quality and noise, socioeconomic environment, recreational and educational resources, and archaeological and historic resources. Hazardous materials would not be used in this construction project and are therefore excluded from further discussion.

3.1 Topography and Soils

The terrain of the proposed project area ranges between gradually sloped to steep grade forest and includes some cliff habitat. Soils found in the area belong to the Tropohumults-Dystrandeps association (USSCS, 1972). This association consists of well-drained soils with an underlying layer of soft weathered rock, volcanic ash, or colluvium. The soils, which are highly erodible, occur on gentle to steep sloped areas and on narrow ridges.

3.2 Land Use

The proposed project would be located within a Conservation District on BWS land. The area is protected as a watershed and is not open for public use at this time.

3.3 Ecosystems and Biological Resources

The low saddle between Waianae Kai and Makaha is referred to as Kumaipo Ridge. The forest along this ridge is dominated by native species. The forest in the proposed fence area encompasses koa (*Acacia koa*) and ohia (*Metrosideros polymorpha*) dominated areas, diverse mesic forest dominated by lama (*Diospyros hillebrandii*) and dry forest with lama (*Diospyros sandwichensis*) and lonomea (*Sapindus oahuensis*) dominating the canopy. Although comprehensive faunal surveys have not been conducted in the area, animal life in the area is known to consist of native and non-native bird species, invertebrates such as snails and insects, and both large and small mammals such as feral pigs, mongooses, and rats.

This project area is rich in native plant diversity and home to at least thirteen species of listed, proposed, and candidate plant species (Appendix A). One species of endangered tree snail, *Achatinella mustelina*, and one endangered bird species, *Chasiempsis sandwichensis ibidis*, can be found within the proposed fence area.

Much of the area remains to be explored and probably harbors undiscovered resources. The widespread problematic introduced plants within the proposed project area include *Psidium cattleianum*, *Schinus terebinthifolius* and *Coffea arabica*.

3.4 Visual Quality and Aesthetics

Currently, the areas proposed for fencing are either forested or along steep ridges with low vegetation. There are no man-made structures in the area. The nearest public view point is the Waianae trail located approximately 100 meters away.

3.5 Water Resources

Lower Makaha Valley is dry, averaging anywhere from 20-40 inches of rain per year, while the upper valley receives between 40-80 inches per year. In the upper valley, the rain is channeled

down the valley into the area where the proposed fence would be sited through the Makaha and Eku streams. Here, the streams flow intermittently, often during the winter or following a big rain. There is evidence, however, that before they were diverted by the sugar plantations and then by the Board of Water Supply, they flowed constantly. Marshy areas have developed where both streams meet the sea, above Kahaloko and near the Waianae face of Mauna Lahilahi. The main portion of the Makaha Valley Stream that runs through the lower parts of the valley flows throughout the year.

3.6 Air Quality and Noise

There are no ambient air quality and noise monitoring data for this area. The proposed project site is a natural forest and there are no man-made structures or emission sources. Therefore it is believed that air quality is generally good and the noise environment is typical of undeveloped tropical forested areas.

3.7 Socioeconomic Environment

The proposed project area is a natural ecosystem in a Conservation District. The nearest community is the town of Makaha, located roughly five miles from the proposed fence site.

3.8 Recreational and Educational Resources

The proposed project would be located on land owned by the Board of Water Supply. Although the BWS does not issue permits to hike into Makaha Valley, hikers and hunters utilize the valley by gaining access from the Waianae Kai loop trail or by hiking up the gulch from lower Makaha Valley into the far reaches of the valley.

A historical trail is located at the back of the valley (Figure 5). The Kumaipo trail connects the backs of Waianae Kai and Makaha Valleys, providing access to the ridge leading to Mt. Ka'ala and into Waianae Uka. The trail does not have a State Site number and is in such poor condition that it lacks enough integrity today to obtain one even though the trail is referenced in several historical accounts. The proposed large fence site would lie to the south of the trail and would be separated by a ridgeline and thick forest.

Various school groups and other members of the community have had the opportunity to visit Makaha through Mohala I Ka Wai and Kaala Farm, to learn more about the Kaneaki Heiau, the *loi* systems and the stream. Some students are collecting and recording data from the stream, rainfall, and historical sites in the valley. These activities are limited to the lower valley, in areas located roughly 300 to 500 meters from the trail.

3.9 Archaeological and Cultural Resources

Historical cultural resources and practices

Cultural use of Makaha Valley has been extensive. Over 300 sites consisting of over 600 features have been documented. In addition to the dominant Kaneaki Heiau (State Site 50-80- 07-170), the lower and upper valley bottom contains numerous site complexes systems of irrigated (*loi*) and dry (*kula*) land agricultural terrace complexes, habitation platforms and terraces, and seasonal or recurrent field shelters, walls, mounds, and several historical sites.

Most of leeward Oahu was initially settled between AD 900-1000 (Cordy 2002) along the coast. The population relied on the wealth of marine resources for subsistence and traveled into the valleys on day trips or short duration trips to gather upland resources. As populations and subsistence demands increased, settlements expanded inland to take advantage of the upland resources. Unlike the rest of leeward Oahu, Makaha's primary settlement developed more inland near the back of the "lower valley" roughly 1.5 miles from the coast, below Kaneaki Heiau, with smaller communities established along the coast. Excavation results from habitation sites in this settlement area date as early as AD 1120, which is contemporaneous to other early coastal settlements of leeward Oahu (Green 1970:99-100, Cordy 2002:11-21). Results from an agricultural terrace complex in the upper valley dates slightly later, AD 1280 at the earliest, implying upper valley use may have been more focused on agriculture than habitation.

Cultural resources specialists from the Environmental Division, Directorate of Public Works (DPW), US Army Garrison, Hawaii conducted a limited reconnaissance survey along the proposed large fence line route on April 20 and May 20, 2004, and small fence routes on August 31, 2004. The Cultural Resources Specialists looked for field shelters and agricultural sites similar and supplementary to the extensive field systems identified in the valley bottom as well as other natural and constructed features. A remnant terrace and several low alignments (State Site 50-80-07-6690) of single course boulders were identified on the gradual slope of a wide ridge at the northern edge of the proposed fence line route. The terrace may be a possible temporary habitation or field station terrace. The size alone suggests a more substantial usage than dry land agriculture. The function of the boulder alignments is likely agricultural in origin, however may be for erosion control. Additional cobbles and boulders appear to form discontinuous remnant alignments across the slope to the east and south/upslope of the terrace suggesting supplemental dry land agriculture that has been disturbed by erosion and animal activity.

Contemporary cultural resources and practices

As mentioned above, there are many archeological sites in Makaha Valley. The majority of the known sites are along the stream or valley bottom and other easily accessible areas. Through conversations with Landis Ornellas, the kahu of Kaneaki Heiau, it is known that the heiau is currently being used for cultural practices. Access to the heiau will not be affected by the proposed project because it is far removed from the project area. Hula halaus and community groups utilize Makaha to gather natural resources. After talking with members of Mohala I Ka Wai, Kaala Farm, Inc., and the Waianae Kai Community Forest Project partnership, it is apparent that the areas they gather from are low in elevation and are not near the proposed project area. There is an area that may be used to gather natural resources that is located within the proposed fence. Crossovers will be installed along the fence to provide access inside the fence while keeping the ungulates out.

Other contemporary uses

In 1987, BWS acquired Makaha Valley from Waianae Development Co., Ltd., and Makaha Valley, Inc. and currently does not permit recreational hunting and hiking in the valley; however,

there is evidence that these activities occur in the valley. The Hawaiian Trail and Mountain Club and the Oahu Pig Hunter's Association were notified about the proposed project and they did not oppose the project.

BWS and the Army have talked to various groups in the community that may potentially be affected by the proposed project. Representatives of the Hawaiian Trail and Mountain Club, Oahu Pig Hunters Association, The Nature Conservancy of Hawaii, Mohala I Ka Wai, Kaala Farm, Inc., and the Waianae Kai Community Forest Partnership had the chance to visit the proposed project area during the scoping of the fence line route. They had the opportunity to provide input on the location of the proposed fence line and agreed with the designated route. Prior to the submittal of the draft EA, copies were sent to the organizations listed above for their review and comments. Informal informational meetings about the project were done to provide the community a chance to comment on the proposed project, and on September 25, 2004 a brief presentation on the proposed project was given at the 2nd Waianae Water Conference in Waianae. No negative comments regarding the project were received.

4.0 CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

Environmental Impacts ~ insignificant impact ○ potential negative impact + positive effect □ both potential negative and positive impacts <blank> no impact		Project Actions				
		Pig monitoring	Cutting fence corridor	Fence installation	Pig Control and Eradication	Vegetation Monitoring
Environmental Resources	Topography and soils		~	~	+	
	Land use			+	+	
	Ecosystems and biological resources	~	○	□	+	+
	Visual quality and aesthetics		~	○		
	Water resources			+	+	
	Air quality and noise		~	~		
	Socioeconomic environment			+	+	
	Recreational and educational resources		~	~	□	
	Archaeological and historic resources	~	○	□	+	

This section describes the potential environmental impacts associated with the proposed action and the alternative considered. This section has been organized by resource area to provide a comparative framework for evaluating the impacts of the proposed action and the no action alternative on individual resources. The major positive and negative impacts are summarized in the table above. Areas with potential negative impacts (○ symbol) include a description of the anticipated mitigation action. The primary potential negative impacts resulting from this project are associated with the construction activities of cutting of the fence line and the installation of the fence.

4.1 Topography and Soils

4.1.1 Proposed Action. The proposed large fence project would protect a mid-elevation, north-facing section of Makaha Valley in the Northwestern Waianae Range. One of the small fences would protect a north-facing slope off of Kumaipo Ridge, and the other two would protect areas of ridge top and cliff habitat to the south on the Kamaileunu Ridge.

Cutting a fence corridor is necessary to permit efficient installation of the fence and remove hazards to work crews. In this process, minimal soil disturbance is unavoidable. The Army would implement mitigation measures below to reduce potential impacts to the environment and no significant impacts are anticipated.

Mitigation: A survey of the ridges in the Makaha drainage has yielded a route based on the ease of installation and maintenance, long-term survival of the fence from vegetative encroachment, erosion and slides, and the need to limit the impact of construction on native plant communities and cultural resources. Soil disturbance is expected to be minimal and short-term, and no changes in the normal runoff or percolation are expected. Once the fence is completed, run-off would be reduced due to a reduction in ungulate activity inside the fenced area.

4.1.2 No Action Alternative. The No Action Alternative would allow pigs and goats to remain to cause further destruction to both the native and non-native vegetation resulting in exposed areas of soil susceptible to erosion and increased surface runoff.

4.2 Land Use

4.2.1 Proposed Action. The Proposed Action is consistent with the current land use designation. Watershed protection is an identified land use for Conservation District Protective (“P”) subzone and exclusion of pigs and goats would enhance the areas’ functionality as a watershed by reducing vegetation damage and alteration caused by feral pig and goat activity. This project is also consistent with a second designated land use of the “P” subzone: “preserving natural ecosystems of native plants, fish and wildlife, particularly those which are endangered” (HAR, 13-5-11-4).

The objective of this project would be in accord with USFWS policy for the management of natural communities using an “ecosystem approach” as well as with the State of Hawaii’s long-term environmental policies, goals and guidelines outlined in Hawaii Revised Statutes, Chapter 344. The project is also consistent with the provisions of the City and County of Honolulu General Plan Objectives and Policies, Chapter III, Objective A, Policies 1-11, by “protect[ing] and preserv[ing] the natural environment (Objective A)” as well as the “plants, birds, and other animals that are unique to the State of Hawaii and the Island of Oahu (Policy 8)”.

4.2.2 No Action Alternative. The No Action Alternative would allow pigs and goats to remain to cause further destruction to both the native and non-native vegetation resulting in the degradation of the watershed.

4.3 Ecosystems and Biological Resources

4.3.1 Proposed Action. The large fence would protect one of the healthiest populations of the endangered tree *Alectryon macrococcus*, and the largest known populations of the endangered shrubs *Gouania meyenii* and *Hesperomannia arbuscula*. The habitat that would be protected within the proposed fences is appropriate for conducting rare plant reintroductions and the Army plans to reintroduce a number of the plant taxa listed in Appendix A.

(1) Initially after completion, any pigs residing within the fenced area would be trapped. This could result in a period of amplified pig damage to the existing vegetation as the trapped animals attempt to exit the area.

Mitigation: Before construction of the fence, Army and BWS contractors with assistance from volunteer hunters would conduct feral pig control in the areas to be fenced to reduce the number of pigs in the area. Following the completion of the large fence, intensive control efforts would immediately be implemented to eliminate those pigs remaining in the enclosed area. Because of their size, it is anticipated that after completion of each of the small fences, no feral animals would remain inside the fenced area. Control of ungulates in the large fence would be conducted using ground-based techniques and would be carried out by Army and BWS contractors with the assistance of volunteers from the community. These control techniques would not have a negative effect on rare species. No further recruitment of feral pigs into the area is anticipated. Intensive monitoring would be performed to ensure all pigs are removed.

(2) Unintentional introduction and/or spread of weedy or invasive plants along the corridor could occur via worker's equipment and gear.

Mitigation: Gear cleaning procedures to reduce the introduction of noxious plant seeds and propagules would be strongly enforced. Invasive alien species such as *Panicum maximum* and *Melinis minutiflora* found to pre-exist along the proposed route and considered susceptible to spread from human activity would be removed prior to fence construction. The Army contracted Natural Resource staff would ensure that individuals involved in the fence construction clean all gear when moving from areas dominated by invasive plants to areas dominated by native plants, and at the end of each work week.

(3) Fence line clearing and construction could affect vegetation that harbors endangered O'ahu tree snails, causing the snails to leave their preferred location and become more susceptible to predators such as rats and introduced predatory snails.

Mitigation: The support of recognized tree snail experts would be used to conduct surveys of the proposed fence line corridors for tree snail populations prior to doing any clearing work. Sizable ohia trees that represent good snail "habitat" would not be removed. Any trimming or cutting of trees or shrubs would be done only after vegetation has been inspected carefully for snails. US Army Natural Resources Management staff knowledgeable about tree snails would oversee the fence line corridor clearing. Finally, vegetation that is cleared would be placed upon other native vegetation so that if native snails were present and not detected by personnel doing the clearing, snails would have an opportunity to reach another host without having to cross the ground.

(4) Fence line clearing and construction could negatively impact rare and endangered plants.

Mitigation: Botanists would search for rare and endangered plants along the proposed route. Only common native vegetation would be cut if necessary for fence line construction. If necessary, the alignment would be shifted to avoid individual rare plants. The long-term management goal for the area is protection of the intact native plant and animal communities. To ensure that this long-term goal is carried out, the agencies involved in this project are entered into a Memorandum of Understanding (Appendix B) to assist with the implementation of the MIP.

(5) Extensive surveys for endangered species have been conducted at the drop zones to ensure these species are not impacted by the helicopter downwash generated by the rotors. All drop zones will be located at least 50 meters from any endangered plant.

(6) It is anticipated that the proposed project would positively affect ten endangered plant species, and three candidate and species of concern plant species. In addition, this project would positively affect one endangered tree snail specie and one endangered bird taxon. The central goal of this project is the protection of these species and their native ecosystems from the long-term consequences of detrimental feral ungulate activity. Exclusion of feral pigs has been shown to be the most important resource management activity that can be done to protect rare, threatened, or endangered plant species in Hawaii.

Implementation of the mitigation measures above would reduce the potential impacts to the environment and no significant impacts are anticipated.

4.3.2 No Action Alternative. Maintaining the status quo would allow pigs and goats to remain to cause further destruction to both the native and non-native vegetation and thus have a negative impact on native ecosystems and biological resources.

4.4 Visual Quality and Aesthetics

4.4.1 Proposed Action. The Proposed Action would involve clearing of vegetation for fence lines and trails, and would utilize helicopter landing areas that could negatively impact the natural aesthetic and views of the mountain range. These activities could also potentially affect scenic vistas and view planes identified in county or state plans or studies. Implementation of the mitigation measures below would reduce the potential impacts to the environment and no significant impacts are anticipated.

Mitigation: The nearest public view point is the Waianae Kai trail located above a ridge near the top easternmost corner of the proposed large fence. Roughly 100 meters would separate the proposed fence from the trail and it is not anticipated that the fence exclosures would be visible from that viewpoint. In addition, fence corridors would be limited to six feet and some tree canopies would be kept over the corridors to help conceal their presence. The existing helicopter landing areas at the ridgeline would be used to drop off crew and supplies. Fencing materials would be lowered into smaller cleared areas using a long-line. The fences would be located in a remote area not visible from any public viewing sites, and therefore would not affect any scenic vistas or view planes identified in county or state plans or studies. The Army and BWS would also work with the Hawaiian Trail and Mountain Club and/or other concerned groups to minimize the impacts of the fence to any view planes or ridgelines.

4.4.2 No Action Alternative. Maintaining the status quo would not impact the visual quality and aesthetics of the area.

4.5 Water Resources

4.5.1 Proposed Action. Clearing of vegetation along the fence corridors may produce a short-term minor increase in sedimentation and runoff. The nearest surface water receptor, Makaha Stream, is located at the bottom of the valley approximately 300 to 500 meters from the bottom edge of the proposed fence. It is not anticipated that any minimal increase in runoff would reach and affect the stream. Water quality however, would be improved in the long-term by reducing erosion and limiting the input of disease-causing organisms into stream water by feral animals. Upon completion of the proposed fence, and re-growth of the vegetation, rather than having a detrimental effect upon water resources, the proposed project may have a small positive impact. Controlling the population of feral mammals would likely reduce the incidence of Leptospirosis and other diseases carried by these animals into Makaha stream. The project would also increase public awareness of the importance of watershed protection as well as protecting native Hawaiian ecosystems and endangered species for future generations. No significant impacts to water resources are anticipated.

4.5.2 No Action Alternative. The No Action Alternative, in the long-term, would likely have a negative impact on the water quality. The continued presence of pigs and goats would create conditions conducive to erosion and continue to be a source of waterborne diseases.

4.6 Air Quality and Noise

4.6.1 Proposed Action. Emissions generated by vehicles and helicopters used to transport materials and workers to the construction site would probably not be detectable. In addition, the impacts from the emissions would be short-term and quickly dispersed by the prevailing tradewinds. Helicopter and construction noise associated with the proposed project would also be minor and short-term. Therefore no significant impact to air quality or the noise environment is anticipated.

4.6.2 No Action Alternative. Maintaining the status quo would have no impact to air quality and noise.

4.7 Socioeconomic Environment

4.7.1 Proposed Action. The proposed project would be located approximately five miles from the nearest town of Makaha. The Proposed Action is a small-scale construction project consisting of staff employed through the Army with approximately five additional individuals making up the construction crew. This action would not be expected to affect job opportunities, population structure, or the use of public facilities. Therefore no significant impact to the social or economic welfare of the Waianae Coast communities, or elsewhere on Oahu is anticipated. The project may have a potential positive effect on the economic welfare of the community and state by helping to protect a valuable watershed and the water quality discharging from this drainage area for the future.

4.7.2 No Action Alternative. Maintaining the status quo would have no impact on employment and the local economy.

4.8 Recreational and Educational Resources

4.8.1 Proposed Action. The proposed project area would be located on BWS property that is not open for public use. The proposed fences would not cross any established trails, nor would it impact the historical Kumaipo trail which lies roughly 200 meters away at its closest point and is separated by a ridge and forested area. Access to culturally significant sites used by the community and study areas used by school groups would not be significantly impacted since the proposed fence sites would be located in a remote area of the valley that is difficult to access. As a result, the Proposed Action is not anticipated to have any significant impact recreational and educational resources.

4.8.2 No Action Alternative. Maintaining the status quo would have no impact on recreational and cultural uses.

4.9 Archaeological and Historic Resources

4.9.1 Proposed Action. An increase in foot traffic would be associated with the Proposed Action and could impact unknown cultural sites. To reduce the potential of disturbing archaeological and historical resources, the Army has initiated the following actions:

Mitigation: A pedestrian surface survey has been conducted by qualified archaeologists along the proposed fence routes. A cultural site identified as State Site 50-80-07-6690, consisting of terraces and several low alignments, was observed near the project area. The proposed fence line would be adjusted to cross the ridge below the primary terrace of the site and between features to avoid negative impact during fence construction. The primary terrace would be protected from further animal disturbance within the enclosure. Other areas of potential dry land agricultural terrace alignments would also end up within the enclosure and protected from further damage and available for further work if the opportunity arises. Access to the site for cultural purposes would be possible through an entry point along the fence line that would be designed such that pigs and goats would be excluded. In accordance with the National Historic Preservation Act (NHPA) Section 106 consultation was conducted with the State Historic Preservation Division (Appendix C). DPW, Cultural Resources recommended a determination of no adverse effect to historic properties based on these actions. If at any time additional cultural sites are identified, site impacts would be avoided by re-routing the fence line. Construction personnel would be briefed in identifying cultural sites. If *iwi* or native Hawaiian cultural or traditional deposits are found during the fence construction, work will cease and the appropriate agencies will be contacted.

4.9.2 No Action Alternative. The No Action Alternative would allow pigs to remain to cause further damage to archaeological and historic resources.

5.0 CUMULATIVE IMPACTS

Cumulative impacts were analyzed for each resource category by examining past, present, and reasonably foreseeable future actions along with the Proposed Action. The Proposed Action, is to construct feral ungulate exclusion fences to protect endangered species populations from the destructive impact of pigs and goats. In determining cumulative impacts of the Proposed Action, construction of two additional fences which are a part of future MIP actions were taken into consideration. Under the MIP, one fence would encompass approximately 66 acres and the other would cover one acre. The fences would be within the same vicinity of the Proposed Action, with a tentative construction date of 2010. Anticipated cumulative impacts of the Proposed Action to the affected environment are discussed below.

5.1 Topography and Soils. Clearing activities would result in the loss of vegetative cover, thereby exposing soil and increasing the potential for erosion and surface water runoff. However, soil disturbance associated with the Proposed Action would be minimal and short-term, and the effects are not expected to be significant. Implementation of reasonably foreseeable future actions would also involve minor vegetation removal and potential impacts would resemble those from the Proposed Action. As a result, the cumulative effects of the Proposed Action would not be significant either alone or in combination with reasonably foreseeable future actions.

5.2 Ecosystems and Biological Resources. Potential impacts from the Proposed Action to ecosystems and biological resources would be minimized by implementing control measures and work practices. As a result, significant adverse impacts are not anticipated. Reasonably foreseeable future projects would occur in a nearby location but would not overlap spatially. It is expected that future projects would utilize similar mitigation actions. Consequently, the proposed project would not adversely affect the ecosystems and biological resources of Makaha Valley, individually, nor would it contribute to the cumulative effects of reasonably foreseeable future actions.

5.3 Visual Quality and Aesthetics. The proposed fence site would be located in a remote area in Makaha Valley, and potential impacts from clearing activities would be minimized by utilizing existing tree canopies to conceal the corridors. Future fence projects would occur in the same vicinity in an adjacent area, however, it is reasonable to predict that these projects would implement similar clearing practices. Therefore, no significant cumulative impacts are anticipated to the visual quality or aesthetics of the Waianae Mountain Range.

5.4 Water Resources. Increase in sedimentation and runoff generated during the proposed project would be temporary and short in duration. Similar potential impacts from reasonably foreseeable future projects would occur in nearby locations, but would be separated temporally by a span of five years. As a result, the proposed project would not significantly affect water resources individually, nor would it contribute to the cumulative impacts of reasonably foreseeable future actions in Makaha Valley.

5.5 Air Quality and Noise. Increase in emissions and noise generated during the Proposed Action would be temporary and short in duration. Overall, cumulative impacts would not be significant since the proposed project and reasonably foreseeable future actions would occur at different times.

5.6 Archaeological and Historic Resources. Archaeological and historical resources would not be adversely affected by the proposed project, as the fenceline would avoid all sites. Reasonably foreseeable future actions would occur in an area adjacent to the Proposed Action and would likewise avoid historical sites. As a result, the cumulative effects of the Proposed Action would not be significant either alone or in combination with reasonably foreseeable future actions.

6.0 CONCLUSION

The long-term benefits of fencing and complete feral ungulate removal inside the fenced areas far outweigh the limited short-term effects of fence construction. Installation of the proposed fences will help to more efficiently and effectively control feral animals in the project area. Feral pigs and goats pose the greatest threat to existing intact native mesic forest areas. The cumulative effects of feral pigs and goats are the deterioration of intact native forest ecosystems, including the decline of threatened and endangered plants and invertebrates. Removal of feral pigs and goats has been demonstrated to result in the recovery of native vegetation. Feral pig and goat removal also controls or significantly reduces the spread of alien plants.

The possibility for introduction of new weed species as a result of human activity exists. Ensuring that the equipment, tools, and construction materials are clean and free of weed seeds can minimize this. Natural resource management and fence construction crews will be instructed in protocol to prevent weed distribution involving their personal gear and movements. This protocol will be strictly enforced.

Based upon the available information, this EA has concluded that the proposed action does not constitute a major federal action that would significantly affect the quality of the environment. Therefore, an environmental impact statement is not required. A Finding of No Significant Impact (FNSI) will be prepared and public notice given in the State of Hawaii Office of Environmental Quality Control (OEQC) Bulletin.

7.0 LIST OF AGENCIES AND PERSONS CONSULTED

Consulted Parties:

- Federal:** U. S. Department of Interior
U. S. Fish and Wildlife Service
- State:** Department of Health
Office of Environmental Quality Control
Department of Land and Natural Resources
 Division of Forestry and Wildlife-Oahu
 Office of Conservation and Coastal Land Management-Oahu
 Historic Preservation Division
University of Hawaii
 Hawaii Tree Snail Laboratory-Dr. Michael Hadfield
 Botany Department-Dr. Tamara Ticktin
- City and County:** Board of Water Supply
Waianae Neighborhood Board
- Private:** Audubon Society
Conservation Council of Hawaii
Hawaiian Trail and Mountain Club
Pig Hunters Association of Oahu
The Nature Conservancy of Hawaii
Sierra Club
Mohala I Ka Wai
Kaala Farm, Inc.

EA Preparers:

Leilani Durand	Research Corporation of the University of Hawaii Natural Resources Implementation Manager
Amy Tsuneyoshi	Board of Water Supply Watershed Coordinator
Kapua Kawelo	Directorate of Public Works, Environmental Division Army Biologist
Jobriath Rohrer	Research Corporation of the University of Hawaii Natural Resources Coordinator
Krista Winger	Research Corporation of the University of Hawaii GIS/Database Manager
Laura Gilda	Research Corporation of the University of Hawaii Cultural Resource Specialist
Dale Kanehisa	Directorate of Public Works, Environmental Division NEPA Coordinator

8.0 REFERENCES

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- Green, Roger C., Editor. 1969. *Makaha Valley Historical Project, Interim Report No. 1*, Pacific Anthropological Records No. 4. Department of Anthropology, Bernice Pauahi Bishop Museum, Honolulu, Hawaii.
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United States Soil Conservation Service. 1972. *Soil Survey of Islands of Kauai, O'ahu, Mui, Molokai, and Lanai, State of Hawaii*. Washington, DC.

ISLAND OF OAHU

**Makaha
Ahupuaa**

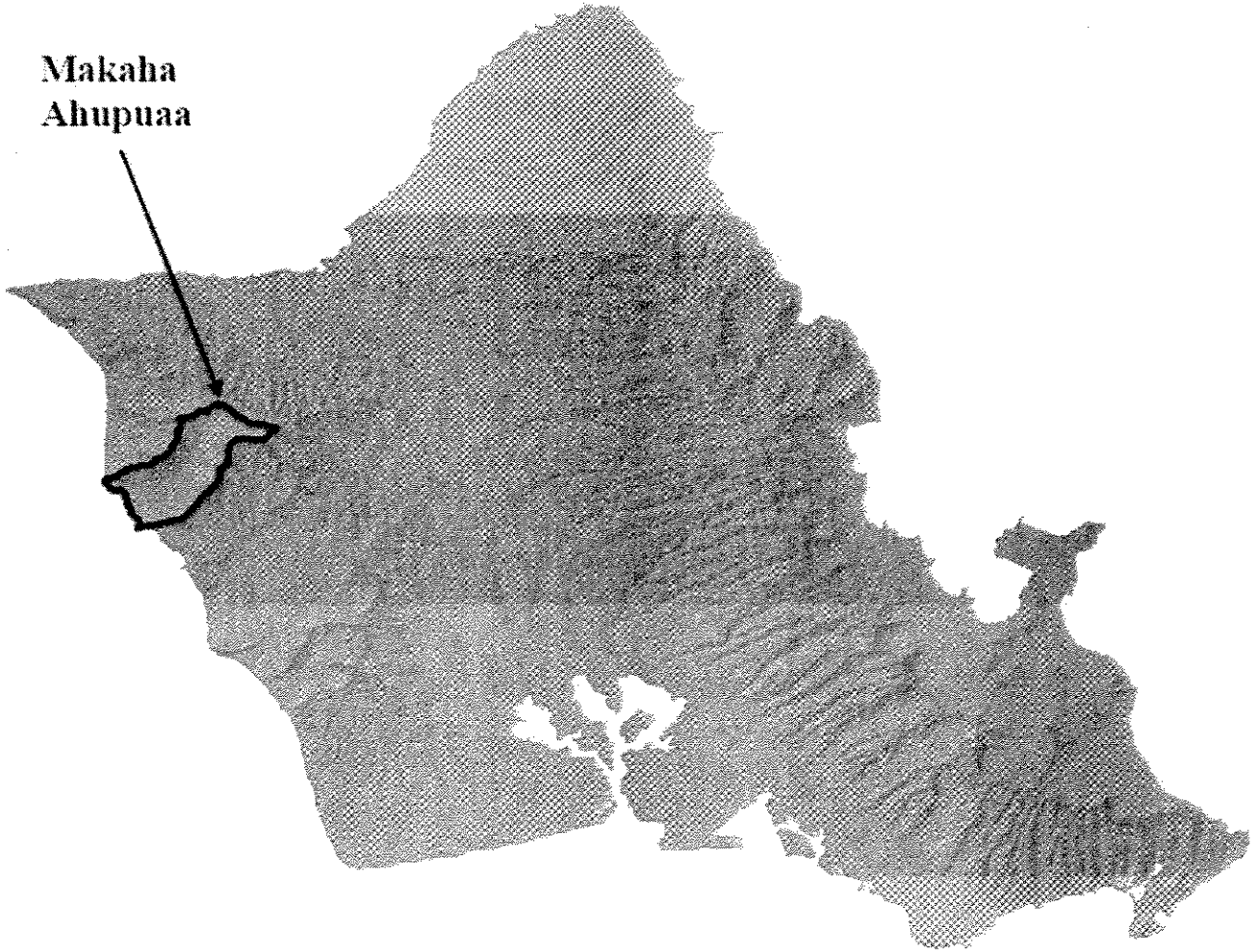


FIGURE 1. LOCATION OF THE MAKAHA AHUPUAA ON THE ISLAND OF OAHU

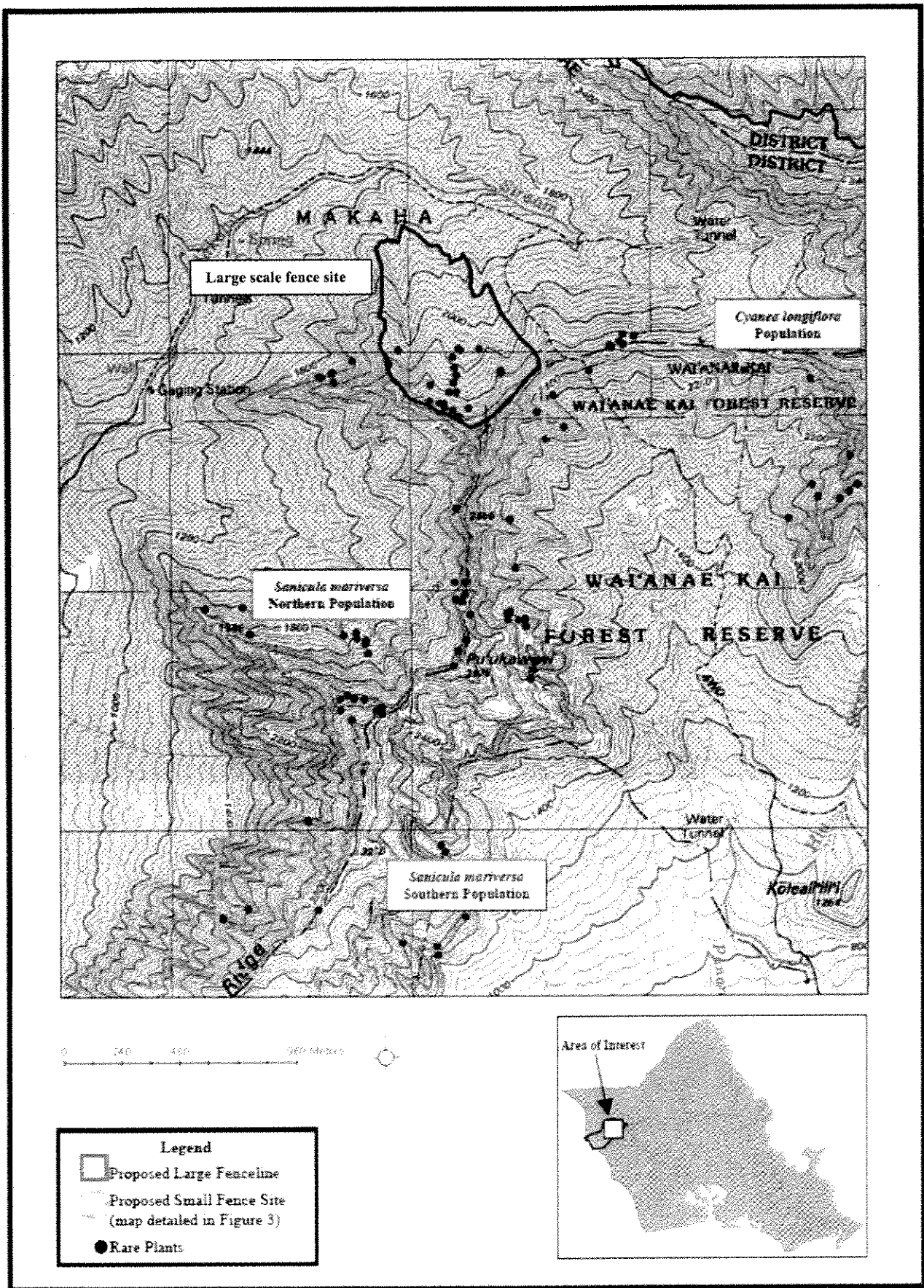


FIGURE 2. PROPOSED MAKAHA VALLEY FENCE SITES

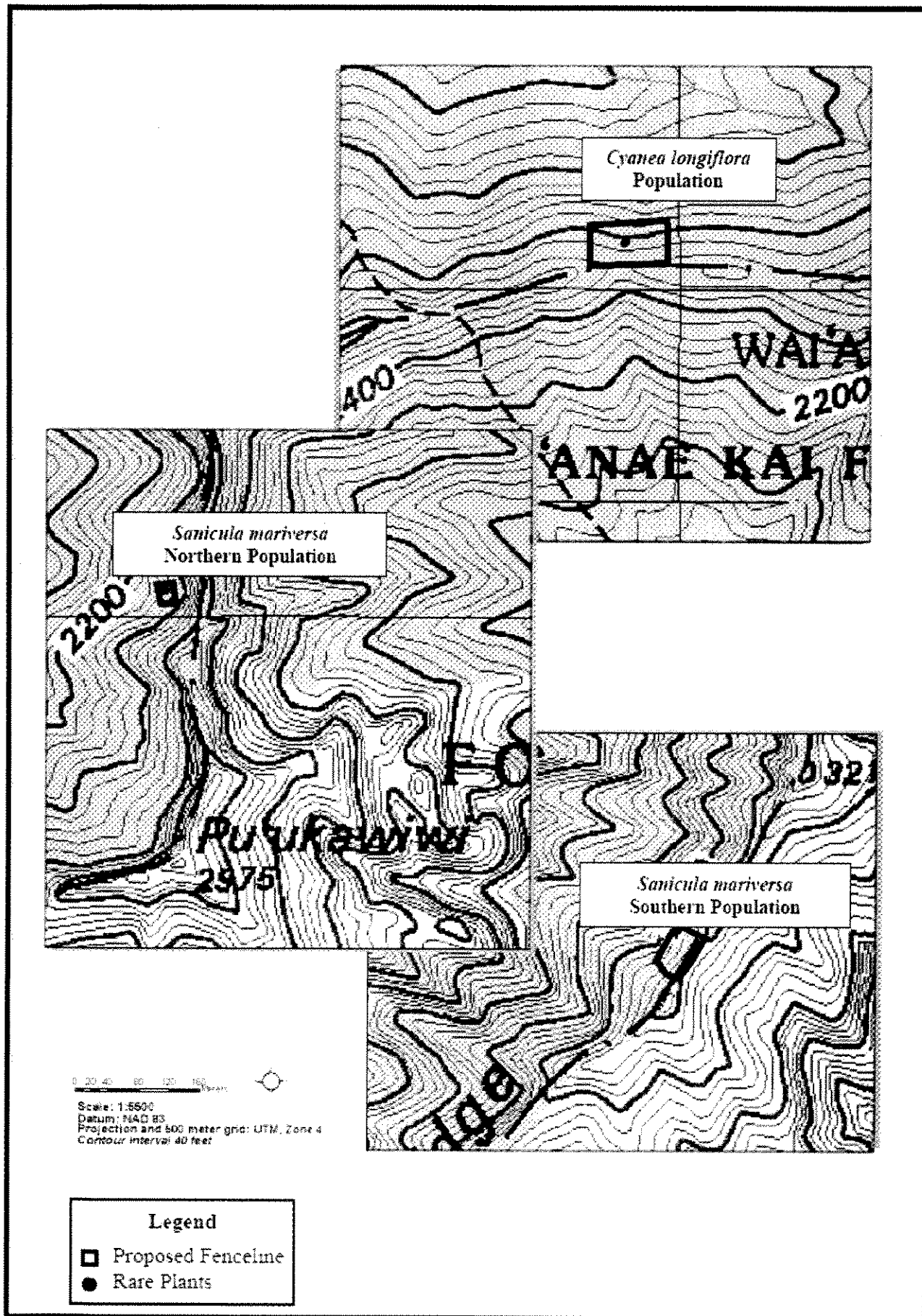


FIGURE 3. PROPOSED SMALL FENCE LOCATIONS

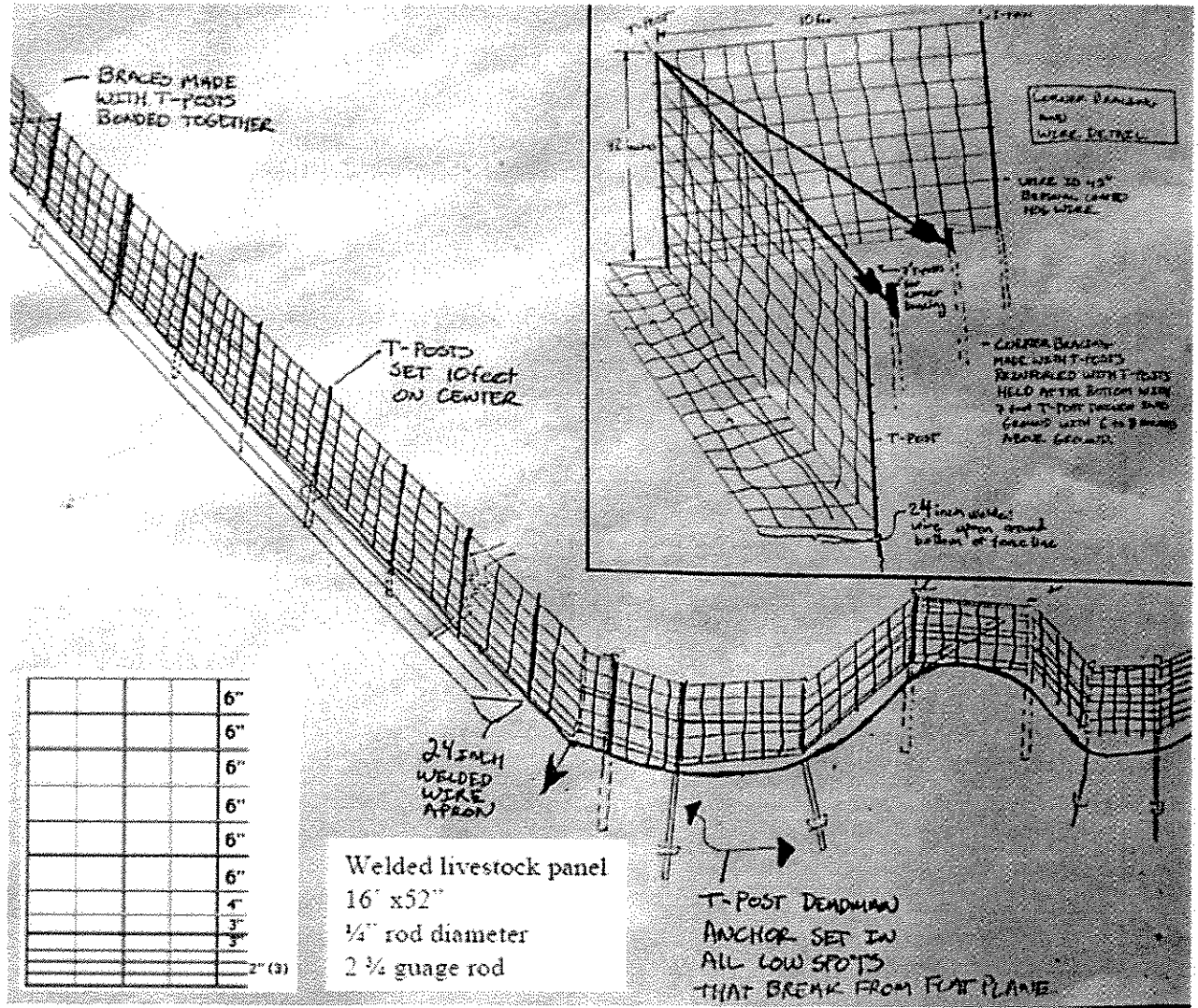


FIGURE 4. FENCE DESIGN DETAILS

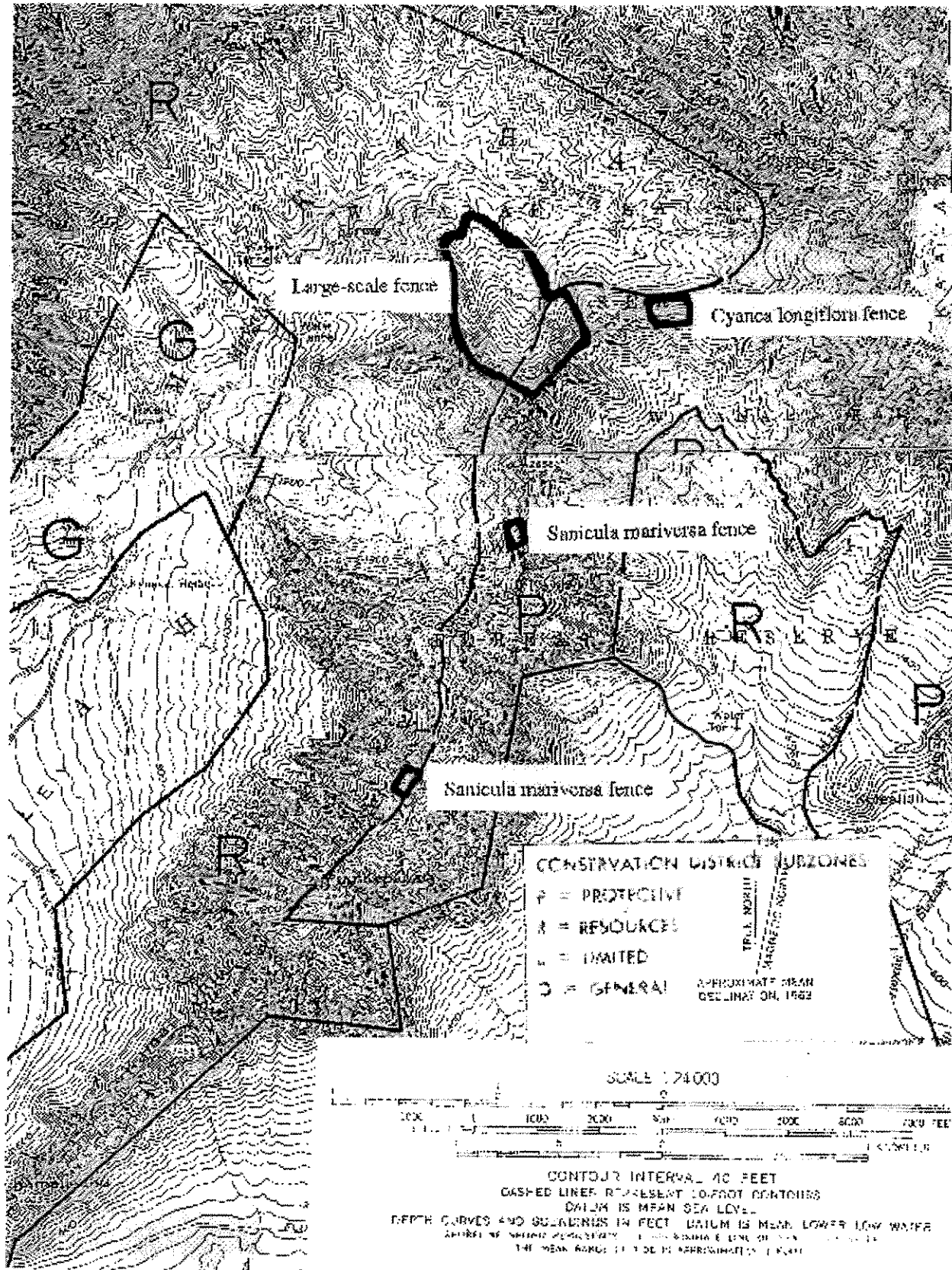


FIGURE 5. MAP OF SUBZONE DESIGNATIONS FOR PROJECT SITE

RARE SPECIES FOUND IN THE PROJECT AREA

Endangered, Candidate and Species of Concern Plants Known to Exist in Project Area:

<u>ENDANGERED SPECIES</u>	<u>Common Name</u>
<i>Alectryon macrococcus</i> var. <i>macrococcus</i>	Mahoe
<i>Cyanea longiflora</i>	Haha, ohawai
<i>Eragrostis fosbergii</i>	None known
<i>Flueggea neowawraea</i>	Mehamehame
<i>Gouania meyenii</i>	None known
<i>Hesperomannia arbuscula</i>	None known
<i>Isodendron laurifolium</i>	None known
<i>Lipochaeta tenuifolia</i>	Nehe
<i>Sanicula mariversa</i>	None known
<i>Viola chamissoniana</i> ssp. <i>chamissoniana</i>	None known

SPECIES OF CONCERN (SOC)/CANDIDATE

<i>Dubautia sherffiana</i>	Na`e Na`e
<i>Melicope mākahae</i>	`Alani
<i>Sicyos lanceoloidea</i>	None known

Other Rare Native Plants:

<i>Schiedea mannii</i>	None known
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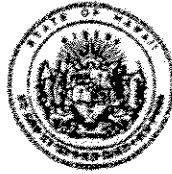
Native Plants for Reintroduction:

<u>ENDANGERED SPECIES</u>	<u>Common Name</u>
<i>Cyanea superba</i> ssp. <i>superba</i>	Haha
<i>Dubautia herbstobatae</i>	Na`e Na`e
<i>Neraudia angulata</i>	Ma`aloa
<i>Phyllostegia kaalaensis</i>	None known
<i>Schiedea nuttalii</i>	None known

Native Vertebrates And Invertebrates Known To Exist In The Project Area:

<u>VERTEBRATES</u>	<u>Common Name</u>	<u>Federal Status</u>
<i>Himatione sanguinea</i>	Apapane	None
<i>Hemignathus virens</i>	Amakihi	None
<i>Chasiempsis sandwichensis ibidis</i>	Elepaio	Endangered
INVERTEBRATES		
<i>Achatinella mustelina</i>	Kahuli tree snail/Oahu tree snail	Endangered
<i>Amastra spirozona</i>	None known	SOC

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
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COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCED
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND PRESERVE COMMISSION
LAND
STATE PARKS

November 29, 2004

Floyd A. Quintana
Colonel, U.S. Army
Director of Public Works
Headquarters, United States Army Garrison Hawaii
Schofield Barracks, Hawaii 96857-5000

Log No. 2004.3472
Doc. No. 0411EJ37

Dear Colonel Quintana:

**SUBJECT: National Historic Preservation Act Section 106 Review –Construct Four Small and One Large Ungulate Exclosure Fence in Upper Mākaha Valley, O‘ahu
Mākaha, Wai‘anae, O‘ahu
TMK: (1) 8-4-002:014**

Thank you for the opportunity to comment on the proposed undertaking to construct four small and one large ungulate exclosure fences that would encircle a portion of upper Mākaha Valley. The fence is necessary to protect endangered plant species from feral ungulates in this area. The project entails the construction of four small fences along the Mākaha/Wai‘anae Kai ridgeline, and a large fence enclosing approximately 100 acres at a mid-elevation zone. All fence construction requires hand clearing of a fence line corridor (approximately 10 feet wide) and erecting the fence.

An archaeological reconnaissance survey of the fence corridors was conducted by U. S. Army Cultural Resources Specialists. A single site, 50-80-07-6690, was recorded within the project area. However, the Army has re-routed the fence line below the primary terrace features of this site in order to avoid any adverse impact to the site. With the re-routing the site will be enclosed and further protected from ungulate damage. With the re-routing, and resulting site protection, the Army has determined that "no historic properties will be affected" by this undertaking. We can concur with this determination.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdan at 692-8027.

Sincerely,


Peter T. Young
State Historic Preservation Officer

EJ:ej

TW

MEMORANDUM OF UNDERSTANDING

BETWEEN

U.S. ARMY GARRISON, HAWAII

AND

BOARD OF WATER SUPPLY,
CITY & COUNTY OF HONOLULU

1. Preface.

This memorandum of understanding (Agreement) is made between the U.S. Army Garrison, Hawaii (Army) and the Board of Water Supply, City & County of Honolulu (BWS).

WHEREAS in 1999, the Army completed Section 7 consultation under the Endangered Species Act with the U.S. Fish and Wildlife Service (USFWS) to determine if routine military training at Makua Military Reservation (MMR) would jeopardize the continued existence of 41 endangered species.

WHEREAS the USFWS issued a biological opinion concluding that the routine military training would not jeopardize the continued existence of the endangered species based on several conditions. One of the conditions was that the Army prepare and implement an Implementation Plan (IP) to provide additional stabilization actions for 29 (target taxa) of the 41 endangered species.

WHEREAS in order to stabilize the target taxa, *in situ* management and reintroduction efforts need to take place on lands outside of MMR.

WHEREAS the BWS manages/ owns such lands in the Makaha region of Island of Oahu which is required for stabilization actions of the target taxa (maps with TMK's at Exhibits 1-1 thru 1-4).

WHEREAS the USFWS has stated that the non-Army landowners are not responsible for stabilization and would not be responsible for continuing stabilization actions (e.g. maintaining ungulate fences, maintaining rat-proof barriers for tree snails, and removal of non-native plants) should the Army training at MMR change such that those actions are no longer required by the Army (USFWS letter at Exhibit 2).

42 NOW, THEREFORE, the ARMY and BWS mutually agree to the following conditions:

44 **2. Purpose.**

46 The purpose of this Agreement is to enable the Army to provide for stabilization of endangered
48 species on lands owned /managed by BWS. This will enable the Army to fulfill its Section 7
50 Endangered Species Act species stabilization requirements.

52 This Agreement in no way negates any other agreements still in effect between the parties
54 involved.

56 **3. Responsibilities.**

58 The Army:

- 60 • Is solely responsible to fund and undertake stabilization actions as outlined in the draft
62 "Implementation Plan for Makua Military Reservation, Island of Oahu", dated March
64 2002 (Exhibit 3). The draft plan will be finalized after approval of this MOU. These
66 actions may include but are not limited to the following: fence clearing and fence
68 construction, establishing and maintaining fuel breaks, conducting various forms of threat
management (ungulate, small mammal, and invertebrate control; weed control; erosion
control; and other types of threat control as assessed), augmentation of existing
population units and reintroductions of target taxa, and monitoring population units and
reintroduction sites.
- 70 • Assumes liability for damages caused by stabilization actions if such damages are
cognizable and payable under appropriate federal statutes and regulations.
- 72 • Will prepare all applicable legal and environmental documents required to conduct the
stabilization actions.
- 74 • Will honor any lease or land agreements that the landowner (lessor) has with lessees.

76 The BWS (landowner):


- 78 • Will allow access to the Army and its contractors to conduct stabilization actions on its
lands.
- 80 • Is not responsible to continue stabilization actions if in the future the Army is no longer
required by the Endangered Species Act to provide such actions.

82 **4. Implementation and Termination.**

84 The parties agree that this MOU does not constitute a commitment of funds. Performance of the
86 measures described in this agreement depends upon lawful appropriation, availability, and
allocation of funds by the proper authorities, as well as upon the execution of a right of entry
or/and such other documentation as may be necessary to implement these measures. For any
reason whatsoever, either party may terminate involvement in this MOU by providing 90 days
prior written notice to the other party.


86 IN WITNESS WHEREOF the PARTIES hereto have executed this, MEMORANDUM OF
88 UNDERSTANDING by way of signature and date below.

90 U.S. Army Garrison, Hawaii:

92 
94 David L. Anderson
96 Colonel, U.S. Army
Commanding

Date: DEC 06 2002

98
100 Landowner:

102 
104 Clifford Jamile
106 Manager and Chief Engineer
Board of Water Supply
City & County of Honolulu

Date: 1-23-03

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GOVERNOR OF HAWAII



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Mākaha, Wai'anae, O'ahu
TMK: (1) 8-4-002:014**

Thank you for the opportunity to comment on the proposed undertaking to construct four small and one large ungulate exclosure fences that would encircle a portion of upper Mākaha Valley. The fence is necessary to protect endangered plant species from feral ungulates in this area. The project entails the construction of four small fences along the Mākaha/Wai'anae Kai ridgeline, and a large fence enclosing approximately 100 acres at a mid-elevation zone. All fence construction requires hand clearing of a fence line corridor (approximately 10 feet wide) and erecting the fence.

An archaeological reconnaissance survey of the fence corridors was conducted by U. S. Army Cultural Resources Specialists. A single site, 50-80-07-6690, was recorded within the project area. However, the Army has re-routed the fence line below the primary terrace features of this site in order to avoid any adverse impact to the site. With the re-routing the site will be enclosed and further protected from ungulate damage. With the re-routing, and resulting site protection, the Army has determined that "no historic properties will be affected" by this undertaking. We can concur with this determination.

Should you have any questions, please feel free to call Sara Collins at 692-8026 or Elaine Jourdane at 692-8027.


Peter T. Young
State Historic Preservation Officer

EJ: ej

**DEPARTMENT OF THE ARMY
RIGHT OF ENTRY FOR
INSTALLATION OF FENCE AT MAKAHA**

DAC84-9-05-29

Installation of Fence at Makaha
to support the Makua Implementation Plan
(Project, Installation or Activity)

TMK: 8-4-2:001 & 014
Tract Number or Other Property

The Board of Water Supply, hereinafter called the "Owner," in consideration for the mutual benefits of the work described below, hereby grants to the UNITED STATES OF AMERICA, hereinafter called the "Government," a Right of Entry upon the following terms and conditions:

1. The Owner hereby grants to the Government a right to enter in, on, over and across the land described herein as TMK: 8-4-002:001 & 014 at any time within a period of 1 year from the date of this instrument, for use by the Government, its representatives, agents, contractors and assigns for the purpose of the installation of a fence to protect certain endangered plant species that is only found in Hawaii. This includes the right to transport by a helicopter the building materials and the contractor, store building materials on the site and perform all such work as may be necessary and incident to the Government's use for the installation of the fence, on said lands as shown on the attached map; subject to existing easements for public roads and highways, public utilities, and pipelines; reserving, however, to the Owner, its successors and assigns, all such right, title, interest and privilege as may be used and enjoyed without interfering with or abridging the rights and Right of Entry hereby granted.
2. The Government shall, at its own expense, procure and maintain during the period of the contract, insurance coverage which the Owner is named as additional insured on an Aviation Certificate of Insurance for the air transportation used to haul building materials and the contractor to the construction site and said Certificate shall be submitted to the Owner before any work commences.
3. All tools, equipment, and other property taken upon or placed upon the land by the Government shall remain the property of the Government and may be removed by the Government at any time prior to the expiration of this Right of Entry.
4. If any action of the Government's employees, Agents or Contractor in the exercise of this Right of Entry results in damage to the real property, the Government will, in its sole discretion, either repair such damage or make an appropriate settlement with the Owner. In no event shall such repair or settlement exceed the fair market

value of the fee interest of the real property at the time immediately preceding such damage. The Government's liability under this clause may not exceed appropriations available for such payment and nothing contained in this agreement may be considered as implying that Congress will at a later date appropriate funds sufficient to meet deficiencies. The provisions of this clause are without prejudice to any rights the Owner may have to make a claim under applicable laws for any other damages than provided herein.

5. Upon the expiration or termination of this Right of Entry, the Government shall restore the ground contour to its condition existing prior to such installation of the fence to the extent that such restoration is reasonably possible.

WITNESS MY HAND AND SEAL this 22nd day of February, 2005.

UNITED STATES OF AMERICA

BOARD OF WATER SUPPLY
City and County of Honolulu

By Ray H. Jyo
Its RAY H. JYO, P.E.
Deputy District Engineer for
Programs & Project Management
Government

By Bruce Bagawa
Its Principal Executive
Water Resources Inc. Owner

APPROVED AS TO FORM AND LEGALITY:

John H. Sullivan
Deputy Legal Counsel

RELATIONSHIP TO RELEVANT PLANS, POLICIES AND CONTROLS

Listed below are the potential permits and approvals required for the project. The remainder of the chapter discusses the compliance and compatibility of the proposed improvements with pertinent plans, policies, and regulations at county, state, and federal levels.

State of Hawaii
Conservation District Use Permit

City & County of Honolulu
Building permit

I. CITY AND COUNTY OF HONOLULU LAND USE ORDINANCE

The project area is zoned P-1 Restricted Preservation. According to Sec. 21-3.40, the “purpose of the preservation districts is to preserve and manage major open space and recreation lands and lands of scenic and other natural resource value.”

The Waianae Sustainable Community Plan (revised 1992) designates the area as Conservation. This land use category “primarily recognizes the designation of lands in the State Conservation District and is used to protect and preserve wilderness areas, beach reserves, scenic areas and historic sites, open ranges, and watersheds; to conserve fish and wildlife; and to promote forestry and grazing.”

The property is located outside the City and County of Honolulu’s Special Management Area.

The proposed improvements are consistent with this purpose.

II. SPECIAL MANAGEMENT AREA REVIEW

The proposed fence project is not in the City and County of Honolulu’s Special management Area (See Appendix H).

III. STATE LAND USE LAWS

State Land Use Controls governing the use of the property are listed below.

State Land Use Designation: Conservation

The property is designated Conservation and is located within 3 different subzones; however the project area is located within the Protective subzone. Uses in the conservation district are regulated by the Department of Land and Natural Resources, State of Hawaii. A Conservation District Use Application has been submitted to the Department for Board of Land and Natural Resources for review and approval. (See Figure 5)

The objective of the Protective subzone is to protect resources in designated areas such as restricted watersheds and plants sanctuaries among other designated unique areas. Specifically, the subzone shall encompass "areas necessary for preserving natural ecosystems of native plants, fish, and wildlife, particularly those which are endangered." This project is consistent with these objectives.

IV. COASTAL ZONE MANAGEMENT ACT (16 U.S.C. §1456 (c) (1))

Enacted as Chapter 205A, HRS, The Hawai'i Coastal Zone Management (CZM) Program was promulgated in 1977 in response to the Federal Coastal Zone Management Act of 1972. The CZM area encompasses the entire state, including all marine waters seaward to the extent of the state's police power and management authority, as well as the 12-mile U.S. territorial sea and all archipelagic waters.

The project area does not fall within the Coastal Zone Management Areas.

V. ENDANGERED SPECIES ACT (16 U.S.C. 1536 (A)(2) AND (4))

The Endangered Species Act (16 U.S.C. §§1531-1544, December 28, 1973, as amended 1976-1982, 1984 and 1988) provides broad protection for species of fish, wildlife, and plants that are listed as threatened or endangered in the U.S. or elsewhere. The Act mandates that federal agencies seek to conserve endangered and threatened species and use their authorities in furtherance of the Act's purposes. It provides for listing species, as well as for recovery plans and the designation of critical habitat for listed species. The Act outlines procedures for federal agencies to follow when taking actions that may jeopardize listed species, and contains exceptions and exemptions.

Existing biota on and near the project site are listed in Attachment 4. The proposed fences will protect the existing rare, threatened and endangered species as well as provide suitable habitats for reintroductions.

PERMITS AND APPROVALS

Permits and approvals required for the project are listed below. Other permits and approvals may be required pending final review of these documents.

State of Hawaii	
Board of Land and Natural Resources	Conservation District Use Permit
City and County of Honolulu	
Department of Design and Construction	Building permit

DETERMINATION OF SIGNIFICANCE

Chapter 200 (Environmental Impact Statement Rules) of Title 11, Administrative Rules of the State Department of health, establishes criteria for determining whether an action may have significant effects on the environment (§11-200-12). The relationship of the proposed project to these criteria is discussed below.

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

The area where the improvements are proposed will not impact any archaeological and cultural resources. The proposed fence line was adjusted to incorporate a remnant terrace to avoid negative impact during fence construction. Once the fence is constructed, the terrace will be protected from further animal disturbance.

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

The project will not curtail the beneficial uses of the environment. The proposed project will protect native forested areas, which will improve the condition of the watershed and it's function.

3) **Conflicts with the state's long-term environmental policies or goals and guidelines as expressed in chapter 344, Hawai'i Revised Statutes, and any revisions thereof and amendments thereto, court decisions or executive orders;**

The project does not conflict with long-term environmental policies, goals and guidelines of the State of Hawaii.

4) **Substantially affects the economic or social welfare of the community or State;**

The proposed project will not substantially affect the economic or social welfare of the community or State.

5) **Substantially affects public health;**

Public health will not be adversely affected during construction and after completion of construction.

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

Substantial secondary impacts are not anticipated.

7) **Involves a substantial degradation of environmental quality;**

A substantial degradation of environmental quality is not anticipated.

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

Once the fences are constructed, routine maintenance will be done to the fence.

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

The project area is rich in native plant diversity and contains at least thirteen rare, threatened or endangered species. The proposed project will protect these species or its habitat within the project area.

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

Emissions generated by vehicles and helicopters used to transport materials and workers to the construction site would be minimal. The impacts from the emissions would be short-term and quickly dispersed by the prevailing winds. Helicopter use for fence construction and fence construction noise will be minor and short-term. No significant long-term impacts to air or water quality or noise environment are anticipated.

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 proposed improvements are not located in an environmentally sensitive area.

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

The improvements will not substantially affect scenic vistas and view planes. The areas proposed for fencing are either forested or along steep ridges with low vegetation. The nearest public viewpoint is the Waianae trail located approximately 100 meters away. The improvements will not substantially affect scenic vistas and view planes from public viewing places.

13) **Requires substantial energy consumption.**

Substantial energy consumption is not anticipated.

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 528-4422 • FAX: (808) 527-4747
DEPT. INTERNET: www.hawaii.gov • INTERNET: www.honolulu.gov

MUFFI HANNEMANN
MAYOR



HENRY ENG, AICP
DIRECTOR

ERIK K. TANIGUCHI
DEPUTY DIRECTOR

2005/ELOG-1025(eym)

Mr. Clifford S. Jamile, Manager and Chief Engineer
Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96813

Dear Mr. Jamile:

Special Management Area Review

Makaha Fence

Tax Map Key : 8-4-002:001 & 14

Type of Project: Installation of new fence line enclosures for the
purpose of protecting endangered species.

The proposed project on the above-referenced tax map key has been reviewed. We
find that it:

- Is not within the Special Management Area.
- Is within the Special Management Area, but is not defined as
"development" and is therefore, exempt (Section 25-1.3[2]), Chapter 25,
Revised Ordinances of Honolulu).

Should you have any questions, please contact Eileen Mark at 527-5374.

Sincerely yours,


For HENRY ENG, AICP
Director of Planning
and Permitting

HE:em
cc: DLNR-Office of Conservation & Coastal Lands

G:\Land\ba\Posse\Working\Director\emmark\2005\elog1025.doc

Consulted Parties	Response	No Response	BWS Response
Office of Environmental Quality Control	X		X
Department of Land and Natural Resources Division of Forestry and Wildlife-Oahu	X		X
Historic Preservation Division		X	
Engineering Division	X		X
Oahu District Land Office	X		X
Commission on Water Resource Management	X		X
Division of Aquatic Resources		X	
Division of Conservation and Resources Enforcement	X		X
State Department of Health Land Use Coordinator		X	
Office of Hawaiian Affairs	X		X
Waianae Public Library		X	
Honolulu City Council		X	
City Department of Planning and Permitting	X		X

LINDA LINGLE
GOVERNOR OF HAWAII



GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
Telephone (808) 586-4185
Facsimile (808) 586-4186
Email: oeqc@doh.hawaii.gov

January 20, 2006

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

Ms. Donna Fay Kiyosaki, Deputy Manager and Chief Engineer
Board of Water Supply, City and County of Honolulu
630 South Beretania Street
Honolulu, Hawai'i 96843

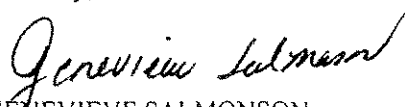
Dear Mr. Lemmo and Ms. Kiyosaki:

The Office of Environmental Quality Control has reviewed the draft environmental assessment for the Makaha Watershed Protection Program, Tax Map Key (1st) 8-4-002, parcels 001 and 014, situated in the judicial district of Wai'anae. We offer the following comment for your consideration and response.

Ahupua'a and Cultural Impacts: The Office commends you for using traditional Hawaiian land divisions in discussing the environmental setting. However, discussion of contemporary cultural resources and practices does not appear in the discussion in Section 3.9 on page 10 of the draft environmental assessment. Chapter 343, Hawai'i Revised Statutes, was amended by Act 50, Session Laws of Hawai'i, Regular Session of 2000, to include assessment of cultural impacts. Guidance for assessing such impacts can be found at our Internet website: <http://www.state.hi.us/health/oeqc/index.html>. After including such information in the environmental assessment, the sections on impact analysis and mitigation measures should be revised accordingly.

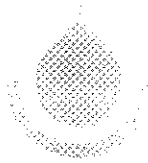
Thank you for the opportunity to comment. If there are any questions, or if you would like to discuss this matter further, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,


GENEVIEVE SALMONSON
Director

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



February 24, 2006

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
State of Hawaii
State Office Tower, Suite 702
235 South Beretania Street
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

Subject: Your Letter of January 20, 2006 on the Draft Environmental Assessment and Conservation District Use Application for the Construction of Feral Ungulate Exclusion Fences in Makaha Valley, Makaha, Oahu, Hawaii, TMK: 8-04-02: 01, 14

Thank you for reviewing the Draft Environmental Assessment and Conservation District Use Application for the proposed fencing project.

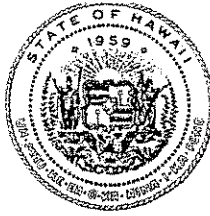
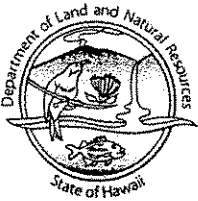
We will include an appropriate discussion on cultural issues and the associated impacts and mitigative measures in the document as required by Chapter 343, HRS.

If you have any questions, please contact Amy Tsuneyoshi at 748-5936.

Very truly yours,

CLIFFORD P. LUM
Manager and Chief Engineer

cc: Office of Conservation and Coastal Lands



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING 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

FILE NO: CDUA OA-3274

Acceptance Date: December 7, 2005

180-Day Exp. Date: June 5, 2006

SUSPENSE DATE: 21 Days from

stamped date DEC 15 2005

MEMORANDUM:

TO: Division of Forestry and Wildlife, Historic Preservation Division, Engineering Division, Oahu District Land Office, Commission on Water Resource Management, Division of Aquatic Resources, Division of Conservation and Resources Enforcement

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

SUBJECT: Conservation District Use Application (CDUA) OA-3274 for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014

APPLICANT: Board of Water Supply, City and County of Honolulu, 630 South Beretania Street, Honolulu, Hawaii 96843-0001, Amy Tsuneyoshi (808) 748-5936

TMKs: (1) 8-4-002:001 and 014

LOCATION: Makaha District, Island of Oahu

PUBLIC HEARING: YES NO

Please contact Dawn Hegger at 587-0380, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

() Comments Attached

(X) No Comments

Attachment(s)

Paul J. Conry
Signature

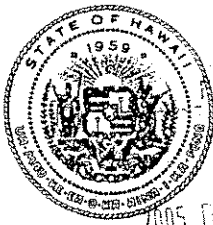
PAUL J. CONRY, ADMINISTRATOR

Date DIVISION OF FORESTRY AND WILDLIFE

DEC 15 2005

OFFICE RECEIVED
2005 DEC 19 PM 3:30

LINDA LINGLE
GOVERNOR OF HAWAII

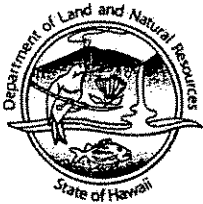


PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING 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



2005 DEC 21 A 10:43

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

FILE NO: CDUA OA-3274

Acceptance Date: December 7, 2005
180-Day Exp. Date: June 5, 2006
SUSPENSE DATE: 21 Days from
stamped date DEC 15 2005

MEMORANDUM:

TO: Division of Forestry and Wildlife, Historic Preservation Division, Engineering Division, Oahu District Land Office, Commission on Water Resource Management, Division of Aquatic Resources, Division of Conservation and Resources Enforcement

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

SUBJECT: Conservation District Use Application (CDUA) OA-3274 for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014

APPLICANT: Board of Water Supply, City and County of Honolulu, 630 South Beretania Street, Honolulu, Hawaii 96843-0001, Amy Tsuneyoshi (808) 748-5936

TMKs: (1) 8-4-002:001 and 014

LOCATION: Makaha District, Island of Oahu

PUBLIC HEARING: YES NO

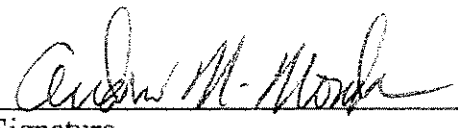
Please contact Dawn Hegger at 587-0380, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

Comments Attached

No Comments

2005 DEC 21 A 10:18
RECEIVED
Department of Land and Natural Resources
Office of Conservation and Coastal Lands



Signature
12/21/05

Date

Attachment(s)

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

REF.: OCCL:DH
FILE: CDUA OA-3274
Oahu.512

COMMENTS

- () We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ____.
- (X) **Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone D. The National Flood Insurance Program does not have any regulations for developments within Zone D.**
- () Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ____.
- () Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

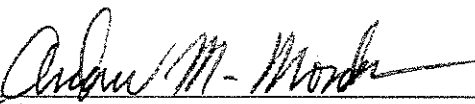
Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

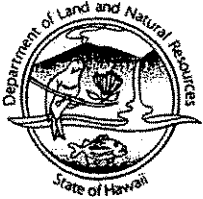
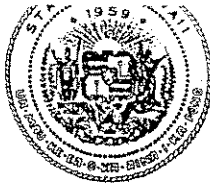
- () Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
 - () Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
 - () Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
 - () Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.
- () The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
 - () The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

- () Additional Comments: _____

- () Other: _____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: 
ERIC T. HIRANO, CHIEF ENGINEER
Date: 12/21/05



ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING 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
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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

FILE NO: Cдуа OA-3274

Acceptance Date: December 7, 2005
180-Day Exp. Date: June 5, 2006
SUSPENSE DATE: 21 Days from
stamped date DEC 15 2005

MEMORANDUM:

TO: Division of Forestry and Wildlife, Historic Preservation Division, Engineering Division, Oahu District Land Office, Commission on Water Resource Management, Division of Aquatic Resources, Division of Conservation and Resources Enforcement

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

SUBJECT: Conservation District Use Application (CDUA) OA-3274 for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014

APPLICANT: Board of Water Supply, City and County of Honolulu, 630 South Beretania Street, Honolulu, Hawaii 96843-0001, Amy Tsuneyoshi (808) 748-5936

TMKs: (1) 8-4-002:001 and 014

LOCATION: Makaha District, Island of Oahu

PUBLIC HEARING: YES NO

Please contact Dawn Hegger at 587-0380, should you have any questions on this matter.

If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

() Comments Attached

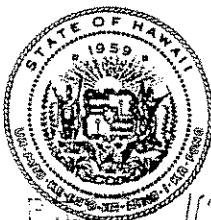
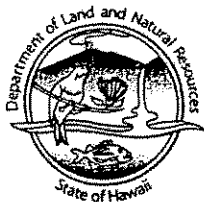
No Comments

Attachment(s)

Signature
Date 12/28/05
m

RECEIVED
LAND DIVISION
2005 DEC 15 P 3:00
DEPT. OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

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

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING 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

FILE NO: CDUA OA-3274

Acceptance Date: December 7, 2005
180-Day Exp. Date: June 5, 2006
SUSPENSE DATE: 21 Days from
stamped date DEC 15 2005

MEMORANDUM:

TO: Division of Forestry and Wildlife, Historic Preservation Division, Engineering Division, Oahu District Land Office, Commission on Water Resource Management, Division of Aquatic Resources, Division of Conservation and Resources Enforcement

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

SUBJECT: Conservation District Use Application (CDUA) OA-3274 for the City and County of Honolulu, Board of Water Supply Fencing Project in Makaha Valley, Island of Oahu, Subject Parcels TMK's: (1) 8-4-002:001 and 014

APPLICANT: Board of Water Supply, City and County of Honolulu, 630 South Beretania Street, Honolulu, Hawaii 96843-0001, Amy Tsuneyoshi (808) 748-5936

TMKs: (1) 8-4-002:001 and 014

LOCATION: Makaha District, Island of Oahu

PUBLIC HEARING: YES NO

Please contact Dawn Hegger at 587-0380, should you have any questions on this matter.

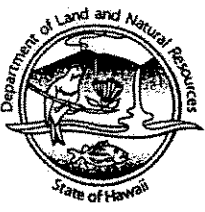
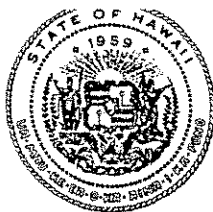
If no response is received by the suspense date, we will assume there are no comments. The suspense date starts from the date stamp.

() Comments Attached

() No Comments

Samuel J. Lemmo
Signature
12/16/05
Date

Attachment(s)



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
OFFICE OF CONSERVATION AND COASTAL LANDS
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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Office of Conservation and Coastal Lands *Samuel J. Lemmo*

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TMKs: (1) 8-4-002:001 and 014

LOCATION: Makaha District, Island of Oahu

PUBLIC HEARING: YES NO

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() Comments Attached

() No Comments

Signature

Date

Attachment(s)

INCIDENT & REPORT CONTROL FORM

DOCARE-5 (Rev. 8/03)

A. COMPLAINT

1. TAKEN BY: Beverly TIME: 1100 DATE: 12/20/05

HOW TAKEN: PHONE LETTER RECORDER OTHER application

2. APPLICANT/COMPLAINANT: C&C Board of Water Supply

TELEPHONE: HOME: _____ WORK: _____ CELLULAR/PAGER: _____

CONTACT ADDRESS: Amy Tsurayoshi 550-5042

3. INCIDENT: CDUA application review

TIME/DATE OF INCIDENT: _____

SITE (OF INCIDENT): TMK (1) 8-4-002:001 + 014 Makaha

SUSPECT 1 /ADDR./PHONE: Oahu

SUSPECT 2 /ADDR./PHONE: _____

VEHICLE/LICENSE: _____

VESSEL/HA NO.: _____

B. REPORT (RPT.) CONTROL

1. BRANCH (BR.): Oahu

2. BRANCH RPT. NO.: 06-0786-0A

3. ASG. TO BR.: Oahu

4. DISTRICT: District III

5. OFFICER ASG.: Doug Longhans 1-3-06

6. TIME/DT. ASG.: 12/25/05 15776 -

C. NOTES/DISPOSITION/OTHER INFO.

RECEIVED THIS CDUA FROM MY BIN ON TUES. 1-10-06, PAST THE DUE DATE AFTER READING THIS REQUEST, THIS OFFICER CAN SEE NO ISSUES AT THIS TIME.

DISPOSITION: CASE CLOSED.

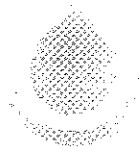
DOCARE
DEPT. OF
MAY 11 2006

JAN 23 2006

REC'D

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



February 24, 2006

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

Mr. Peter T. Young, Chairperson
Board of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

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

Dear Mr. Young:

Subject: Your Letter of February 2, 2006 on the Draft Environmental Assessment and Conservation District Use Application, OA-3274, for the Construction of Feral Ungulate Exclusion Fences in Makaha Valley, Makaha, Oahu, Hawaii, TMK: 8-04-02: 01, 14

Thank you for reviewing the Draft Environmental Assessment and Conservation District Use Application for the proposed fencing project.

We have the following responses to your Divisions' comments:

Division of Conservation and Resources Enforcement

We note that they have no issues with the subject project.

Oahu District Land Office

We note that they have no comments to offer.

Engineering Division

We acknowledge that the project is located within Zone D of the Flood Insurance Rate Map. We also note that the National Flood Insurance Program has no regulations for developments within Zone D.

Mr. Peter T. Young
February 24, 2006
Page 2

Commission on Water Resource Management

We note that they have no comments to offer.

Division of Forestry and Wildlife

We note that they have no comments to offer.

If you have any questions, please contact Amy Tsuneyoshi at 748-5936.

Very truly yours,



CLIFFORD P. LUM
Manager and Chief Engineer



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

HRD05/2162

RECEIVED
OFFICE OF CONSERVATION
2006 JAN -9 12 3: 52
NATURAL RESOURCES

January 3, 2006

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

RE: Conservation District Use Application for the Proposed Board of Water Supply Fencing Project, Mākaha, O'ahu, TMK (1) 8-4-002: 001 and 014.

Dear Mr. Lemmo,

The Office of Hawaiian Affairs (OHA) is in receipt of your December 15, 2005 request for comment on the above listed proposed project, TMK (1) 8-4-002: 001 and 014. OHA offers the following comments:

Our staff is receptive to the proposed fencing project which will mitigate damage caused by exotic ungulates in the upper reaches of Mākaha Valley. Our concurrence comes with reservations regarding three major issues:

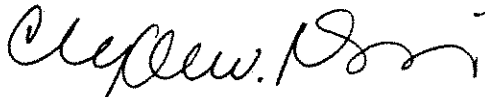
- 1) Page 11 of the Environmental Assessment states that both 'cutting the fence corridor' and 'fence installation' have the potential to adversely impact archaeological and historic properties. This potential harm should be mitigated by supplying an adequate buffer around SIHP # 50-80-07-6690 (30 feet or more).
- 2) The archaeological reconnaissance should have identified all historic properties within the area of potential impact. If the applicant is not certain of the thoroughness of the reconnaissance, archaeological monitoring of the fence installation may be appropriate, particularly in the vicinity of SIHP # 50-80-07-6690.
- 3) OHA request that access to the area be maintained for recreational, educational and cultural purposes. This should be accomplished by installing access gates in areas that are the most ideal for public access.

Samuel Lemmo
January 3, 2006
Page 2

OHA further requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,



Clyde W. Nāmu'o
Administrator

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



February 24, 2006

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPIUA, SR.
SAMUEL T. HATA
ALLY J. PARK

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LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

Mr. Clyde W. Namuo, Administrator
Office of Hawaiian Affairs
State of Hawaii
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Namuo:

Subject: Your Letter of January 3, 2006 on the Draft Environmental Assessment and Conservation District Use Application for the Construction of Feral Ungulate Exclusion Fences in Makaha Valley, Makaha, Oahu, Hawaii, TMK: 8-04-02: 01, 14

Thank you for reviewing the Draft Environmental Assessment and Conservation District Use Application for the proposed fencing project.

We have the following response to your comments:

1. The fence corridor in the vicinity of the archaeological/historic site, State Site 50-80-07-6690, is located over 30 feet from the primary terrace that demarks the start of the site. There should be no impact to the site given the proposed alignment of the fence.
2. We are confident the archeological survey conducted for this project has properly identified all archeological /historic sites within the project limits. Therefore, monitoring of the fence installation is not anticipated at this time. However, as with all the Board of Water Supply (BWS) construction projects, should previously unidentified sites be uncovered during installation, all work will be stopped until the appropriate Agencies are notified and measures are taken to mitigate any impacts.
3. The project site is located on BWS watershed land, which precludes recreational or general public use of the area. It should also be noted that current cultural practices occur at much lower elevations and not in the vicinity of the project site. However, as we are sensitive to the cultural and educational needs of the community, an entry point/crossover has already been provided so controlled, escorted access will be possible.

Mr. Clyde Namuo
February 24, 2006
Page 2

4. We concur that should archeological /historic sites or remains be uncovered during installation of the fence, all work will be stopped until the appropriate Agencies are notified and measures are taken to mitigate any impacts.

If you have any questions, please contact Amy Tsuneyoshi at 748-5936.

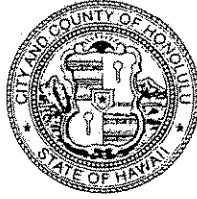
Very truly yours,



CLIFFORD P. LUM
Manager and Chief Engineer

cc: Office of Conservation and Coastal Lands
Office of Environmental Quality Control

MUFI HANNEMANN
MAYOR



HENRY ENG, FAICP
DIRECTOR

DAVID K. TANQUE
DEPUTY DIRECTOR

2005/ELOG-2943

December 30, 2005

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

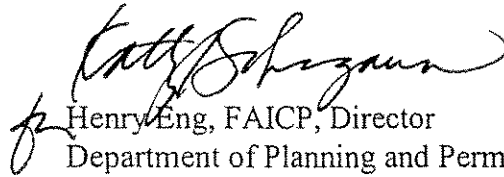
Dear Mr. Lemmo:

Re: Conservation District Use Application (CDUA) OA-3274,
Board of Water Supply Fencing Project in Makaha Valley,
Subject Parcels Tax Map Keys (1) 8-4-002: 001 and 01

In response to your request for comments of December 15, 2005, we have reviewed the subject CDUA and have no comments to offer, except to support the project as a way of protecting endangered species and assist with improved watershed management.

Should you have any questions, please contact Matt Higashida of our staff at 527-6056.

Very truly yours,


Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:js

P:\MISC\CDUA for BWS Fencing Project.doc

OFFICE RECEIVED
2006 JAN -3 A 10: 2
NATIVE PLANTS

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANIA STREET
HONOLULU, HI 96843



February 24, 2006

MUFI HANNEMANN, Mayor

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ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE T. HIGA, Ex-Officio

CLIFFORD P. LUM
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

TO: HENRY ENG, FAICP, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTN: MATT HIGASHIDA

FROM: CLIFFORD P. LUM, MANAGER AND CHIEF ENGINEER

Handwritten signature of Clifford P. Lum in black ink.

SUBJECT: YOUR LETTER OF DECEMBER 30, 2006 ON THE DRAFT ENVIRONMENTAL ASSESSMENT AND CONSERVATION DISTRICT USE APPLICATION FOR THE CONSTRUCTION OF FERAL UNGULATE EXCULSION FENCES IN MAKAHA VALLEY, MAKAHA, OAHU, HAWAII, TMK: 8-04-02: 01, 14

Thank you for reviewing the Draft Environmental Assessment and Conservation District Use Application for the proposed fencing project.

We note that you have no comments to offer and appreciate your support of the project to protect endangered species and enhance our watershed management.

If you have any questions, please contact Amy Tsuneyoshi at 748-5936.

cc: Office of Conservation and Coastal Lands