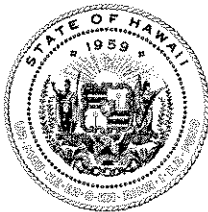
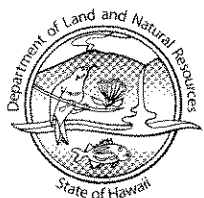


LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

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

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

June 8, 2005

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

RECEIVED  
705 JAN 17 P 1:10  
OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

Dear Ms. Salmonson,

**Finding of No Significant Impact (FONSI) for Komo Mai Drive Rockfall Protection  
TMK 9-7-025:010, Oahu, Hawaii**

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, has reviewed the comments received during the 30-day public comment period, which began on March 23, 2005. This agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form, and four copies of the Final EA. Please call Michelle Mason or Dan Frerich of Earth Tech, Inc. at Ph. 523-8874 should you have any questions.

Sincerely,

Handwritten signature of Eric T. Hirano in cursive.

ERIC T. HIRANO  
Chief Engineer

Enclosures: Final Environmental Assessment for Komo Mai Drive  
OEQC Publication Notice Form for Old Komo Mai Drive

cc: Edwin Matsuda, DLNR  
Michelle Mason, Earth Tech Task Manager

JUL - 8 2005

Final Environmental Assessment

**Rockfall Protection  
Komo Mai Drive  
Oahu, Hawaii**

Proposing Agency:

State of Hawaii  
Department of Land and Natural Resources  
Engineering Division  
P.O. Box 373  
Honolulu, Hawaii 96809

Prepared by:

Earth Tech, Inc.  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813

May 2005

OFFICE OF ENVIRONMENTAL  
QUALITY CONTROL

05 JUN 17 P1:10

RECEIVED

## EXECUTIVE SUMMARY

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### Introduction

The State of Hawaii Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken along Komo Mai Drive on Oahu, Hawaii. The Komo Mai Drive site is located in the Waimano area and identified with Tax Map Key 9-7-025:010. The proposed project would occur on a portion (approximately 8.87 acres) of the 33.9-acre parcel on a steep mountain slope bound at the top by a housing community and at the bottom by Komo Mai Drive.

The proposed project occurs on State of Hawaii land and would use State of Hawaii funds, and therefore, triggers the environmental review process mandated under Hawaii Revised Statutes (HRS), Chapter 343.

This environmental assessment (EA) analyzes the potential environmental consequences of the proposed action and alternatives to determine if there would be significant short-term, long-term, and/or cumulative impacts on the human, natural, or historic environments.

All activities conducted in support of this EA, including reports, field investigations, technical studies, and public involvement are conducted in accordance with HRS §343, environmental impact statements; the Hawaii Administrative Rules, Title 11, Chapter 200, Hawaii State Department of Health implementing rules for the environmental review process; and Act 50, HRS §343, requiring impacts to Hawaii's culture, traditional cultural properties and practices, and customary rights be addressed in the environmental review process.

The purpose of the proposed action is to reduce the potential for hazardous rockfalls adjacent to the Komo Mai Drive site by implementation of rockfall protection measures. The property has potential for landslide as well as rockfalls, creating concerns for public safety and property damage along the road corridor. Implementation of rockfall protection is needed to reduce these identified risks to public safety and property.

### Proposed Action and Alternative

The proposed action and alternative are described as follows:

- **Proposed Action.** The proposed action involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff.
- **No-Action Alternative.** Under the no-action alternative, conditions at the site would be left *status quo*. DLNR would not implement rockfall protection measures. The risk to public safety and property from hazardous rockfall would remain.

### Summary of Environmental Impacts

The environmental impacts from the proposed action and alternative are summarized below:

- **Proposed Action.** The proposed action involves the implementation of rockfall protection measures. No impacts are expected for most resources. Long-term positive impacts are expected for geology and soils, natural hazards, and safety and health. Short-term adverse construction related impacts to air quality, noise, and safety and health are expected during the implementation of the proposed action. However, appropriate mitigation measures during construction activities would reduce these impacts. Additionally, all applicable federal and state guidelines and measures would be followed.

*Executive Summary*

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- **No-Action Alternative.** The no-action alternative would not implement rockfall protection measures and therefore provide a direct negative impact to safety and health of the adjacent down slope areas by not reducing rockfall hazards.

To determine whether the proposed action would have a significant impact on the human, natural, or historic environments, the project, its anticipated direct and indirect effects, and the short-term, long-term, and cumulative impacts have been evaluated. Based on the studies performed and resources evaluated, a Finding of No Significant Impact has been determined.

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## ACRONYMS AND ABBREVIATIONS

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%	percent
CFR	Code of Federal Regulations
CCH	City and County of Honolulu
CIP	Capital Improvement Project
CWB	Clean Water Branch
CO	carbon monoxide
CO <sub>2</sub>	carbon dioxide
dB	decibel
dBA	decibel (A-weighted scale)
DLNR	Department of Land and Natural Resources, State of Hawaii
DOH	Department of Health, State of Hawaii
EA	environmental assessment
EPA	Environmental Protection Agency, United States
ESA	Endangered Species Act
FIRM	flood insurance rate map
FONSI	Finding of No Significant Impact
HAR	Hawaii Administrative Rules
HECO	Hawaiian Electric Company
HIOSH	Hawaii Occupational Safety and Health
HRS	Hawaii Revised Statutes
ICBO	International Conference of Building Officials
LF	linear foot
M	million
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NO <sub>2</sub>	Nitrogen Dioxide
NPDES	National Pollutant Discharge Elimination Systems
O <sub>3</sub>	Ozone
OHA	Office of Hawaiian Affairs
PCSI	Pacific Consulting Services, Inc.
ROI	region of influence
SHPD	State Historic Preservation Division
SO <sub>2</sub>	Sulfur Dioxide
TMK	Tax Map Key
U.H.	University of Hawaii
U.S.	United States
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA-SCS	United States Department of Agriculture – Soil Conservation Service

## 1.0 INTRODUCTION

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken along Komo Mai Drive in the Waimano area of Oahu, Hawaii (Figure 1-1). The proposed project site occurs on State of Hawaii lands and would use State of Hawaii funds, and therefore triggers the environmental review process mandated under Hawaii Revised Statutes (HRS), Chapter 343.

This environmental assessment (EA) analyzes the potential environmental consequences of the proposed action and alternatives to determine if there would be significant short-term, long-term and/or cumulative impacts on the human, natural, or historic environments.

All activities conducted in support of this EA, including reports, field investigations, technical studies, and public involvement are conducted in accordance with HRS §343, environmental impact statements; the Hawaii Administrative Rules (HAR), Title 11, Chapter 200, Hawaii State Department of Health (DOH) implementing rules for the environmental review process; and Act 50, HRS §343, requiring impacts to Hawaii's culture, traditional cultural properties and practices, and customary rights be addressed in the environmental review process.

### 1.1 PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed action is to reduce the potential for hazardous rockfalls adjacent to the Komo Mai Drive site by implementation of rockfall protection measures. The State of Hawaii land adjacent to the Komo Mai Drive site and identified by Tax Map Key (TMK) 9-7-025:010, is in a Class A rockfall condition with high potential for rocks reaching the roadway during a rockfall event (Earth Tech 2003). The property has potential for landslide as well as rockfalls, creating concerns for public safety and property damage along the road corridor. Implementation of rockfall protection is needed to reduce these identified risks to public safety and property.

### 1.2 ENVIRONMENTAL PERMITS, CONSULTATIONS, AND APPROVALS

In addition to the environmental disclosure requirements of HRS §343, implementation of the proposed action required coordination and consultation with the following federal and state agencies for permits, clearances, or approvals (see Appendix A for agency correspondence):

- **State Historic Preservation Division (SHPD).** A Section 106 Consultation was coordinated with SHPD. This process is designed to minimize project impacts to significant historical or archaeological sites.
- **Office of Hawaiian Affairs (OHA).** A Native Hawaiian Special Interest Consultation was coordinated with OHA.
- **Act 50.** Statements or information related to traditional cultural uses in the project vicinity were requested from knowledgeable informants, including traditional cultural practitioners, historians, community organizations, and government agencies, per Act 50.
- **DOH Clean Water Branch (CWB).** DOH CWB was consulted regarding requirements for a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction Activity.
- **Pearl City Neighborhood Commission No. 21.** In order to inform local residents of the proposed action and solicit comments, a copy of the Draft EA was sent to the chair of the neighborhood commission and a presentation was made at a neighborhood commission meeting on April 26, 2005. A vote by the neighborhood board found no objection to the proposed action (see correspondence in Appendix A).





## 2.0 PROJECT DESCRIPTION

This section provides background information on the proposed project, and a description of the proposed action and alternatives, including the no-action alternative.

### 2.1 PROJECT LOCATION AND BACKGROUND

**Location.** The proposed project would occur on a portion of the 33.9-acre parcel identified by TMK 9-7-025:010 and located in the Waimano area of Oahu, Hawaii. This parcel of land is located on a steep mountain slope bound at the top by a housing community and at the bottom by Komo Mai Drive. Rockfall protection measures are proposed only in those areas adjacent to and upslope of Komo Mai Drive (approximately 8.87 acres of the total TMK), as indicated on Figure 1-1.

**Background.** A review of the site condition indicates steep slopes and inadequate rock catchment areas along the Komo Mai Drive site (Earth Tech 2003). The land along the upper portion of the roadway is made up of heavily weathered basalt soil and loose rocks. This portion of the property shows signs of surface erosion due to the steepness of the mountain slope and water runoff. The differential erosion of the soft soil has left rocks of varying sizes protruding out of the ground with minimal foundation support. The land along the lower portions of the roadway consists of steep slopes of basalt rock formation. The existing condition of the rocks indicates presence of continuous joints and fractures, which would result in an eventual loss of foundation support leading to future rockfall events (see Appendix B for current site condition photos). The hazard potential of a rockfall is greatest where residential communities and roadways are built nearby. Based on the results of a field investigation and engineering study (Earth Tech 2003), the mountain slope at the Komo Mai Drive site is a hazard area Class A, entailing a high hazard rating.

### 2.2 PROPOSED ACTION

Recommendations for the proposed action took into consideration various factors including public safety, construction cost, ease of maintenance, and sound engineering principles.

The proposed action involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff (see Figure 2-1).

The mesh and cable net system would blanket portions of the hillside, preventing erosion of the weathered basalt soil and smaller rock particles. It would conform to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas. A protective polyvinyl chloride coating of the cable net and a powder coating of the mesh would provide additional protection for the system performance and life expectancy. This system is available in a range of colors to match the surrounding soil and rock formation.

### 2.3 PROJECT SCHEDULE, COSTS, AND SOURCE OF FUNDING

Construction activities related to the proposed action are expected to take approximately 5 months to complete. Approval of engineering designs is expected to occur in September 2005 and construction work is scheduled to begin in November 2005 and would be completed in April 2006. The proposed action has a preliminary construction cost estimate of \$2.3 million (M). This project would be funded in full with State of Hawaii Capital Improvement Projects (CIP) funds.

## 2.4 ALTERNATIVES TO THE PROPOSED ACTION

In addition to the proposed action, the no-action alternative is analyzed in this EA. Three other alternatives were considered in the design phase but were dropped from further consideration. While these alternatives did meet the public safety objective, they did not meet other DLNR objectives related to maintenance, visual impacts, and/or preservation of native soils/geology. The alternatives considered but not carried forward are presented below in Section 2.4.2.

### 2.4.1 No-Action Alternative

Under the no-action alternative conditions on the site would be left *status quo*. No rockfall protection measures would be implemented; the risk to public safety and property from hazardous rockfall would remain.

### 2.4.2 Alternatives Considered But Not Carried Forward

Three design alternatives for rockfall protection that were considered but not carried forward are presented in Table 2-1.

Table 2-1: Alternatives Considered but Not Carried Forward

Criteria	Design Alternative No. 1	Design Alternative No. 2	Design Alternative No. 3
Retaining Wall	Retaining wall constructed along most of the slope adjacent to Komo Mai Drive.	Retaining wall constructed along the upper portion of Komo Mai Drive only.	Retaining wall constructed along the upper portion of Komo Mai Drive only.
Rockfall Protection Fence	Rockfall protection fence installed upslope of the retaining wall.	Rockfall protection fence installed along the middle and lower portions of Komo Mai Drive.	No rockfall protection fences would be installed.
Reinforced Earth Embankment	Not constructed.	Reinforced earth embankment constructed along upper mid portion of the roadway.	Reinforced earth embankment constructed along upper mid portion of the roadway.
Shotcrete and Rockbolts	Not used.	Not used.	Used on slopes adjacent to lower portions of the roadway, and in areas where rock cliff are found.
Estimated Cost	\$5.2M	\$4.3M	\$4.5M
Time-Frame	Approximately 8 months.	Approximately 7 months.	Approximately 7 months.
Reason for dropping from further consideration	Visual impacts and maintenance issues associated with installation of retaining walls and impact fences would be significant. Backfilling behind the retaining wall to alter the grade of the slope would also have significant impacts to native soils and geology.	Visual impacts and maintenance issues associated with installation of retaining walls and impact fences would be significant. Backfilling, excavation, and reconstruction of slopes would also have significant impacts to native soils and geology.	Visual impacts and maintenance issues associated with installation of retaining walls would be significant. Back filling, excavation, and reconstruction of slopes would also have significant impacts to native soils and geology.

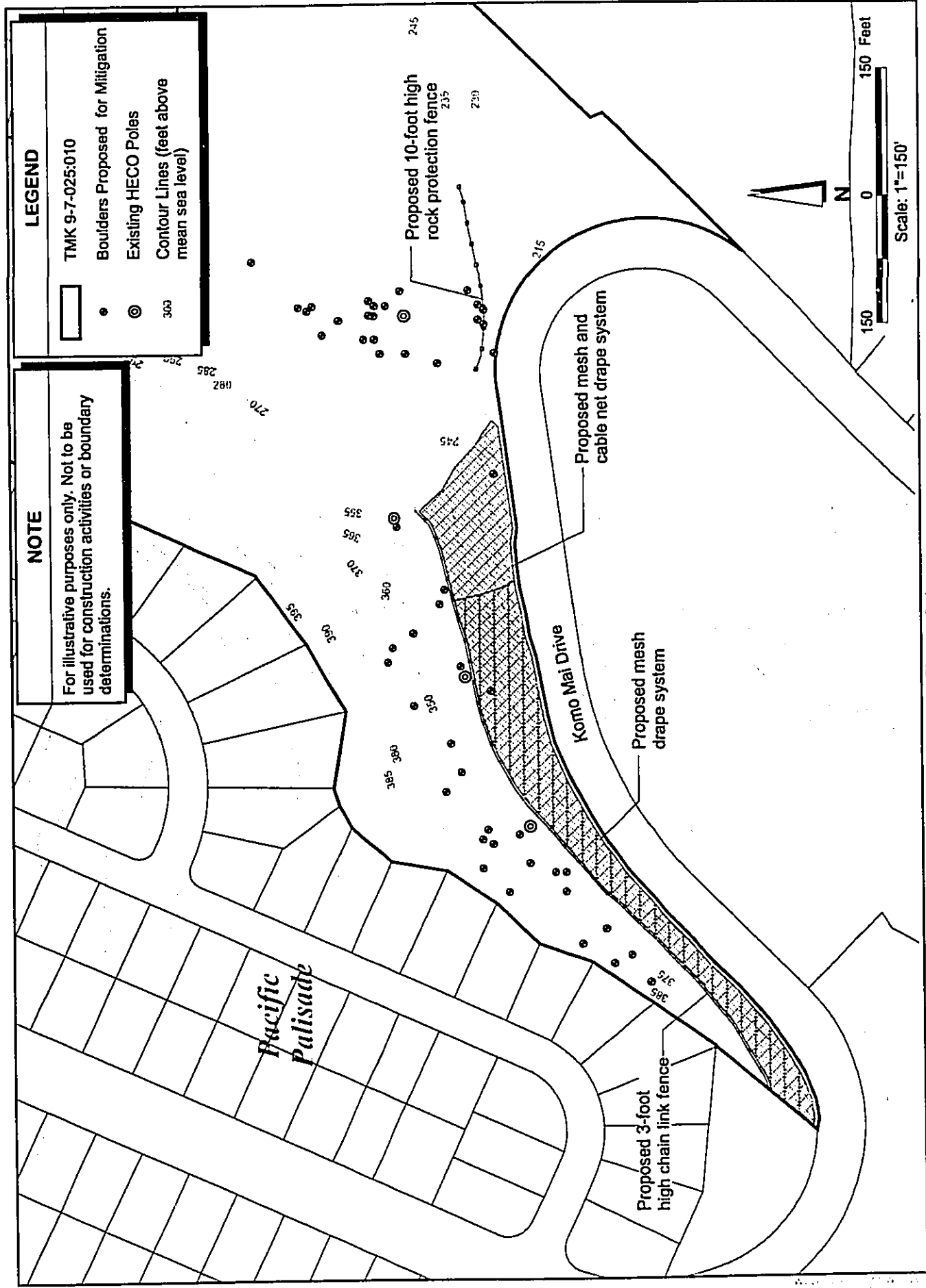


Figure 2-1  
 Proposed Action  
 Komo Mai Drive Site  
 Oahu, Hawaii

### 3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the affected environment associated with the proposed action and the no-action alternative at the Komo Mai Drive site. The information provided serves as a baseline from which to identify and evaluate environmental changes resulting from implementation of the proposed action or the no-action alternative.

The affected environment describes the natural and man-made environments, which includes air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, land use, natural hazards, noise, safety and health, socioeconomics, transportation, utilities and infrastructure, visual resources, and water resources. The region of influence (ROI) is defined for each resource area affected by the proposed action and the no-action alternative. The ROI determines the geographical area to be addressed as the affected environment.

#### 3.1 AIR QUALITY

The ROI for air quality is the proposed project site and downwind areas. Downwind areas vary during the year and air quality is affected by the climate. The climate is characterized by two distinct seasons, primarily defined by the annual variation in persistence of the northeast trade winds. The summer months from May to September are typically drier and warmer, while the winter months from October to April are usually wetter and cooler. The area is subject to prevailing northeast trade winds with average velocities between 14 to 16 miles per hour (mph) a majority of the year. Strong gusts up to 20 or 25 mph do occur intermittently. Trade winds prevail 90 percent (%) of the time during the summer and 50% in the winter. The area also experiences Kona (southerly or westerly) winds and storms, particularly during the winter months.

Modeling of downwind areas was not completed as part of this assessment. However, typical downwind areas of the ROI would normally include places to the south-southwest. During Kona winds, downwind areas would typically be places to the north or east.

Ambient air quality, which refers to the purity of the general outdoor atmosphere, is regulated under the Clean Air Act and the United States (U.S.) Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50). The DOH also regulates air quality and established ambient air quality standards (HAR §11-59-1) that are as strict or, in some cases, stricter than the NAAQS. The State of Hawaii has also established standards for fugitive dust emissions emanating from construction activities. These standards prohibit any visible release of fugitive dust from construction sources.

The State of Hawaii monitors ambient air quality at 10 stations on the island of Oahu for six regulated pollutants including:

- Particulate Matter less than 10 microns
- Particulate Matter less than 2.5 microns
- Carbon Monoxide (CO)
- Ozone (O<sub>3</sub>)
- Sulfur Dioxide (SO<sub>2</sub>)
- Nitrogen Dioxide (NO<sub>2</sub>)

In 2003, the State of Hawaii met all federal ambient air quality standards. There were no occurrences of criteria pollutant levels exceeding the NAAQS at any air monitoring stations on Oahu (DOH 2003). The project area is located on undeveloped land in a residential community in the Waimano area. The primary source of air pollutants in the vicinity of the project area is emissions from motor vehicles traveling on Komo Mai Drive. Criteria pollutant levels at the project area are expected to be

less than or comparable to levels reported for the island of Oahu as a whole, as air monitoring stations are generally placed near city centers or where there are mixed commercial, industrial, and rural land uses.

### 3.2 BIOLOGICAL RESOURCES

The ROI for biological resources, including flora and fauna, is the project area. Site visits were made by AECOS, Inc. between November 2004 and February 2005. The biological resource survey is included as Appendix C.

**Flora.** Flora within the project area is dominated by naturalized (exotic) species and exotic ornamentals. Only three indigenous plant species were identified. No plant species listed as threatened or endangered, or proposed for listing under the Endangered Species Act (ESA) of 1973 as amended, were identified on the site.

**Fauna.** Three mammalian species and 15 avian species were detected during site visits; all of the species detected are considered to be alien to the Hawaiian Islands. No avian or mammalian species currently listed as threatened or endangered, or proposed for listing under the ESA were detected on the site.

### 3.3 CULTURAL RESOURCES

The ROI for cultural resources is the project area. This resource encompasses prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. For the purpose of this EA, archaeological/cultural resources are defined to include prehistoric and historic archaeological sites, historic buildings and structures, and traditional (i.e., native Hawaiian) sites. In January 2005, Pacific Consulting Services, Inc. (PCSI) of Honolulu conducted an archeological reconnaissance survey of the project area (PCSI 2005). A copy of the archeological reconnaissance survey report is presented in Appendix D.

No archaeological features were recorded during the reconnaissance survey of the project area. Previous archaeological studies outside the ROI indicated that the Waimano Gulch area supported some pre-contact dry land agriculture, habitation, and possibly boundary or ceremonial *ahu* (mounds). Previous studies also indicate historic land use in Waimano Gulch included railroad tracks, an abandoned slaughterhouse and dairy, a dressed-stone irrigation ditch, and a historic cemetery (PCSI 2005).

A cultural impact assessment, in accordance with Act 50, included a request for statements or information relating to current cultural practices in the project vicinity from knowledgeable informants, including traditional cultural practitioners, historians, community organizations, and government agencies. Per the *Guidelines for Assessing Cultural Impacts* (DOH 1997), the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The cultural resources that support such cultural practices and beliefs are also subject to assessment.

A site map encompassing the geographic extent or area of potential affect was included with a brief correspondence soliciting information regarding current cultural practices near the project site. The solicitation for information was distributed to Native Hawaiian organizations and persons who may be aware of current traditional cultural uses or practitioners in the Waimano area; these included the OHA, the SHPD, the Department of Hawaiian Homelands, the University of Hawaii (U.H.) Center for Hawaiian Studies, a U.H. professor of Hawaiian, KAHEA, the Chair of Neighborhood Commission No. 21 (Pearl City), and several local residents identified as potentially knowledgeable of cultural uses or practitioners. Letters sent to agencies are included in Appendix A.

### 3.4 GEOLOGY AND SOILS

The island of Oahu demonstrates five major geomorphic provinces divided according to geological setting: Koolau Range, Waianae Range, Schofield Plateau, North and South Oahu Coastal Plain, and Honolulu Volcanic Series. The Waianae and Koolau Ranges comprise the largest geomorphic formations of Oahu and provide the base from which the other provinces of the island are formed.

The Koolau Range is a shield volcano that forms the larger eastern part of the island. The range is about 37 miles long, is deeply eroded by streams, and demonstrates high sea cliffs along the southern and eastern shores. The range was formed principally by basalt flows. Minor amounts of volcanic ash and tuff are interspersed between the basalt flows. The range is penetrated by numerous volcanic dikes, particularly near the original volcano caldera.

The Waianae Range, forming the western part of the island, is about 22 miles long. The Waianae Range is also a shield volcano composed almost entirely of basaltic rock. The Waianae volcano became extinct before the Koolau volcano, and Koolau lava flows overlap portions of the eroded, soil-covered Waianae Range.

The basaltic flows principally making up both ranges (and therefore comprise most of the island of Oahu) have been described as the following three general groups:

- *Pahoehoe*. Flows of this type are characterized by smooth, billowy, hummocky or rolling and locally ropy surfaces and often possess lava tubes. Identified varieties include corded, slab, entril, and pipe-vesicle bearing pahoehoe. Some pahoehoe toes exhibit concentric vesicularity.
- 'A'a. Flows of this type are characterized by exceedingly rough, jagged, spinose, and generally 'clinkery' surfaces (Macdonald et al. 1983) typically surrounding a massive, dense, coherent flow interior. 'A'a flows are of typically greater thickness than pahoehoe flows, and are more likely to demonstrate massive cores.
- *Clinker*. Rough, jagged fragments of lava rock associated primarily with a'a flow emplacement (Macdonald et al. 1983). Clinker is generally comprised of poorly to moderately consolidated, poorly sorted, volcanic fragments commonly termed 'clinker breccia'. Clinker occurs mostly on the top, but also on the bottoms and sides of some lava flows.

The rocks exposed at the Komo Mai Drive site belong to the Koolau Range formed during the shield stage of the Koolau volcano. Both a'a and pahoehoe flows are exposed in the area (Earth Tech 2003).

The soil association in the vicinity of the project area is classified as the Helemano-Wahiawa association. This association consists of nearly level to moderately sloping well-drained, fine-textured soils on uplands. Specific soil types underlying the ROI include rock land (USDA-SCS 1972). Rockfall potential is addressed under Safety and Health, Section 3.9.

### 3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The ROI for hazardous materials and wastes is the project area. For the purpose of the following analysis, the term hazardous waste or hazardous materials will mean those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act, 42 United States Code (U.S.C.) §§ 9601 et seq., and Resource Conservation and Recovery Act, 42 U.S.C. §§ 6901-6992. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present an unreasonable risk to health, safety, and the environment when released. Transportation of hazardous materials is regulated by the Department of Transportation regulations within Title 49 CFR.

Current and historic land uses within the project area are not associated with the use, transportation, or storage of hazardous materials. Hazardous materials and/or wastes may be transported on Komo Mai Drive. However, the project area is up gradient of Komo Mai Drive and should not be impacted by hazardous materials on the roadway.

### 3.6 LAND USE AND OWNERSHIP

The land use and ownership ROI is the project area. The project area is located on undeveloped land owned by the State of Hawaii, within TMK 9-7-025:010. The state land use designation is urban district. HAR §15-15 *Land Use Commission Rules* sets the standards for determining state land use districts and permissible land uses within those districts. The urban district generally includes lands characterized by city-like concentrations of people, structures, and services, and vacant lands suitable for future development. It may also include lands that don't conform to standards for urban designation if such land is surrounded by or adjacent to existing urban development and the land represents a minor portion of the district (HAR §15-15-18). Permissible land uses with the urban district include any and all uses permitted by the counties, either by ordinances or rules (HAR §15-15-24).

The project area has a City and County of Honolulu (CCH) zoning of P-2 general preservation. The purpose of the preservation district, as set forth by the Land Use Ordinance of the CCH §21-3.40, is to preserve and manage open space and recreation lands and lands of scenic and other natural resource value. Areas within the urban district that are zoned P-2 general preservation, are generally lands that: 1) are well-suited to provide visual relief and contrast to the city's built environment, or 2) serve as outdoor space for the public's use and enjoyment, or 3) are lands unsuitable for development because of topographical considerations related to public health, safety, and welfare. Development standards within the P-2 general preservation district include a maximum building area of 5% of the zoning lot and 15 to 25 foot maximum height.

The project area is not within a special district, special management area, or on the historic site register (CCH 2004b).

### 3.7 NATURAL HAZARDS

Natural hazards that may occur in and affect the proposed project area include floods, tsunamis, hurricanes, earthquakes, and other natural events. The ROI for natural hazards is the project area.

**Floods.** The Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) flood zone designations are:

- A – Areas of 100-year flood, base flood elevations not determined
- AE – Areas of 100-year flood, base flood elevation determined
- XS – Areas of 500 year flood; areas of 100-year flood with average depths of less than one foot or within the drainage area less than one square mile, and areas protected by levees from 100-year flood
- X – Areas determined to be outside the 100-year flood plain
- D – Areas in which flood hazard is undetermined
- VE – Areas of 100-year coastal flood with velocity (wave action), base flood elevations determined (Coastal High Hazard District)

The project area is located in a FIRM zone D, an area in which flood hazard is undetermined. However, due to the topography of the land, flooding is not expected within the project area.



**Tsunamis.** Tsunamis are a series of destructive ocean waves generated by seismic activity that could potentially affect shorelines of Hawaii. Tsunamis affecting Hawaii are typically generated in the waters off of South America, the west coast of the U.S., Alaska, and Japan. Local tsunamis have also been generated by seismic activity on the Island of Hawaii.

The Oahu Civil Defense Agency establishes tsunami evacuation zones and maps for all coastal areas in Hawaii. The project area is not within a tsunami evacuation zone.

**Hurricanes.** The Hawaiian islands are seasonally affected by Pacific hurricanes from June to November. These storms generally travel toward the islands from a southerly or southeasterly direction and can deposit large amounts of rain with high winds on the Hawaiian islands. The storms generally contribute to localized flooding and coastal storm surges. Coastal storm surges would not impact the project area, and flooding is not expected due to the topography of the site. However, high velocity surface runoff resulting from sustained heavy rainfall may increase instability of the mountain slope, by weakening rock supports and roots, and creating erosive conditions. The majority of rockfalls occur after a long period of heavy rainfall; therefore, hurricanes could increase the potential for hazardous rockfall within the project area.

**Earthquakes.** Because Oahu is an older Hawaiian island with dormant volcanic activity, it is not particularly prone to seismic activity. Seismic activity usually occurs on the Island of Hawaii, and has been felt as far away as Oahu. Oahu is listed in Seismic Zone 2A under the Uniform Building Code of 1997 (ICBO 1997). Zone 2A indicates a place that has low potential for ground motion created by seismic activity.

### 3.8 NOISE

The ROI for noise effects is the project area and adjacent areas. Noise is defined as sound that is undesirable because it interferes with speech communication and hearing, or is intense enough to damage hearing, or is otherwise annoying. Under certain conditions, noise can interfere with human activities at home or work and affect human health and well-being. The accepted unit of measure for noise levels is the decibel (dB) because it reflects the way humans perceive changes in sound amplitude. Sound levels are easily measured, but human response and perception of the wide variability in sound amplitudes is subjective.

Different sounds have different frequency content. When describing sound and its effect on a human population, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal to emphasize frequencies in the middle of the audible spectrum and to de-emphasize low and high frequencies in a manner corresponding to the way the human ear perceives sound. This filtering network has been established by the American National Standards Institute. The A-weighted noise level has been found to correlate well with a person's judgment of the noisiness of different sounds and has been used for many years as a measure of community noise.

The State of Hawaii regulates noise exposure in the following statutes and rules: HRS §342F - *Noise Pollution*, HAR §11-42 - *Vehicular Noise Control for Oahu*, HAR §11-46 - *Community Noise Control*, and HAR §12-200.1 *Occupational Noise Exposure*. Maximum permissible sound levels for Class A zoning districts including lands zoned residential, preservation, open space, or similar type, is 55 dBA between the hours of 7:00 AM and 10:00 PM and 45 dBA between 10:00 PM and 7:00 AM (HAR §11-46-4). The project area is located on undeveloped land zoned preservation. Adjacent land uses include preservation, low-density residential, and residential roadway. Noise studies have not been performed at the project area for the purpose of this EA. Existing noise levels are consistent with open space and residential use and are assumed to be within the State of Hawaii community noise exposure guidelines for a Class A zoning district.

### 3.9 SAFETY AND HEALTH

Safety and health concerns primarily relate to steep topography, geologic instability, and the potential for rockfalls to reach the roadway. The ROI for safety and health includes the project area and adjacent down gradient properties.

Rockfall rating is a subjective rating that groups the hazard conditions into three classes, as described below:

- *Class A.* High estimated potential for rockfall on adjacent property(ies) with high historical rockfall activity. A Class A rating means that the chances of rock falling in a site is moderate to high, and that when the rockfall occurs, it will certainly reach adjacent property(ies) or roadway. An example of a Class A condition is where rocks on the cut slope overhang the adjacent property(ies) and in areas where little or no rock catchment ditch is available.
- *Class B.* Presence of moderate estimated potential for a rock to fall on adjacent property(ies) or roadway with moderate historical rockfall activity. As the rockfall risk is reduced, a Class B rating indicates that although a rockfall is probable, the chances of it reaching the adjacent properties are low to moderate. A possible scenario for Class B is a condition where a rockfall from the slope is clearly possible, and the catchment ditch is large enough to prevent most of the rocks from reaching the adjacent property(ies).
- *Class C.* Low estimated potential for rockfall on adjacent property(ies) or roadway with low historical rockfall activity. Class C rating pertains to a condition in which there is a low chance for a rockfall event, but should one occur, there is no chance for the rocks to reach other properties.

The factors considered when estimating the potential for rockfall on adjacent properties include the estimated size of material, estimated quantity of material for each event, amount of material available, and the effectiveness of the rock catchment ditch along the property.

Based on field investigation, the project area is in a Class A rockfall condition with a high potential for rocks reaching Komo Mai Drive during a rockfall event (Earth Tech 2003). The slope adjacent to the upper portion of the Komo Mai Drive site consists of weathered volcanic soil and rocks. This slope is prone to landslides, as well as rockfall, during heavy rainfall. The rocky portion of the project area near the drainage ditch has a high potential for rockfalls. The following criteria relate directly to the rockfall condition and related hazards at the project area:

**Slope Height.** The upper portion of the property has varying heights with respect to the roadway. The slope height varies from about a few feet to approximately 100 feet high. Any loose rock dislodged from upper portions of this site could gain substantial potential energy by the time it reaches the bottom elevations.

**Ditch Effectiveness.** There is little to no rock catchment ditch along the upper portions of the Komo Mai Drive site. A catchment area is available at the lower end of Komo Mai Drive; however, it slopes towards the roadway making it inadequate as a rock catchment for reducing the energy of a falling rock.

**Structural Condition of the Rocks.** The present rock formation of the site exhibits all aspects of structural deficiencies from long and continuous joints and cracks in the massive 'A'a flows to weakening of the rock outcroppings resulted from excessive erosion of the clinker layers and highly weathered basaltic soil. Any of these conditions could result in an eventual rockfall event.

**Volume of Rockfall Event.** Rock sizes at the project area range from just a few inches to a number of feet in diameter having flat or semi-spherical shapes. It is a common understanding that the larger the size of a falling rock, the greater the potential energy and effects of the impact would be.

**Rockfall History.** There is little known about the history of rockfalls on this site. A survey of the property indicates presence of sporadic rockfalls at the toe of the slope and behind an existing chain link fence. As a general rule, sites with a history of frequent rockfall are more likely to experience future rockfall events.

**Average Vehicle Risk.** Komo Mai Drive in the vicinity of the project area is a well-traveled roadway with hundreds of cars passing by on a daily basis. The chances of a vehicle being present along this portion of the roadway at the time of a rockfall event is dependent on the frequency of travel, and the speed of the vehicles. The present frequency of travel on this roadway creates a serious concern regarding the occurrence of a rockfall in this area.

**Sight Distance.** Komo Mai Drive in the vicinity of the project area is a winding roadway with a number of horizontal curves that limit the line of sight for the driver of a vehicle passing through. The sight distance is limited at the sharp turns allowing the driver of a vehicle little time to react to a possible obstruction on the road. The difficulty is compounded where higher traveling speeds are involved.

**Shoulder Width.** Komo Mai Drive is a two-way traffic roadway, approximately 25 feet wide including a concrete gutter and sidewalk on each side of the roadway, and a short chain link fence barrier along the hillside of the roadway. There are no shoulders along this portion of road.

### 3.10 SOCIOECONOMICS

This section summarizes the demographic and income characteristics of residents in the vicinity of the project area. Data summarized in Table 3-1 are taken from the 2000 U.S. Census. Census data are used to describe the existing social and economic characteristics of the ROI and to determine whether any minority or low-income population may experience disproportionately high adverse impact from the proposed action or alternatives. The ROI for socioeconomics is Census Tract 80.05, CCH, Hawaii, in which the project area is located. Data for the CCH is presented for the purpose of comparison.

In 2000, the CCH reported 876,156 residents, which accounts for approximately three-fourths of Hawaii's total population. Census Tract 80.05 reported 6,847 residents. The population within the census tract is 28.9% Japanese, 12.4% Caucasian, 10.6% Filipino, 8.7% Pacific Islander, and 4.4% Chinese, which is similar to the ethnic diversity within all of the CCH.

Median family income and per capita income are \$73,875 and \$22,703, respectively within the census tract, which is higher than that reported for the CCH. Both the % of families below the poverty level (3.0%) and the % of individuals below the poverty level (4.5%) are lower within the census tract when compared to the CCH.

Table 3-1: Demographic and Income Characteristics

Characteristic	CCH	Census Tract 80.05
Population	876,156	6,847
Ethnicity		
Chinese	6.1%	4.4%
Filipino	14.2%	10.6%
Japanese	18.4%	28.9%
Caucasian	21.3%	12.4%
Pacific Islander	8.9%	8.7%
Other single race	11.2%	8.5%
More than one race	19.9%	26.5%

Characteristic	CCH	Census Tract 80.05
<b>Income</b>		
Median family income	\$60,118	\$73,875
Per capita income	\$21,998	\$22,703
<b>Poverty Status in 1999</b>		
Families below poverty level	7.0%	3.0%
Individuals below poverty level	9.9%	4.5%

Source: U.S. Census Bureau, 2000 Census of Population and Housing (U.S. Census Bureau 2004)

### 3.11 TRANSPORTATION

The ROI for transportation is the project area and adjacent roadways. The only roadway abutting the project area is Komo Mai Drive. Slope instability and the potential for rockfall to reach the roadway, create a hazardous condition for drivers along the Komo Mai Drive site. The chance of a vehicle being present along this portion of the roadway at the time of a rockfall event (the average vehicle risk) is dependent on the frequency of travel, and the speed of the vehicles. Komo Mai Drive in the vicinity of the project area is a well-traveled roadway with hundreds of cars passing through this section of the road on a daily basis. The present frequency of vehicles, together with unstable conditions upslope of the roadway, creates an unacceptable risk to drivers from rockfall in the vicinity of the project area.

Should a rockfall occur, characteristics of the road may diminish the ability of drivers to respond. Komo Mai Drive near the property is a winding roadway with a number of horizontal curves, which limit a driver's line-of-sight. The sight distance is limited at the sharp turns allowing the driver of a vehicle little time to react to a possible obstruction on the road. The difficulty is compounded where higher traveling speeds are involved.

In addition, there are no shoulders along this portion of the roadway. The roadway is a two-way traffic roadway, approximately 25 feet wide including a concrete gutter and sidewalk on each side of the roadway, and a short chain link fence barrier along the hillside of the roadway. The lack of shoulders or additional traffic lanes would make it difficult for drivers to maneuver around obstructions such as rockfall, or vehicles involved in an accident related to rockfall.

### 3.12 UTILITIES AND INFRASTRUCTURE

This section includes information on infrastructure related to electrical power, telecommunications, drinking water distribution and sanitary sewer systems, storm water discharges, and solid waste disposal. The ROI for utilities and infrastructure is the project area. There are four Hawaiian Electric Company (HECO) utility poles in the vicinity of the project area, as indicated on Figure 2-1.

Figure 2-1 also indicates the location of a large drainage path through this property. There is a storm drain inlet on the upslope side of Komo Mai Drive that diverts storm water from the drainage into a culvert under Komo Mai Drive. The culvert discharges back into the natural drainage on the other side of the roadway.

### 3.13 VISUAL RESOURCES

Visual resources are the aggregate of characteristic features imparting visually aesthetic qualities to a natural, rural, or urban environment. The ROI for visual resources is the project area. This resource is assessed during the environmental impact analysis process to determine whether or not a project would be compatible with the existing landscape and development plans for the area.

The development plan for the Primary Urban Center sets forth policies and guidelines for the protection and enhancement of natural and scenic resources. The Koolau Mountain Range and its undeveloped foothills and slopes is one of the elements considered in formulating guidelines to preserve scenic resources. Development of steep slopes is restricted for safety reasons and to avoid aesthetic/visual impacts resulting from interruption of the natural ridgeline when viewed from below. Guidelines for preservation areas include: "avoid disturbance to native species and prevent the visual intrusion of structures... when seen from below" (CCH 2004a).

The visual quality of the project area is that of undeveloped rocky slope, vegetated by Guinea grass and koa-haole. A natural drainage way cuts through the center of the project area. The visual setting is low-density residential community, interspersed with open space. Existing structures visible within the project area include HECO utility poles and an existing chain-link fence at the base of the slope, adjacent to Komo Mai Drive.

### 3.14 WATER RESOURCES

This section describes the availability and quality of water resources, including surface water and groundwater. Surface water includes lakes, perennial/intermittent streams, seeps, and drainage ways. Groundwater includes water present in aquifers (perched, unconfined, confined, or artesian). The ROI for water resources includes the surface water bodies, streams and drainage features identified within, or downgradient of, the project area and the underlying aquifer.

**Surface Water.** Generation of surface water typically begins in the mountains as rainfall. As surface water proceeds downgradient, it collects in streams and gulches. A portion infiltrates through streambeds, recharging the underlying aquifer. Potential issues arise if the course or carrying capacity of gulches and streams are changed, as this can cause flooding or scour damage and degradation of downstream water quality.

No perennial sources of surface water were observed during the field investigation (Earth Tech 2003). Surface water resulting from storm events collects in a large drainage way that runs through the center of the project area (see Figure 2-1). There is a storm drain inlet on the upslope side of Komo Mai Drive that diverts storm water from the drainage into a culvert under Komo Mai Drive. The culvert discharges back into the natural drainage on the other side of the roadway. Surface water from the project site appears to drain into Waimano Stream, which is classified as Class 2, Inland Water, per HAR §11-54-3(b)(2).

**Groundwater.** Two general types of groundwater occur on Oahu; basal and high level dike water. The predominant source of groundwater on Oahu is fresh water in the basal aquifer that floats on and displaces salt water that saturates the base of the island. The second source of groundwater is fresh water that is contained in vertical dikes that are present in rift zones. Rainwater is the ultimate source of groundwater; it percolates downward through porous and permeable materials, like basalt. Movement of groundwater is generally downgradient towards the ocean, and it typically discharges in seeps, springs, and streams. Coastal sediments can act to confine groundwater movement within underlying basalt, causing artesian conditions during discharge.

Groundwater quality is naturally the end product of geochemical processes; however, it can easily be affected by human activities. This includes industrial, agricultural, and commercial activities as well as drainage patterns and groundwater removal.

The groundwater aquifer that lies under the project area is identified with the aquifer code 3020211. This aquifer code is defined as the Pearl Harbor sector, Waiawa system with a basal aquifer that is unconfined (water table is upper surface of saturated aquifer) and a flank geological description (horizontally extensive lavas) The status code for this aquifer is identified as 11111, which indicates a currently used aquifer that contains drinking water, classified as fresh water, that is irreplaceable and has a high vulnerability to contamination (Mink & Lau 1990).

## 4.0 ENVIRONMENTAL CONSEQUENCES

Project-related effects, both adverse and beneficial, include, primary, secondary, and cumulative effects. Primary effects or direct impacts are caused by the action and occur at the same time and place. Secondary effects or indirect impacts are caused by the action and occur later in time or are farther removed in distance, but are still reasonably foreseeable. Cumulative effects refer to impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor yet collectively significant actions taking place over a period of time.

Effects of the proposed project are divided into short-term and long-term effects. Short-term effects are related to construction activities. Long-term effects refer to the effects caused from the operation of the proposed action, and are longer in duration. Anticipated environmental effects of the proposed action and no-action alternative, cumulative impacts, and proposed mitigation measures, where applicable, are summarized below.

### 4.1 AIR QUALITY

**The Proposed Action.** Only short-term construction related impacts to air quality are anticipated with implementation of the proposed action. During construction, potential emission sources that may affect air quality at the project site include the following:

- Helicopter usage for transportation of construction materials to and from the site (may be required)
- Diesel- and/or gasoline-powered construction equipment and motor vehicles (additional sources of CO and carbon dioxide [CO<sub>2</sub>])
- Fugitive dust emissions resulting from rock demolition and scaling operations, and installation of rockfall protection fence

Construction vehicles traveling to and from the proposed project area, helicopter use to transport materials (if required), and on-site construction equipment consisting of primarily diesel engines, would contribute to local air pollution. Construction activities may also generate short-term fugitive dust particulate emissions.

Because levels of criteria pollutants in the CCH are consistently well below federal and state air quality standards (DOH 2003), and because the prevailing trade winds rapidly carry pollutants offshore limiting the effect on receptors, increases in levels of criteria pollutants at the project area from construction activities are not expected to be significant.

**No-Action Alternative.** Under the no-action alternative, no demolition or construction activities would occur at the project area. No additional emission sources would be added; hence there would be no change to air quality. No impact to air quality is anticipated from the no-action alternative.

**Mitigation Measures.** Construction activities would be conducted in accordance with State of Hawaii air pollution control regulations (HRS §11-60.1) and would employ the proper administrative and engineered controls to reduce air emissions. Dust control measures including a dust control (watering) program, covering of soil stockpiles during transport or storage, and revegetation of graded or cleared areas would be implemented. Construction vehicles would either remain on site or be scheduled to arrive and depart the project site during non-peak traffic hours, to reduce vehicle emissions. It is anticipated that EPA and DOH ambient air quality standards would not be exceeded during construction activities.

## 4.2 BIOLOGICAL RESOURCES

**The Proposed Action.** No special status species have been identified within the project area. No impact to biological resources is anticipated with implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the biological resources of the project area. Therefore, no biological impacts are anticipated with implementation of the no-action alternative.

## 4.3 CULTURAL RESOURCES

**The Proposed Action.** The archaeological reconnaissance survey (PCSI 2005) identified no archaeological features within the project area. Because implementation of the proposed action involves a minimal amount of excavation, and the results of the archaeological reconnaissance survey recorded no archaeological features, no impacts to cultural resources are anticipated with the implementation of the proposed action. The cultural impact assessment did not identify any current cultural practices within the project area therefore; no adverse impacts to current cultural practices are anticipated with implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the cultural resources of the project area. Therefore, no cultural impacts are anticipated with implementation of the no-action alternative.

**Mitigation Measures.** Although no archaeological features were observed during the reconnaissance survey, there is a possibility that historic properties could be present below the ground surface. If archaeological or human remains are inadvertently discovered during construction activities, the construction contractor shall immediately notify the SHPD prior to the continuation of activities.

## 4.4 GEOLOGY AND SOILS

**The Proposed Action.** The proposed action involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. The mesh and cable net system would blanket the hillside, thus containing both weathered basalt soil and smaller rock particles. It conforms to the slope allowing growth of vegetation and providing erosion protection of the soft soil areas. Therefore, implementation of the proposed action is expected to have positive long-term impacts to geology and soils.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented at the project area. Structural deficiencies in the rock formations would not be addressed and erosion would continue to undermine the stability of rock formations. Therefore, the no-action alternative is anticipated to have long-term adverse impacts on geology and soils.

## 4.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

**The Proposed Action.** Short-term construction related impacts from hazardous materials and hazardous waste are possible, but not expected, with implementation of the proposed action. Construction equipment and vehicles contain hazardous materials such as gasoline, diesel, oil, hydraulic and brake fluid. Accidental release of these materials into the environment is possible, but not anticipated. Preparation of a hazardous materials spill response plan prior to commencement of construction activities would greatly reduce the likelihood of significant impacts resulting from any spill. No significant long-term impacts are anticipated.

**No-Action Alternative.** Under the no-action alternative, no demolition or construction activities would occur at the project area. No hazardous materials would be brought to the project area.

Therefore, no short-term or long-term impacts from hazardous materials are anticipated with implementation of the no-action alternative.

#### 4.6 LAND USE AND OWNERSHIP

**The Proposed Action.** Implementation of the proposed action would result in no change to land use or ownership within the project area. Proposed rockfall protection measures are consistent with the development standards for the P-2 general preservation district as set forth in the Land Use Ordinance of the CCH. No structures are planned to exceed the 15 to 25 foot maximum height, and the building area would not exceed 5% of the zoning lot. Therefore, no impacts to land use and ownership are anticipated with implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be undertaken, and there would be no change to land use or ownership within the project area. Therefore, no impacts to land use and ownership are anticipated with implementation of the no-action alternative.

#### 4.7 NATURAL HAZARDS

**The Proposed Action.** The proposed action would result in a positive impact for natural hazards by reducing exposure to damage from rockfall and storm events. Potential damage from rockfall is increased during storm events, as rapid runoff of surface water increases erosion and instability of the rock formation, and may trigger landslides. Stabilization of the rock formation has a direct positive impact on the rockfall hazard and also has indirect positive impacts because stabilizing the rock formation may also reduce the damage caused by hurricanes and storm events.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and the existing hazardous rockfall condition would continue. Structural deficiencies in the rock formations would not be addressed and erosion would continue to undermine the stability of rock formations. The no-action alternative is anticipated to have no impact or a direct negative impact on the rockfall hazard, depending on whether the condition worsens as a result of taking no action. Indirect negative impacts are also possible if taking no action to reduce the rockfall hazard, results in increased damage from storm events and hurricanes.

#### 4.8 NOISE

**The Proposed Action.** Only short-term construction related noise impacts are anticipated with implementation of the proposed action. Construction equipment employed to implement the proposed action may include trucks, a crane, a grout mixing machine, sledge hammers, jack hammers, chain saws, and air compressors. Helicopter use to transport materials may also be required.

Noise generated by construction equipment could produce localized noise events of 100 dBA or higher at the construction site, with noise levels decreasing with distance from the site. Typical noise levels generated by construction tools range from 65 dBA to 110 dBA. Heavy construction equipment noise levels at 50 feet typically range between 75 and 89 dBA for equipment such as concrete or flat-bed trucks, cranes, bulldozers, scrapers, and trenching machines (USACE 1978). Noise from construction activities would decrease with distance from the project area through divergence, atmospheric absorption, shielding by intervening structures, and absorption and shielding by ground cover.

Noise generated from proposed demolition and construction activities would be intermittent and short-term, and would primarily occur at the construction site. While noise levels may be a temporary source of annoyance for nearby residents, it would not be at a level that would require hearing protection measures. No long-term noise impacts are anticipated from implementation of the proposed action.



**No-Action Alternative.** Under the no-action alternative, no demolition or construction activities would occur at the project area, and there would be no change to the noise environment. Therefore, no impacts from noise are anticipated under the no-action alternative.

**Mitigation Measures.** To minimize noise impacts, construction activities would be conducted in accordance with State of Hawaii requirements set forth in: HRS §342F - *Noise Pollution*; HAR §11-42 - *Vehicular Noise Control for Oahu*, establishing noise level limits for light and heavy vehicles; and HRS §11-46 - *Community Noise Control*, establishing maximum permissible sound levels from excessive noise sources, noise prevention, control and abatement guidelines, and permit criteria.

The Hawaii Occupational Safety and Health (HIOSH) Division has set the permissible occupational noise exposure at 90 dBA for a continuous 8-hour exposure. Permissible noise exposures for shorter periods are higher, with a maximum exposure of 115 dBA permissible for a duration of 15 minutes or less (HAR §12-200.1 *Occupational Noise Exposure*). Enforcement of HIOSH occupational noise exposure regulations would be the responsibility of the construction contractor. If workers experience noise exceeding HIOSH standards, administrative or engineering controls shall be implemented. Use of personal protective equipment such as earplugs or muffs may also be required.

To reduce nearby residential noise exposure, construction activities would be conducted on weekdays and in daytime hours in accordance with HRS §342-F-1. In the event that work occurs after normal working hours (i.e., at night or on weekends), or if permissible noise levels are exceeded, appropriate permitting and monitoring as well as development and implementation of administrative and engineering controls shall be employed.

#### 4.9 SAFETY AND HEALTH

**The Proposed Action.** The proposed action would have long-term positive impacts on public safety and health by eliminating hazardous rockfall conditions upslope of the Komo Mai Drive site. Boulders and outcroppings exhibiting structural deficiencies would be stabilized or demolished, and a rockfall protection fence would be constructed on the slope above the residential area.

Short-term construction related impacts to safety and health relate to worker safety during construction. Health and safety issues concerning workers include, exposure to hazardous rockfall within the project area, operation of construction equipment, traffic, occupational noise, fugitive dust, heavy lifting, slips, trips, and falls while working on uneven terrain, exposure to heat, and biological exposure (bites, stings, and allergens).

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and the existing hazardous rockfall condition would continue. Therefore, adverse impacts to public safety and health are anticipated from implementation of the no-action alternative.

**Mitigation Measures.** The safety and health of workers during construction would be the responsibility of the construction contractor. Mitigation measures addressing air quality at the construction site and occupational noise exposure are presented in Sections 4.1 and 4.7, respectively.

#### 4.10 SOCIOECONOMICS

**The Proposed Action.** No socioeconomic impacts are expected with implementation of the proposed action. The proposed action should not impact employment, income, or demographics within the ROI. The population within the ROI reports higher median and per capita incomes, and lower poverty rates compared to the CCH. And there are no significant long-term adverse impacts anticipated from the proposed action. Therefore, it is unlikely that adverse impacts from the proposed action would disproportionately affect a minority or low-income population.

**No-Action Alternative.** No socioeconomic impacts are expected with implementation of the no-action alternative. The no-action alternative should not impact employment, income, or demographics within the ROI. The population within the ROI reports higher median and per capita incomes, and lower poverty rates compared to the CCH. And like the CCH, the ROI is ethnically diverse. Therefore, it is unlikely that adverse impacts from the no-action alternative would disproportionately affect a minority or low-income population.

#### 4.11 TRANSPORTATION

**The Proposed Action.** Slope instability and the potential for rockfall to reach the roadway create a hazardous condition for drivers along the Komo Mai Drive site. The proposed action would reduce the potential for rockfall to reach the roadway, making the roadway safer for vehicular traffic. Therefore, long-term impacts to the transportation resource are expected to be positive.

Komo Mai Drive runs adjacent to the down slope boundary of the project area and provides the best access for construction vehicles and equipment required for implementation of the proposed action. Construction activities and added construction traffic may have a short-term adverse impact to road transportation along Komo Mai Drive.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented. The existing hazardous rockfall condition and associated risk to drivers on Komo Mai Drive would remain. Therefore, adverse impacts to road transportation may result from implementation of the no-action alternative.

#### 4.12 UTILITIES AND INFRASTRUCTURE

**The Proposed Action.** No impacts to utilities or infrastructure are anticipated with implementation of the proposed action.

**No-Action Alternative.** No impacts to utilities or infrastructure are anticipated with implementation of the no-action alternative.

#### 4.13 VISUAL RESOURCES

**The Proposed Action.** Proposed rockfall protection measures include installation of a cable net and mesh system along the rock and soil slopes facing Komo Mai Drive, approximately 820 LF of 3-foot high chain link fence along the upslope edge of the mesh and cable net system, and approximately 220 LF of 10-foot high rockfall protection fence below a rock cliff. Implementation of the proposed action is anticipated to have short-term adverse impacts to visual resources. Long-term impacts are not anticipated to be significant due to the nature and location of the proposed construction.

Removal of larger trees and plants would be required to install the cable net and mesh system. Once installed, the cable net and mesh system would conform to the slope. New vegetation would grow through the mesh openings rendering a natural view along the project site. This system is available in a range of colors to blend with the surrounding soil and rock formation. Once installed, this system would result in little or no disturbance to the natural setting of the property. Chain-link and rockfall protection fences may be visible from Komo Mai Drive but would be at least partially concealed by vegetation. Therefore, no significant long-term impacts to visual resources are anticipated.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the visual quality of the project area. Therefore, no visual impacts are anticipated with implementation of the no-action alternative.

#### 4.14 WATER RESOURCES

**The Proposed Action.** Installation of the cable net and mesh system, chain link fence, and rockfall protection fence would not affect the quantity or quality of surface or groundwater, and would not change the location or course of any drainage features. Therefore, no long-term impacts to surface or groundwater resources are anticipated with implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, no rockfall protection measures would be implemented and there would be no change to the water resources within the project area. Therefore, no impacts to water resources are anticipated with implementation of the no-action alternative.

#### 4.15 CUMULATIVE IMPACTS

No concurrent or future actions that would contribute to cumulative impacts have been identified in the vicinity of the project area. Therefore, neither the proposed action nor the no-action alternative is anticipated to result in significant cumulative impacts.

## 5.0 FINDINGS AND DETERMINATION

To determine whether the proposed action may have a significant impact on the human, natural, or historic environments, the project, its anticipated direct and indirect effects, and the short-term, long-term, and cumulative impacts have been evaluated. Based on the studies performed and resources evaluated, a finding of no significant impact (FONSI) is based on the significance criteria summarized below.

### 5.1 SIGNIFICANCE CRITERIA

According to HRS §11-200-12, an applicant or agency must determine whether an action may have a significant impact on the environment. This includes all phases of the project, its expected consequences, both direct and indirect, its short- and long-term effects, and its cumulative impact with other projects. In making the determination, "Significance Criteria" are used as a basis for identifying whether significant environmental impacts would occur. According to HRS §11-200-12, an action shall be determined to have a significant impact on the environment if it meets one of the following criteria:

- **Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources.** No archaeological features were identified within the project area; therefore, no irrevocable commitment to, loss or destruction of cultural resources are anticipated with implementation of the proposed action. Positive impacts to geology and soils, and no impacts to air or water resources are anticipated with implementation of the proposed action. Any impacts to biological resources would be short-term construction related impacts. No long-term impacts to biological resources are anticipated; rapid re-vegetation is expected post-construction. Therefore, implementation of the proposed action is not anticipated to result in the irrevocable commitment to, loss or destruction of any natural resource.
- **Curtails the range of beneficial uses of the environment.** There would be no change to the current or potential land use within the project area as a result of the proposed action. Management and use of the land would remain consistent with an urban district land use designation and a P-2 general preservation zoning.
- **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.** The proposed construction is consistent with the State Environmental Policies established in HRS §344.
- **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.** No socioeconomic impacts to the community are anticipated with implementation of the proposed action. This project is fully funded by State of Hawaii CIP funds that have already been allocated for this project. Therefore, no adverse economic impacts to the State are anticipated. The cultural impact assessment, conducted in compliance with Act 50, did not identify any current cultural practices within the project area therefore; no adverse impacts to current cultural practices are anticipated with implementation of the proposed action.
- **Substantially affects public health.** The proposed action is anticipated to have long-term positive impacts on public health, safety, and welfare by eliminating a hazardous rockfall condition adjacent to the Komo Mai Drive site.
- **Involves substantial secondary impacts, such as population changes or effects on public facilities.** No adverse secondary impacts are anticipated with implementation of the proposed action.
- **Involves a substantial degradation of environmental quality.** No long-term adverse impacts to any resource evaluated in this EA are anticipated with implementation of the proposed action.

- **Is individually limited, but cumulatively has considerable effect on the environment, or involves a commitment for larger actions.** No concurrent or future actions have been identified in the vicinity of the project area that would contribute to cumulative impacts for the proposed action. The activities recommended in the proposed action represent all planned or foreseeable actions deemed necessary for rockfall protection within the project area. No additional actions are planned or anticipated.
- **Substantially affects a rare, threatened, or endangered species or its habitat.** No special status species have been identified within the project area. Therefore, no impacts are anticipated to rare, threatened, or endangered species or its habitat with implementation of the proposed action.
- **Detrimentally affects air or water quality or ambient noise levels.** The proposed action is anticipated to have no long-term adverse impacts to air or water quality, or ambient noise levels. Short-term construction related noise impacts may occur.
- **Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.** The project area is not located in a tsunami zone or coastal area and has an undetermined flood hazard designation. The topography of the land is steep to moderately sloped and is not likely to flood. The presence of steep slopes and rocky soils at the project area does make the area susceptible to erosion and presents geologic hazards such as rockfall and landslides. The purpose of the proposed action is to reduce the hazardous rockfall condition that exists at the project area.
- **Substantially affects scenic vistas and view planes identified in county or state plans or studies.** The project area does not occur in any scenic vistas or view planes identified in the *Primary Urban Center Development Plan* for the CCH.
- **Requires substantial energy consumption.** Implementation of the proposed action is not anticipated to require substantial energy consumption.

## 5.2 DETERMINATION

Based on the above evaluation of the significance criteria and the discussion of impacts and mitigation measures contained in this document, it is anticipated that the proposed project would not have a significant adverse impact on the environment. Based on the studies performed and resources evaluated, a FONSI has been determined.

**6.0 LIST OF PREPARERS**

Ms. Michelle Mason, Senior Environmental Professional  
BS, Urban Studies, Stanford University, 1987  
Years of Experience: 16

Ms. Tanya Copeland, Project Environmental Professional  
MS, Ecology and Evolution, University of Illinois, Chicago, 1999  
BA, Chemistry, University of Illinois, Chicago, 1991  
Years of Experience: 12

Mr. Dan Frerich, Staff Environmental Scientist  
BS, Environmental Science, Oregon State University, Corvallis, 2000  
Years of Experience: 4

## 7.0 REFERENCES

- City and County of Honolulu (CCH). 2004a. *Primary Urban Center Development Plan*. Department of Planning and Permitting. Honolulu. June.
- \_\_\_\_\_. 2004b. Honolulu Internet Permit System –Tax Map Key Information. Website: <http://dppweb.co.honolulu.hi.us>. 20 October.
- Department of Health, State of Hawaii (DOH). 1997. *Guidelines for Assessing Cultural Impacts*. Adopted by the State of Hawaii Environmental Council. Honolulu: Office of Environmental Quality Control. November 19.
- \_\_\_\_\_. 2003. *Annual Summary, Hawaii Air Quality Data*. Honolulu: Clean Air Branch.
- Earth Tech, Inc. 2003. *Rockfall Protection Study for Komo Mai Drive, Oahu, Hawaii*. Honolulu. January.
- International Conference of Building Officials (ICBO). 1997. *Uniform Building Code. Volume I and II*. April.
- Macdonald, G. A., A. T. Abbott, and F. L. Peterson. 1983. *Volcanoes in the Sea, The Geology of Hawaii*. 2nd ed. Honolulu: Univ. of Hawaii Press.
- Mink, John F. and Lau, L. Stephen. 1990. *Aquifer Identification and Classification For Oahu: Groundwater Protection Strategy for Oahu*. Revised. February. Water Resources Research Center, University of Hawaii, Manoa.
- Pacific Consulting Services, Inc. (PCSI). 2005. *Archaeological Reconnaissance Survey of TMK 1-9-7-025:010 (Komo Mai Drive, Pearl City), Waimano Ahupua'a, Ewa District, Island of Oahu, Hawaii*. January.
- U.S. Army Corps of Engineers. (USACE). 1978. *MicroNOISE, A User's Manual*. Technical Report N-86/12. Construction Engineering Research Labs. June.
- U.S. Census Bureau. 2004. Website: <http://factfinder.census.gov/> U.S. Census Bureau, *Census 2000*. 23 December.
- U.S. Department of Agriculture – Soil Conservation Service (USDA-SCS). 1972. *Soil Survey of Islands of Kauai, Oahu, Molokai, and Lanai, State of Hawaii*. Soil Conservation Service.

## 8.0 COMMENTS AND RESPONSES

Table 8-1 presents the comments received on the Draft EA during the public comment period. Responses are provided, where applicable.

Table 8-1: Comments and Responses on the Draft EA.

Comment No.	Name	Comment	Response
1	Nancy Heinrich, OEQC (fax dated March 16, 2005)	The distribution list for the EA looks good. Please ensure that the appropriate Neighborhood Commission also receives a copy.	Albert K. Fukushima, the chair of the Pearl City Neighborhood Commission No. 21, was sent a copy of the Draft EA on March 17, 2005.
2	Denis Lau, DOH, Clean Water Branch (letter dated March 23, 2005)	<p>The surface water near the Komo Drive Site appears to be Waimano Stream, which is also classified as a Class 2, Inland Water (Hawaii Administrative Rules (HAR), Section 11-54-3(b)(2)).</p> <p>A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. A NPDES permit is required before the commencement of the construction activities.</p> <p>The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities.</p> <p>The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State water and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e., NPDES general permits do not cover discharges into Class 1 or Class AA State waters).</p> <p>The HAR, Section 11-55-38, also requires that applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. The CWB acknowledges that Earth Tech received a letter from SHPD, dated November 8, 2002 regarding the subject projects. Please include a copy of the most recent SHPD determinations with the CWB-NOI Form C.</p>	<p>Additional text has been added to Section 3.14 of the EA describing the classification of nearby surface water.</p> <p>Following additional coordination with our project engineer, we have determined that less than one (1) acre of total land area will be disturbed during construction activities at the project site. This land area includes "areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e. bulldozers, cranes, etc.)". Therefore a NPDES general permit is not required. This determination was documented in a letter sent to the CWB on April 18, 2005 (see Appendix A).</p> <p>With the determination that a NPDES permit is not required for this project, an NOI is not required.</p> <p>No wastewater discharge from the project site is anticipated during construction activities. With no discharges anticipated, it is our understanding that an individual NPDES permit is not required.</p> <p>With the determination that a NPDES permit is not required for this project, an NOI is not required. However, additional coordination has been conducted with SHPD. See Sections 1.2, 3.3, and correspondence in Appendix A.</p>



Comment No.	Name	Comment	Response
3	Genevieve Salmonson, OEQC (letter dated March 31, 2005)	<p><u>Cultural impacts assessment:</u> The discussion in the EA deals only with historic and archeological resources. Act 50 mandates an assessment of impacts to <u>current</u> cultural practices by the proposed action. Include the assessment in your final EA.</p> <p><u>Significance criteria:</u> The forth criterion was updated in 2000 by Act 50 to read: "Substantially affects the economic welfare, social welfare, and <i>cultural practices</i> of the community or State." In sections 5.1 of your EA modify your analysis of project for this criterion.</p>	<p>Additional coordination and consultation was made to identify any current cultural practices in the project area in accordance with Act 50. See Sections 3.3, 4.3, and 5.1, and correspondence in Appendix A.</p> <p>Text has been revised accordingly.</p>
4	Albert Fukushima, Pearl City Neighborhood Board No. 21 (letter dated May 2, 2005)	A more updated and detailed time schedule for approval of design plans and construction period, together with the total estimated cost of the improvements, be disclosed in the Final EA.	See Section 2.3.

**Appendix A**  
**Agency Correspondence**

BERNARD J. CAYEANO  
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION  
KANEHEKA BUILDING, ROOM 548  
801 SANDWICH BOULEVARD  
HONOLULU, HAWAII 96813

DEBORAH S. COLEMAN-AGUIAR, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES  
ERIC Y. HIRAIWA  
UNNEL NISHIOKA

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

November 8, 2002

Yucheng Pan  
EarthTech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813

Dear Mr. Pan:

LOG NO: 31041 ✓  
DOC NO: 0210EJ29

**SUBJECT:** Chapter 6E-8 Historic Preservation Review - Request for Information  
Regarding Two Parcels Located in Nu'uuanu Valley and Pearl City,  
O'ahu

Nu'uuanu, Kona, O'ahu  
TMK: (1) 1-8-026:008  
Waimano, Ewa, O'ahu  
TMK: (1) 9-7-025:010

A review of our records shows that there are no known historic sites at either of the parcels listed above. The Nu'uuanu parcel is an undeveloped rocky slope that runs down slope from Alewa heights to the Pu'uunui area. The Waimano parcel is located along the rocky slopes between Pacific Palisades subdivision and Waimano Valley. Although there are no known sites at these locations, no archaeological inventory surveys have been conducted at either parcel. Two historic sites have been recorded within Waimano Valley (-State site 4105, -4106) but are outside of the project area. These sites consist of a railroad trestle and agricultural features related to the historic use of the area during the sugar industry in the area. Although no other historic sites have been reported for either the Nu'uuanu or Waimano locations these types of lands have been known to contain shallow rock shelters which may contain historic sites, such as human burials.

Before our office can make a determination on the effect of this project on significant historic sites, an archaeological inventory survey of the project areas needs to be performed to determine if any historic sites are present, and if so, to gather sufficient information to evaluate their significance. A report of the findings must be submitted to our Division for review. If significant historic sites are found during the survey, a mitigation plan may need to be developed and executed prior to beginning any ground disturbance.

Yucheng Pan  
Page Two

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

Aloha,

Don Hibbard, Administrator  
State Historic Preservation Division

EJjk

c: Randall Fujiki, Director, Dept of Planning and Permitting, City and County of Honolulu, 650 S. Beretania Street, Honolulu, HI 96813 (ATTN: Ardis Shaw-Kim)

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

15 December 2004

State of Hawaii, Department of Health  
Clean Water Branch  
919 Ala Moana, Room 301  
Honolulu, HI 96814-4920

Subject: NPDES General Permit for Storm Water Associated with Construction  
Activities at Two Rockfall Protection Sites: Old Puunui Quarry and  
Komo Mai Drive, Oahu.

Dear Sir/Madame:

Early coordination is requested from the State of Hawaii Department of Health (DOH),  
Clean Water Branch (CWB) regarding the need for a NPDES General Permit for two  
construction projects proposed by the State of Hawaii Department of Land and Natural  
Resources (DLNR). Construction activities are related to implementation of rockfall  
protection measures on two DLNR properties: Old Puunui Quarry and Komo Mai Drive,  
Oahu. The proposed actions are as follows:

Old Puunui Quarry is a 2.36-acre site identified with TMK 1-8-026:006 and located in  
Nuuanu Valley. Proposed rockfall mitigation measures include installation of 50 linear feet  
(LF) of rockfall protection fence, demolition or stabilization of rock outcroppings and  
boulders, and removal of loose rocks from discrete locations throughout the project site.  
Localized demolition of boulders and removal of loose rock will occur over a total area of  
less than 1 acre.

Komo Mai Drive is a 33.9-acre parcel identified with TMK 9-7-025:010 and located in the  
Waimano area of Oahu. Rockfall protection measures are proposed on approximately 8  
acres of the 33.9-acre parcel adjacent to Komo Mai Drive. Proposed activities include  
installation of a mesh and cable net system over approximately 2.3 acres of hillside,  
installation of 820 LF of chain link fence, and 220 LF of rockfall protection fence. Activities  
will include some grass and weed cutting that will leave the soil intact. Localized demolition  
of boulders and removal of loose rock will occur over a total area of less than 1 acre.

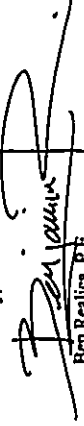
Per HAR Chapter 11-55, Appendix C, NPDES General Permits cover "discharges composed  
entirely of storm water runoff associated with construction activities, including clearing,  
grading, and excavation that result in the disturbance of one acre or more of total land area".  
Disturbance of land "refers to the penetration, turning, or moving of soil... or the exposure  
of bare soil or ground surface".

It is our judgment that a permit is not required for Old Puunui Quarry, as the total land area  
to be disturbed is less than one acre, or for Komo Mai Drive, as laying of a cable net and  
mesh system does not constitute ground disturbance as defined in HAR 11-55, Appendix C.  
We would like your concurrence that a NPDES General Permit is not required for either  
proposed action before proceeding with construction activities.

Earth Tech, Inc. is performing this consultation on behalf of DLNR. If you should have any  
questions regarding the content of this submittal or require additional information, please  
contact Michelle Mason or Tanya Copleland at (808) 523-8874.

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

Sincerely,



Ben Realta, P.E.  
Project Engineer  
EARTH TECH, INC.

Enclosure:

Location Map: Old Puunui Quarry  
Proposed Action: Old Puunui Quarry  
Location Map: Komo Mai Drive  
Proposed Action: Komo Mai Drive

cc: Michelle Mason, Task Manager  
Project File

EARTHTECH



A T U C O INTERNATIONAL LTD COMPANY

EARTHTECH



A T U C O INTERNATIONAL LTD COMPANY



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

CYRILLE L. FURUKO, M.D.  
DIRECTOR OF HEALTH

in reply, please refer to  
Case #

01010P/KP.05

January 5, 2005

Mr. Ben Realica  
Project Engineer  
Earth Tech, Inc.  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813

Dear Mr. Realica:

**Subject:** Early Coordination for Old Puunui Quarry and Komo Mai Drive Rockfall Protection Sites

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject document and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9238 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Control Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters..."
2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:
  - a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).
  - b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.
  - c. Discharges of treated effluent from leaking underground storage tank remedial activities.
  - d. Discharges of once through cooling water less than one (1) million gallons per day.

Mr. Ben Realica  
January 5, 2005  
Page 2

- e. Discharges of hydrotesting water.
- f. Discharges of construction dewatering effluent.
- g. Discharges of treated effluent from petroleum bulk stations and terminals.
- h. Discharges of treated effluent from well drilling activities.
- i. Discharges of treated effluent from recycled water distribution systems.
- j. Discharges of storm water from a small municipal separate storm sewer system.
- k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at:

<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at:

<http://www.hawaii.gov/health/environmental/water/cleanwater/index.html>

4. Hawaii Administrative Rules, Section 11-55-38, also requires the applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF  
Clean Water Branch

KP-np

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

07 February 2005

State Historic Preservation Division  
Kakuhikewa Building  
601 Kamohala Boulevard, Room 555  
Kapolei, Hawaii 96707

**SUBJECT:** Section 106 National Historic Preservation Act Consultation for the State of Hawaii, Department of Land and Natural Resources, Engineering Division Rockfall Protection Studies for Komo Mai Drive (TMK 9-7-025:010) and Old Puunui Quarry (TMK 1-8-026:006)

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, is requesting early coordination from the State Historic Preservation Division (SHPD) regarding two Environmental Assessments (EAs) being prepared by DLNR, Engineering Division and Earth Tech for rockfall protection measures along Komo Mai Drive in Pearl City and the Old Puunui Quarry in Nuuanu.

The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

The proposed action at the Old Puunui Quarry site provides for installation of 20 LF of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.

Telephone  
808.523.8874  
Facsimile  
808.523.8950

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

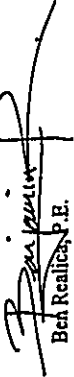
Actions relevant to SHPD, among others, for this project include historic preservation clearance. As part of the EA, Pacific Consulting Services, Inc. (PCSI) of Honolulu conducted an archeological reconnaissance survey of the project areas in January 2005. Copies of the archeological reconnaissance survey reports are attached. The results of the survey indicate that no archaeological features were observed within the project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONS) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.



Beth Realiza, P.E.  
Project Engineer

Enclosures:

Komo Mai Drive Archeological Reconnaissance Survey Report, PCSI  
February 2005  
Old Puunui Quarry Archeological Reconnaissance Survey Report, PCSI  
February 2005

cc: Michelle Mason, Task Manager  
Project File



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

07 February 2005

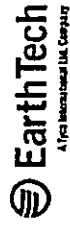
Office of Hawaiian Affairs  
711 Kapiolani Boulevard, Suite 1250  
Honolulu, Hawaii 96813

**SUBJECT:** Native Hawaiian Special Interest Consultation for the State of  
Hawaii, Department of Land and Natural Resources, Engineering  
Division Rockfall Protection Studies for Komo Mai Drive (TMK  
9-7-025:010) and Old Puunui Quarry (TMK 1-8-026:006)

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, is requesting early coordination from the Office of Hawaiian Affairs (OHA) regarding two Environmental Assessments (EAs) being prepared by DLNR, Engineering Division and Earth Tech for rockfall protection measures along Komo Mai Drive in Pearl City and the Old Puunui Quarry in Nuuanu.

The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 linear feet (LF) of 3-foot high chain link fence, with a tie-back system, would be installed along the upslope edge of the mesh and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

The proposed action at the Old Puunui Quarry site provides for installation of 20 LF of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

Actions relevant to OHA, among others, for this project include historic preservation clearance. As part of the EA, Pacific Consulting Services, Inc. of Honolulu conducted an archeological reconnaissance survey of the project areas in January 2005. Copies of the archeological reconnaissance survey reports are attached. The results of the survey indicate that no archaeological features were observed within the project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONSI) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.

A handwritten signature in black ink, appearing to read "Ben Resalida".

Ben Resalida, P.E.  
Project Engineer

Telephone

808.523.8874

Facsimile

808.523.8950

Enclosures:

Komo Mai Drive Archeological Reconnaissance Survey Report, PCSI  
February 2005  
Old Puunui Quarry Archeological Reconnaissance Survey Report, PCSI  
February 2005

cc: Michelle Mason, Task Manager  
Project File



300 Ala Moana Blvd., Suite 500, Honolulu, Hawaii 96813  
Telephone: 808.523.8874 Facsimile: 808.523.8950

March 9, 2005

Mr. Paul Henson, Field Supervisor  
U.S. Fish and Wildlife Service  
Pacific Islands Eco-Region  
300 Ala Moana Boulevard, Room 5-122  
Honolulu, Hawaii 96850

**SUBJECT: Section 7 Informal Consultation for Old Puunui Quarry and  
Komo Mai Drive, Environmental Assessments for Rockfall  
Protection Measures**

Dear Mr. Henson:

Earth Tech, Inc. (Earth Tech), on behalf of the State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division is preparing two Environmental Assessments (EAs) to analyze environmental impacts from proposed rockfall protection measures at two sites on Oahu, Hawaii. The sites are identified as the Old Puunui Quarry in Nuuanu and Komo Mai Drive in Pearl City.

The Old Puunui Quarry site is identified with Tax Map Key (TMK): (1) 1-8-26:6 having an area of approximately 2.37 acres. This parcel of land is located on a very steep mountain slope bound at the top by Alewa Height and at the bottom by Rooke Avenue in the Nuuanu area. The proposed action at the Old Puunui Quarry site provides for installation of 20 linear feet (LF) of 10-foot high rockfall protection fence parallel to and upslope of the rockfall protection fence previously installed along the bottom property boundary. Rock overhangs and outcroppings located above the quarry and immediately on the upslope of the protection fence line are to be demolished or stabilized to reduce the potential for future rockfalls. Loose rocks would then be removed as necessary to reduce the potential for rockfall.

The Komo Mai Drive site is identified with TMK: (1) 9-7-025:010 having an area of approximately 33.9 acres. This parcel of land is located on a steep mountain slope bound at the top by a housing community and at the bottom by Komo Mai Drive located in the Waimano area. Rockfall protection measures are proposed only in those areas adjacent to and upslope of Komo Mai Drive (approximately 8.87 acres of 33.9 acres of the total TMK). The proposed action at the Komo Mai Drive site involves mitigation of the present slope condition using a cable net and mesh system to contain any potential slope failure and rockfall events. An existing chain link fence along Komo Mai Drive would be left in-place and 820 LF of 3-foot high chain link and cable net drape system. Approximately 220 LF of 10-foot high rockfall protection fence would be constructed below a rock cliff. The mesh and cable net system will blanket the hillside, preventing erosion of weathered basalt soil and

smaller rock particles. It conforms to the slope allowing growth of vegetation with little or no disturbance to the natural setting of the property and providing erosion protection of the soft soil areas.

On behalf of DLNR, we would like to initiate a Section 7 Informal Consultation under the Endangered Species Act of 1972 as amended 16 U.S.C. 1531 *et. seq.*, the Marine Mammal Protection Act of 1972 as amended 16 U.S.C. 1361 *et. seq.*, and the Migratory Bird Treaty Act, 16 U.S.C. Part 703 *et. seq.* Actions relevant to the USFWS, among others, include a review of threatened and endangered species which may be impacted by the proposed actions.

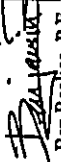
As part of the EA, AECOS, Inc. of Kaneohe conducted biological surveys at both project areas during January and February 2005. Copies of the biological survey reports are attached. The results of the survey indicate that no threatened or endangered species were observed within both project areas. The proposed action, impacts, and proposed mitigation measures will be described in the Draft EA. A finding of no significant impact (FONSI) is anticipated for this project.

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Tanya Copeland at (808) 523-8874.

Sincerely,

Very truly yours,

EARTH TECH, INC.


  
Ben Realica, P.E.  
Project Engineer

Enclosures:

Komo Mai Drive Biological Survey Report, AECOS, Inc. February 2005  
Old Puunui Quarry Biological Survey Report, AECOS, Inc. February 2005

cc: Michelle Mason, Task Manager  
Project File

 EarthTech  
A Not International Inc. Company

 EarthTech  
A Not International Inc. Company





PETER E. YOUNG  
 CHAIRPERSON  
 BOARD OF LAND AND NATURAL RESOURCES  
 COMMISSION ON NATURAL RESOURCES MANAGEMENT  
 AQUATIC RESOURCES  
 BUREAU OF CONSERVATION  
 BUREAU OF LAND MANAGEMENT  
 COMMISSION ON WATER RESOURCES MANAGEMENT  
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 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 NATIONAL PRESERVATION  
 NATURAL RESOURCES  
 HAWAIIAN ISLAND RESERVE COMMISSION  
 STATE TREASURY



STATE OF HAWAII  
 DEPARTMENT OF LAND AND NATURAL RESOURCES  
 ENGINEERING DIVISION  
 POST OFFICE BOX 373  
 HONOLULU, HAWAII 96809

MAR 10 2005

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

Dear Ms. Salmonson,

Draft Environmental Assessment (DEA) for Komo Mai Drive  
 TMK 9-7-025:010, Pearl City, Oahu, Hawaii

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division, has reviewed the DEA for the subject project, and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the March 23, 2005 Office of Environmental Quality Control (OEQC) Environmental Notice.

We have enclosed a completed OEQC Publication Form, four copies of the DEA, and the project summary on disk. Please call Ben Realica or Michelle Mason of Earth Tech, Inc. at Ph. 523-8874 should you have any questions.

Sincerely,

*Eric T. Hirano*  
 ERIC T. HIRANO  
 Chief Engineer

Enclosures:  
 Draft Environmental Assessment (DEA) for Komo Mai (4 copies)  
 OEQC Publication Notice Form for Komo Mai  
 OEQC Project Summary\_Komo Mai.pdf (on disk)

C: Edwin Matsuda, DLNR  
 Michelle Mason, Earth Tech Task Manager

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
 Telephone 808.523.8874 Facsimile 808.523.8950

March 14, 2005  
 Hawaii State Library  
 Hawaii Documents Section  
 478 South King Street  
 Honolulu, HI 96813-2901

Subject: Submittal of Draft Environmental Assessment (EA) for Rockfall  
 Protection at the Komo Mai Drive Site on Oahu, Hawaii

Dear Hawaii State Library:  
 The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Komo Mai Drive Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at these sites.  
 Telephone  
 808.523.8874  
 Facsimile  
 808.523.8950

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control Environmental Notice. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason, Earth Tech  
 841 Bishop Street, Suite 500  
 Honolulu, Hawaii 96813  
 Fax: (808) 523-8950  
 Email: Michelle.Mason@earthtech.com

Please maintain this document in your library Hawaiian/Pacific collections for public review. If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
 Task Manager

Enclosure: Draft EA for Rockfall Protection for the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DLNR, Engineering Division - Project Engineer  
 Ben Realica, Earth Tech - Project Engineer  
 Project File



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

March 14, 2005

Pearl City Public Library  
1138 Waimano Home Road  
Pearl City, Hawaii 96782

**Subject:** Submittal of Draft Environmental Assessment (EA) for Rockfall Protection at the Komo Mai Drive Site on Oahu, Hawaii

Dear Pearl City Public Library:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Komo Mai Drive Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at these sites.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

Please maintain this document in your library Hawaiian/Pacific collections for public review. If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan French at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosure:

Draft EA for Rockfall Protection for the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division - Project Engineer  
Ben Realica, Earth Tech - Project Engineer  
Project File

Telephone

808.523.8874

Facsimile

808.523.8950

March 14, 2005

**Subject:** Submittal of Draft Environmental Assessments (EAs) for Rockfall Protection at the Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii

Dear EA Recipient:

Telephone

808.523.8874

Facsimile

808.523.8950

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii. Enclosed please find the associated draft EAs for rockfall protection measures at these sites.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason  
Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan French at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

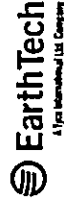
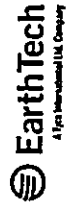
*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Draft Environmental Assessment for Rockfall Protection for the Old Puunui Quarry Site, Oahu, Hawaii  
Draft Environmental Assessment for Rockfall Protection at the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division - Project Engineer  
Ben Realica, Earth Tech - Project Engineer  
Project File



March 16, 2005

TO: Michelle Mason  
FROM: Nancy Heinrich, OEQC (ph: 586-4185)

Hi Michelle, Your distribution lists look good, except for the public library copy of the DEA for Puunui - you have Pearl City Library listed, should be Liliha Library.

For future ref, here is the Neighborhood Commission website, where you can find all kinds of useful information about the neighborhood boards, including mailing addresses of chairs and their meeting schedules. <http://www.honolulu.gov/ncw/> the site's v. well organized.

If you send the DEA copy c/o the Commission office, it will be delivered at the next regularly scheduled meeting, which may not give the board enough time to review and comment by the deadline. Therefore, I recommend sending the EA directly to the chair. I went ahead and looked up the chairs and their addresses for you.

Puunui Liliha/Kanalama NB #14):

Sesita Moepono (Chair)  
1703 Skyline Drive 96817  
(R) 595-2959 (B) 595-3137  
email: [nalojo2000@yahoo.com](mailto:nalojo2000@yahoo.com)

Pacific Palisades (PC NB #21):

Albert K. Fukushima (Chair)  
1841 Palamoi Street 96782  
(R) 455-7753 (B) 531-4252x18  
(F) 526-2476  
email: [fukushima005@hawaii.rr.com](mailto:fukushima005@hawaii.rr.com)

Call or email [nheicuri@mail.health.state.hi.us](mailto:nheicuri@mail.health.state.hi.us) if you have any questions.

March 17, 2005

Albert K. Fukushima - Chair  
Pacific Palisades NB #21  
1841 Palamoi Street  
Pearl City, Hawaii 96782

Subject: Submittal of Draft Environmental Assessments (EA) for Rockfall Protection at the Komo Mai Drive Site on Oahu, Hawaii

Dear Mr. Fukushima:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Komo Mai Drive Site on Oahu, Hawaii. Enclosed please find the associated draft EA for rockfall protection measures at this site, which is located within your neighborhood board.

The public comment review period officially starts on March 23, 2005 when the notice of the EA is published in the State of Hawaii, Office of Environmental Quality Control *Environmental Notice*. The 30-day public comment period will then end on April 21, 2005. All comments received or postmarked by April 21, 2005 will be considered in the Final EA. Comments should be sent to:

Ms. Michelle Mason  
Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: [Michelle.Mason@earthtech.com](mailto:Michelle.Mason@earthtech.com)

If you should have any questions regarding the content of this submittal or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures: Draft Environmental Assessment for Rockfall Protection for the Komo Mai Drive Site, Oahu, Hawaii

cc: Edwin Matsuda, DNLR, Engineering Division - Project Engineer  
Ben Realica, Earth Tech - Project Engineer  
Project File

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

Telephone  
808.523.8874  
Facsimile  
808.523.8950





CYNTHIA L. TUNONG, M.D.  
DIRECTOR OF HEALTH

My copy of this letter is  
dated 03/09/05  
03098PJS.05

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

March 23, 2005

Ms. Michelle Mason  
Task Manager  
Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813

Dear Ms. Mason:

Subject: Draft Environmental Assessments (EAs) for Rockfall Protection at the  
Old Puunui Quarry Site and the Komo Mai Drive Site on Oahu, Hawaii

The Department of Health, Clean Water Branch (CWB), has reviewed the two (2) subject EAs, dated March 2005, regarding the proposed construction of rockfall mitigation measures and localized demolition of boulders and removal of loose rock at the Old Puunui Quarry Site and the Komo Mai Drive Site. Please note that the calculation of the disturbed areas of the construction activities should also include the areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e., bulldozers, cranes, etc.).

The surface water near the Old Puunui Quarry Site appears to be a tributary to Waoiahi Stream, which is classified as a Class 2, Inland Water (Hawaii Administrative Rules (HAR), Section 11-54-3(b)(2)). The surface water near the Komo Mai Drive Site appears to be Waimano Stream, which is also classified as a Class 2, Inland Water.

The CWB has the following comments:

1. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for construction activities, including cleaning, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.

The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/genl-index.html>.

Ms. Michelle Mason  
March 23, 2005  
Page 2

2. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e., NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at <http://www.hawaii.gov/health/environmental/water/cleanwater/forms/indiv-index.html>.

3. The HAR, Section 11-55-38, also requires the applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD. The CWB acknowledges that EarthTech received a letter from SHPD, dated November 8, 2002, regarding the subject projects. Please include a copy of the most recent SHPD determination with the CWB-NOI Form C (Section 10.f. - Existing or Pending Permits, Licenses, or Approvals).

If you have any questions, please contact Ms. Joanna L. Seto of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF  
Clean Water Branch

JLS:cu



LINDA LINGLE  
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON  
DIRECTOR

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
201 SOUTH BETHLEHEM STREET  
HONOLULU, HAWAII 96813  
TELEPHONE: (808) 546-1100  
FACSIMILE: (808) 546-1100  
E-mail: [oeqc@hawaii.gov](mailto:oeqc@hawaii.gov)

March 31, 2005

Eric Hirano  
Department of Land and Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Hirano:

Subject: Draft Environmental Assessment (EA), Rockfall Protection, Komo Mai Drive and draft EA, Rockfall Protection, Old Puunui Quarry

We have the following comments:

**Cultural impacts assessment:**  
The discussion in these EAs deals only with historic and archeological resources. Act 50 mandates an assessment of impacts to current cultural practices by the proposed project. Include the assessment in your final EAs.  
For assistance in the preparation refer to our *Guidelines for Assessing Cultural Impacts*. Go to our website at <http://www.state.hi.us/health/oeqc/guidance/index.html> or contact our office for a paper copy. You will also find the text of Act 50 linked to this section of our homepage.

**Significance criteria:** The fourth criterion was updated in 2000 by Act 50 to read: "Substantially affects the economic welfare, social welfare, and cultural practices of the community or State." In sections 5.1 of your two final EAs modify your analysis of the project for this criterion.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

*Genevieve Salmonson*  
GENEVIEVE SALMONSON  
Director

c: Michelle Mason, Earth Tech

French, Dan

From: Mason, Michelle  
Sent: Tuesday, April 12, 2005 12:37 PM  
To: 'info@oha.org'  
Cc: French, Dan  
Subject: Current Traditional Cultural Uses and Practitioners

Dear OHA-

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uano Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uano and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to, hunting, fishing, gathering and religious services.

We are hoping you can assist us with identifying local cultural practitioners in these two project areas. Any information would be greatly appreciated.

Mahalo,

Michelle Mason  
Earth Tech - Honolulu  
Task Manager

**Frerich, Dan**

**From:** Frerich, Dan  
**Sent:** Tuesday, April 12, 2005 12:42 PM  
**To:** 'kahea-alliance@hawaii.rr.com'  
**Cc:** Mason, Michelle  
**Subject:** Current Traditional Cultural Uses and Practitioners

Dear KAHEA-

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uani Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech., Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uani and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to, hunting, fishing, gathering and religious services.

We are hoping you can assist us with identifying local cultural practitioners in these two project areas. Any information would be greatly appreciated.

Mahalo,

Dan Frerich  
Earth Tech - Honolulu  
Environmental Scientist



KomoMai-Fig 1-1.pdf Puunui-Fig 1-1.pdf

811 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

April 18, 2005

Denis Lau, P.E. - Chief  
Clean Water Branch  
P.O. Box 3378  
Honolulu, Hawaii 96801-3378

**Subject:** Draft Environmental Assessments (EA) for Rockfall Protection at the Old Puunui Quarry Site Komo Mai Drive Site on Oahu, Hawaii

Dear Mr. Lau:

Earth Tech, Inc. has reviewed your letter dated March 23, 2005 regarding the Clean Water Branch (CWB) review of the two (2) subject EAs. Following additional coordination with our project engineer, we have determined that less than one (1) acre of total land area will be disturbed during construction activities at each of the project sites. This land area includes "areas used for the construction staging, areas used for the storage of materials, and the areas disturbed by construction equipment (i.e. bulldozers, cranes, etc)."

It is our understanding that if less than one (1) acre of total land area is disturbed during construction activities, a National Pollutant Discharge Elimination System (NPDES) general permit is not required.

Additionally, we concur with your determination that the surface waters near the project sites are classified as Class 2, Inland Waters. However, no wastewater discharges from the project sites are anticipated during construction activities. With no discharges anticipated, it is our understanding that an individual NPDES permit is not required.

Following review of your comments, we have determined that no NPDES permits are required for the subject projects. If however, it is determined that more than one (1) acre of land will be disturbed, or that wastewater will be discharged for the project sites, appropriate coordination with the CWB and permit acquisition will be conducted.

We appreciate the CWB review of the subject EAs and look forward to coordinating with your department on future projects. If you should have any questions or require additional information, please contact Michelle Mason at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

cc: Edwin Matsuda, DLNR, Engineering Division - Project Engineer  
Ben Realica, Earth Tech - Project Engineer  
Project File

Telephone

808.523.8874

Facsimile

808.523.8950

EarthTech  
A Division of Earth Systems

April 19, 2005

Albert K. Fukushima – Chair  
Pacific Palisades NB #21  
1841 Palamoi Street  
Pearl City, Hawaii 96782

**Subject:** Current Traditional Cultural Uses in the Waimano Ahupua'a, Oahu, Hawaii

Dear Mr. Fukushima:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Komo Mai Drive Site on Oahu, Hawaii (see attached figure). The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Waimano Ahupua'a with regards to cultural uses in the project area. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Waimano Ahupua'a or provide statements with regards to cultural uses in the project area, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Fretsch at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosure:

cc: Figure 1: Location Map, Komo Mai Drive Site  
Edwin Matsuda, DLNR, Engineering Division – Project Engineer



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone: 808.523.8874 Facsimile 808.523.8950

April 19, 2005

University of Hawaii at Manoa  
Center for Hawaiian Studies  
Hawaiian Studies Building Room 209A  
2645 Dole St  
Honolulu HI 96822

**Subject:** Current Traditional Cultural Uses in the Nu'uuanu and Waimano Ahupua'a, Oahu, Hawaii

Dear UH Center for Hawaiian Studies:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uuanu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uuanu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uuanu and Waimano Ahupua'a or provide statements, please contact

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Fretsch at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

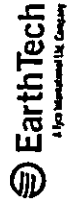
*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

Telephone  
808.523.8874  
Facsimile  
808.523.8950

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

Office of Hawaiian Affairs  
711 Kapiolani Boulevard, Suite 1250  
Honolulu, Hawaii 96813

**Subject: Current Traditional Cultural Uses in the Nu'uano and Waimano Ahupua'a, Oahu, Hawaii**

Dear Office of Hawaiian Affairs:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uano Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uano and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to: hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uano and Waimano Ahupua'a or provide statements, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Fretich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

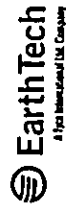
*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

April 19, 2005

KAHEA  
P.O. Box 27112  
Honolulu, Hawaii 96827-0112

**Subject: Current Traditional Cultural Uses in the Nu'uano and Waimano Ahupua'a, Oahu, Hawaii**

Dear KAHEA:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uano Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uano and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to: hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uano and Waimano Ahupua'a or provide statements, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Fretich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

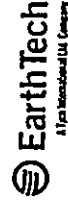
*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division – Project Engineer





April 19, 2005

Department of Hawaiian Homelands  
P.O. Box 1879  
Honolulu, Hawaii 96805

Subject: Current Traditional Cultural Uses in the Nu'uauu and Waimano Ahupua'a, Oahu, Hawaii

Dear Department of Hawaiian Homelands:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uauu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a or provide statements with regards to cultural uses in the project areas, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

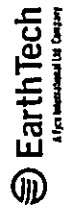
*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division - Project Engineer



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

Telephone

808.523.8874

Facsimile

808.523.8950

April 19, 2005

Mary Carney  
State Historic Preservation Division  
Kakuhilewa Building  
601 Kamohila Boulevard, Room 555  
Kapolei, Hawaii 96707

Subject: Current Traditional Cultural Uses in the Nu'uauu and Waimano Ahupua'a, Oahu, Hawaii

Dear Ms. Carney:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uauu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to; hunting, fishing, gathering and religious services. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a or provide statements, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan Frerich at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site

cc: Edwin Matsuda, DLNR, Engineering Division - Project Engineer



841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

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Facsimile

808.523.8950

841 Bishop Street, Suite 500, Honolulu, Hawaii 96813  
Telephone 808.523.8874 Facsimile 808.523.8950

April 20, 2005

Hauanani Bernardino  
University of Hawaii, Hilo  
Hawaiian Studies Division, Office K 233  
200 W. Kawili St.  
Hilo, HI 96720-4091

**Subject:** Current Traditional Cultural Uses in the Nu'uauu and Waimano Ahupua'a, Oahu, Hawaii

Dear Hauanani Bernardino:

The State of Hawaii, Department of Land and Natural Resources (DLNR), Engineering Division has proposed rockfall protection measures to be undertaken at the Old Puunui Quarry and Komo Mai Drive on Oahu, Hawaii (see attached figures). The Old Puunui Quarry site lies within the Nu'uauu Ahupua'a, Honolulu District. The Komo Mai Drive site lies within the Waimano Ahupua'a, Ewa District.

In compliance with Act 50 of HRS 343, Earth Tech, Inc., seeks statements from current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a with regards to cultural uses in the project areas. Cultural uses include but are not limited to: hunting, fishing, gathering and religious services. We received your name from Puakea Nogelmeier who indicated you were a long-time resident of Lihua, and could be knowledgeable about neighborhood practitioners. If you can provide a list of current traditional Hawaiian practitioners in the Nu'uauu and Waimano Ahupua'a or provide statements with regards to cultural uses in the project areas, please contact:

Ms. Michelle Mason, Earth Tech  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: Michelle.Mason@earthtech.com

If you should have any questions regarding the content of this request or require additional information, please contact Michelle Mason or Dan French at (808) 523-8874.

Very truly yours,

EARTH TECH, INC.

*Michelle Mason*

Michelle Mason  
Task Manager

Enclosures:

Figure 1: Location Map, Old Puunui Quarry Site  
Figure 2: Location Map, Komo Mai Drive Site  
Edwin Matsuda, DLNR, Engineering Division - Project Engineer



**PEARL CITY NEIGHBORHOOD BOARD NO. 21**

410 NEIGHBORHOOD COMMISSION • 500 SOUTH KING STREET, ROOM 400 • HONOLULU, HAWAII 96813

May 2, 2005

Earth Tech, Inc.  
841 Bishop Street, Suite 500  
Honolulu, HI 96813

Attention: Mr. Benjamin Realica

Gentlemen:

Post-Net Fax Note	7671	Date	5/16/05
To	B. REALICA	From	NCS
Company		Co	DLNR
Phone #	523-8150	Phone #	523-4765
Fax #	523-8150	Fax #	523-5760

**Subject:** Komo Mai Drive Rock Fall Protection Measures  
Draft Environmental Assessment (EA)  
Tax Map Key: 97-25-10

Thank you for attending our April 26, 2005 Regular Board Meeting to inform the community of the proposed improvements to the steep slopes of Waimano Gulch adjacent to Komo Mai Drive to reduce future rock fall and landslide occurrences and the protect property damage and human life.

Based on this presentation and an advance review of the Draft EA, the Pearl City Neighborhood Board No.21 voted, 10-0-0, that it has no objection to the findings noted in the document and recommends that all measures indicated to mitigate construction design, landscaping and visual impacts for the project be implemented. A more updated and detailed time schedule for approval of design plans and construction period, together with the total estimated cost of the improvements, be disclosed in the Final EA.

The on-going notification to the community with reports to this Neighborhood Board by the DLNR on the progress of the project, especially during the construction phase, is highly recommended and would be very much appreciated.

Mahalo for allowing us to provide input on this very important improvement for Pearl City.

Very truly yours,

*Albert K. Fukushima*

Albert K. Fukushima, Chair

cc: DLNR, Engineering Div.(Eric Hirano)  
Councilmember Gary Okino  
Senator David Ige  
Representative Roy Tekumi  
PCCA (Warren Hiramoto)  
P.C.A. (Christopher Prendergast)  
N. Comm. Office

PEARL CITY NEIGHBORHOOD BOARD NO. 21

**Appendix B  
Photo Log**



Photo 1: Project area along Komo Mai Drive proposed for installation of mesh and cable net drape systems.



Photo 2: Project area above Komo Mai Drive proposed for installation of mesh and cable net drape systems.



Photo 3: Fallen rocks behind existing chain link fence along Komo Mai Drive.



Photo 4: Potential rockfall hazards in project area.

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**Appendix C**  
**Biological Resource Survey Report**

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## Biological surveys in support of an Environmental Assessment for slope stabilization off Komo Mai Drive, Pearl City, Oahu, Hawaii<sup>1</sup>

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March 3, 2005

AECOS No. 1086A

Eric B. Guinther and Reginald David<sup>2</sup>  
AECOS, Inc.  
45-939 Kamehameha Highway, No. 104  
Kane'ohe, Hawai'i 96744  
Phone: (808) 234-7770 Fax: (808) 234-7775 Email: aecos@aecos.com

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### Summary

The Komo Mai Drive site is identified with TMK: (1) 9-7-025:010 being approximately one-third of this 33.9 acre parcel and consisting of a steep fluvial slope above Waimano Stream. The site, located in the Waimano (Pearl City) area of O`ahu, is bound at the top by Pacific Palisade, a housing community, and at the bottom by Komo Mai Drive. Several visits to the site were made and serve as a basis for this report on the site biological resources. These surveys determined that no species of plants or animals were present in the survey area that would require special considerations in planning or conducting slope stabilization activities on this property.

### Introduction

The purpose of this report is to provide results of a biological survey to supplement an Environmental Assessment (EA) evaluating impacts from slope stabilization and rockfall mitigations proposed for a project site named "Komo Mai Drive." This project site involves an 8.87 acre portion of the 33.9 acre parcel identified as TMK: (1) 9-7-025:010.

The subject parcel is located in Pearl City, O`ahu, on the mauka side of Komo Mai Drive (entrance and main access street for Pacific Palisade) just beyond the point where the roadway crosses Waimano Stream (Figures 1 and 2). At this location, Komo Mai Drive traverses laterally the steep side slope of Waimano Gulch ascending up to the interfluve. An intermittent stream cuts across the site within a steep

---

<sup>1</sup> Report prepared for Earth Tech, Inc., Job no. 79009.

<sup>2</sup> Rana Productions, Ltd. P.O. Box 1371, Kailua-Kona, Hawaii 96745





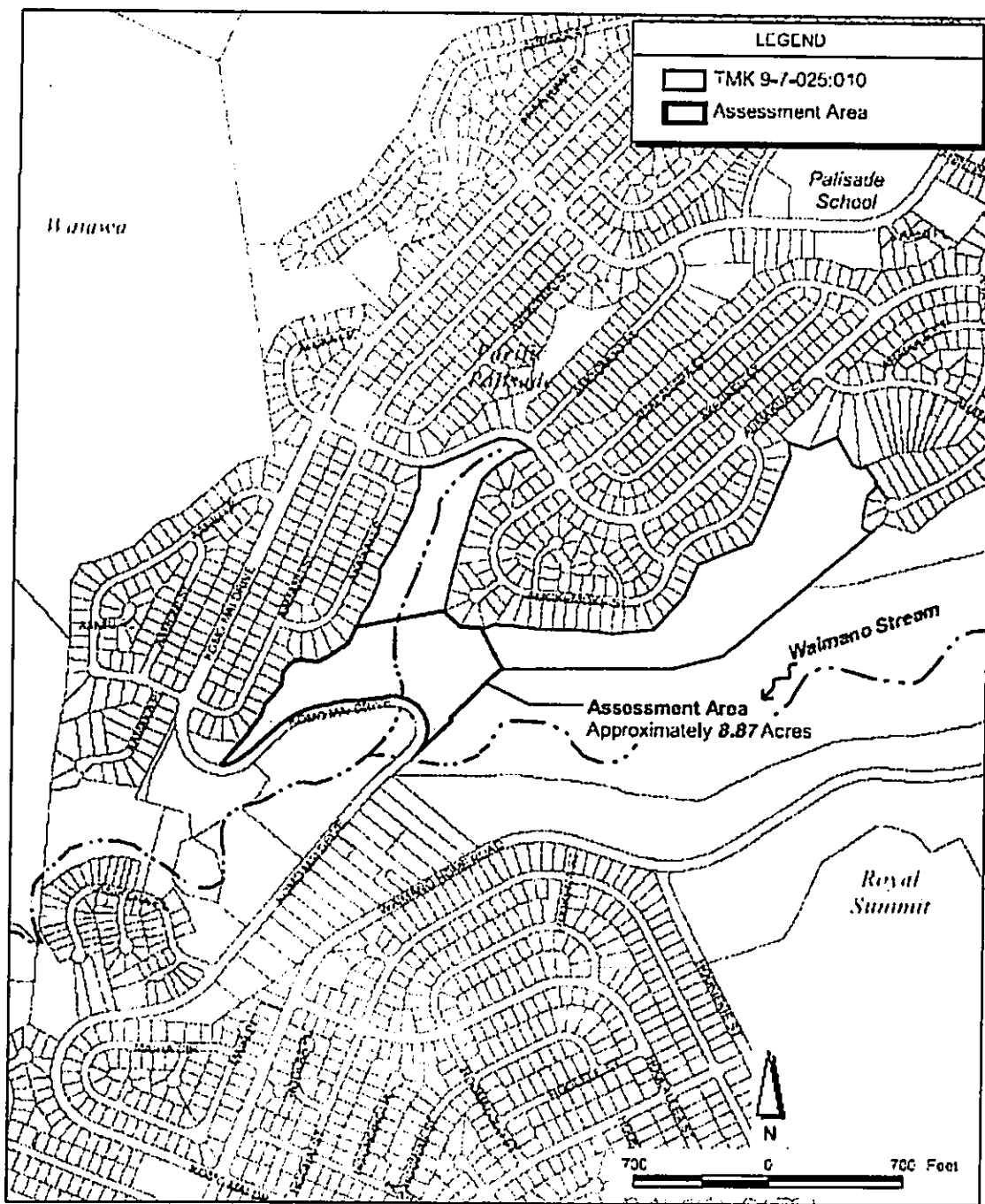


Figure 2. Survey site in relation to property boundaries and local streets

assessment area and scaling the cliff areas was completed on February 17, 2005. During these surveys, the plant species and vegetation types present were recorded and estimates of abundance of each species made. A plant checklist (Table 1) was compiled from all of the observations made by traversing the site as completely as

possible given the steepness of many areas. Observations on some parts of the cliff face could be made from the street below. Entries in this table are arranged alphabetically under family names. Included are the scientific name, the common name, and status of the species. The nomenclature of the higher plants follows that of Wagner, Herbst, and Sohmer (1990, 1999) for both the native and naturalized plants and Palmer (2003) for ferns. Names for ornamental species come from a variety of sources too numerous to list.

Vertebrate Survey ~ All observations of mammalian species were of an incidental nature. However, with the exception of the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*), or 'Ope`ape`a as it is known locally, all naturalized terrestrial mammals currently found on the Island of O`ahu are alien species. Most are ubiquitous in distribution. No trapping program was proposed or undertaken to quantify the use of the area by alien mammalian species. The survey of mammals was limited to visual and auditory detection, coupled with visual observation of scat, tracks, and other animal sign. A running tally was kept of all vertebrate species observed and heard within the study area. Mammal scientific names follow *Mammals in Hawaii* (Tomich, 1986).

Three Variable Circular Plot (VCP) avian count stations were established by R. David within and above the storm water control structure. Eight-minute variable circular plot counts were made at each station. Stations were each counted once. The heavy traffic and attendant noise along Komo Mai Drive precluded the use of VCP station counts as a method for surveying the cliff face directly fronting the road. For this section of the project area we conducted two separate 30-minute time-dependant counts of all birds seen or heard using resources along the cliff face. These counts were conducted from the sidewalk on the south side of the road approximately half the way up the hill. Field observations were made with the aid of Leitz 10 X 42 binoculars and by listening for vocalizations. Counts were concentrated between 7:30 a.m. and 10:00 a.m., the peak of daily bird activity. Time not spent counting was used to search the surrounding area for species and habitats that were not detected during count sessions.

Avian phylogenetic order and nomenclature follows *The American Ornithologist's Union Checklist of North American Birds 7<sup>th</sup> Edition* (American Ornithologist's Union, 1998), and the 42<sup>nd</sup> through the 45<sup>th</sup> supplements to *Check-list of North American Birds* (American Ornithologist's Union, 2000; Banks et al., 2002, 2003, 2004).

## Results

General Description and Plants ~ The site is characterized by a steep, mostly vegetated cliff face, cut below the middle by a natural drainage swale (Figure 3). The swale is characterized by steep margins, essentially vertical basalt rock faces at

the point where it intersects with Waimano Gulch. A steep, boulder strewn bed marks the course of an intermittent stream running through the gulch. No flowing water was present during the survey visits, although a pool in solid rock held stagnant water and was a significant breeding pool for mosquitoes. The vegetation seen within the gulch is somewhat different than that observed elsewhere during the survey and these species are marked "Ba" under "AREA" in Table 1. The swale is forested by large Java plum trees (*Syzigium cumini*), and a mixture of naturalized and some escaped ornamentals growing in the shaded interior.



Figure 3. Portion of the Komo Mai site showing the cliff face and an adjacent swale.

Ruderal weeds marked the more open portion where intermittent freshet flows in the swale are directed into a concrete and basalt boulder lined (crm) culvert then a concrete box culvert under Komo Mai Drive. These ruderal plants represent vegetation adapted to growing in an area disturbed with some regularly by cutting or mowing. Natal redtop grass (*Melinis repens*) is prominent here.

Above Komo Mai Drive the land rises rapidly, forming a rock (or soil in some places) cliff face ("Cf" under "AREA" in Table 1). The dominant vegetation is Guinea grass (*Panicum maximum*) and koa-haole (*Leucaena leucocephala*), with a variety of other typically dryland species present. The green cliff brake fern (*Cheilanthes viridis*) is common on the rocky cliff. Towards the west end, there occurs a number of

succulents, such as air plant (*Kalanchoë pinnata*), bowstring hemp (*Sansevieria trifasciata*), and century plant (*Furcraea foetida*).

Table 1. Listing of plants (flora) at the Komo Mai Drive site in Pearl City, O`ahu, Hawai`i

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
<b>FERNS</b>					
<b>POLYPODIACEAE</b>					
<i>Phlebodium aureum</i> (L.) J. Sm.	hare's foot fern	Nat.	Ba	U	
<i>Phymatosorus grossus</i> (Langsd. & Fisch)	laua`e	Nat.	Ba	U	
<b>PTERIDACEAE</b>					
<i>Cheilanthes viridis</i> (Forssk.) Sw.	green cliff-brake	Nat.	Cf	O	
<b>FLOWERING PLANTS</b>					
<b>DICOTYLEDONES</b>					
<b>ACANTHACEAE</b>					
<i>Asystasia gangetica</i> (L.) T. Anderson	Chinese violet	Nat.	Pl	O	
<b>AMARANTHACEAE</b>					
<i>Amaranthus spinosus</i> L.	spiny amaranth	Nat.	Ba	R	(2)
<b>ANACARDIACEAE</b>					
<i>Schinus terebinthifolius</i> Raddi	Christmasberry	Nat.	Ba	R	
<b>APOCYNACEAE</b>					
<i>Cascabela thevetia</i> (L.) Lippold	be-still tree	Nat.	Ba	R	(1)
<b>ARALIACEAE</b>					
<i>Schefflera actinophylla</i> (Endl.) Harms.	octopus tree	Nat.	Ba	R	
<b>ASTERACEAE (COMPOSITAE)</b>					
<i>Ageratum conyzoides</i> L.	maile hohono	Nat.	Ba	R	(2)
<i>Bidens pilosa</i> L.	Ki	Nat.	Ba	R	(2)
<i>Calyptocarpus vialis</i> Less.	---	Nat.	Ba	C	(2)
<i>Cotula</i> sp.	---	Nat.	Ba	O	(2)
<i>Emilia fosbergii</i> Nicolson	pualele	Nat.	Ba	A	(2)
<i>Sonchus oleraceus</i> L.	sow thistle	Nat.	Ba	R	(2)
			Cf	R	
<i>Sphagneticola trilobata</i> (L.) Pruski	wedelia	Nat.	Ba	U	
<i>Tridax procumbens</i> L.	coat buttons	Nat.	Ba	O	(2)
<b>BIGNONIACEAE</b>					
<i>Tabebuia donnell-smithii</i> Rose	prima vera tree	Om.	Ba	R	(1)
<b>BORAGINACEAE</b>					
<i>Carmona retusa</i> (Vahl.) Masam.	Fukien tea	Nat.	Ba	O	
			Pl	U	
<b>CACTACEAE</b>					
<i>Hylocereus undatus</i> (Haw.) Britton & Rose	night-blooming cereus	Nat.	Pl	Oc	
<i>Opuntia ficus-indica</i> (L.) Mill.	panini	Nat.	Cf	R	

Table 1 (continued).

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
<b>CONVOLVULACEAE</b>					
<i>Convolvulus arvensis</i> L.	field bindweed	Nat.	Ba	A	
<i>Ipomoea cairica</i> (L.) Sweet	koali `ai	Ind.	Ba	R	
<i>Ipomoea obscura</i> (L.) Ker-Gawl.	---	Nat.	Ba	C	
<b>CRASSULACEAE</b>					
<i>Kalanchoë pinnata</i> (Lam.) Pers.	air plant	Nat.	Cf Pl	C O	
<b>CUCURBITACEAE</b>					
<i>Coccinia grandis</i> (L.) Voigt	scarlet-fruited gourd	Nat.	Ba	R	
<b>EUPHORBIACEAE</b>					
<i>Chamaesyce hirta</i> (L.) Millsp.	garden spurge	Nat.	Ba	A	(2)
<i>Macaranga mappia</i> (L.) Müll. Arg.	bingabing	Nat.	Ba	R	
<i>Macaranga tanarius</i> (L.) Müll. Arg.	---	Nat.	Ba	U	
<b>FABACEAE</b>					
<i>Canavalia</i> sp.		Nat.	Ba	R	(1)
<i>Chamaecrista nictitans</i> (L.) Moench	partridge pea	Nat.	Ba	U	(2)
			Cf	O	
<i>Crotalaria</i> sp.	rattlepod	Nat.	Ru	U	(1)
<i>Desmodium incanum</i> DC	Spanish clover	Nat.	Pl.	U	
<i>Leucaena leucocephala</i> (Lam.) deWit	koa haole	Nat.	Ba	A	
			Cf	AA	
			Pl	AA	
<i>Falcataria moluccana</i> (Miq.) Bameby & Grimes	Moluccan albizia	Nat.	Ba	U	
<b>MALVACEAE</b>					
<i>Malvastrum coromandelianum</i> (L.) Garck	false mallow	Nat.	Ba	C	(2)
<i>Sida spinosa</i> L.	prickly sida	Nat.	Ba	C	(2)
<i>Thespesia populnea</i> (L.) Sol. Ex Correa	milo	Ind.	Ba	U	
<b>MORACEAE</b>					
<i>Ficus microcarpa</i> L. fil.	Chinese banyan	Nat.	Ba	U	
<b>MYRTACEAE</b>					
<i>Syzygium cumini</i> (L.) Skeels	Java plum	Nat.	Ba	C	
<i>Psidium guajava</i> L.	common guava	Nat.	Ba	R	
<b>OCHNACEAE</b>					
<i>Ochna kirkii</i> Oliver	---	Orn.	Ba	O	
<b>OXALIDACEAE</b>					
<i>Oxalis corniculata</i> L.	yellow wood sorrel, `ihi`ae	Ind.	Ba	O	(2)
<b>PHYTOLACCACEAE</b>					
<i>Rivina humilis</i> L.	coral berry	Nat.	Ba	U	

Table 1 (continued).

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
<b>PASSIFLORACEAE</b>					
<i>Passiflora suberosa</i> L.	huehue haole	Nat.	Ba	U	
<b>RUBIACEAE</b>					
<i>Paederia foetida</i> L.	maile pilau	Nat.	Ba	U	
<b>RUTACEAE</b>					
<i>Murraya paniculata</i> (L.) Jack	mock orange	Orn.	Ba	R	
<b>SAPINDACEAE</b>					
<i>Filicium dicipiens</i> (Wight & Arnott) Thwaites ex J.D. Hook.	fern tree	Nat.	Ba	C	
<b>SAPOTACEAE</b>					
<i>Chrysophyllum oliviforme</i> L.	copper leaf	Nat.	Pl	R	
<b>SOLANACEAE</b>					
<i>Solanum seaforthianum</i> Andr.	---	Nat.	Ba Pl	U U	
<b>STERCULIACEAE</b>					
<i>Waltheria indica</i> L.	'uhaloa	Nat..	Cf Pl	O U	
<b>VERBENACEAE</b>					
<i>Lantana camara</i> L.	lantana	Nat	Cf	O	
<i>Stachytarpheta jamaicensis</i> (L.) Vahl	Jamaican vervain	Nat.	Ba Cf	R U	(2)
<i>Stachytarpheta cayennensis</i> (Rich.) Vahl	---	Nat.	Cf	O	
<b>MONOCOTYLEDONES</b>					
<b>AGAVACEAE</b>					
<i>Furcraea foetida</i> (L.) Haw.	century plant	Nat.	Cf Pl	O O	
<b>ARACEAE</b>					
<i>Dieffenbachia</i> sp.	dumb cane	Orn.	Ba	R	
<i>Philodendron bipinnatifidum</i> Schott	split-leaf philodendron	Orn.	Ba	R	
<b>ARACACEAE</b>					
<i>Cocos nucifera</i> L.	coconut	Pol.	Ba	R	
<b>ASPARAGACEAE</b>					
<i>Protasparagus setaceus</i> (Kunth.) Oberm.	asparagus "fern"	Orn.	Ba	R	
<b>COMMELINACEAE</b>					
<i>Tradescantia spathacea</i> Sw.	Moses-in-a-boat	Orn.	Ba	R	
<i>Tradescantia zebrina</i> Hort. ex Bossé	wandering Jew	Orn.	Pl	R	
<b>DRACAENACEAE</b>					
<i>Sansevieria trifasciata</i> Prain	bowstring hemp,	Nat.	Cf Pl	C	

Table 1 (continued).

Species	Common name	Status	Abundance		Notes
			AREA	CODE	
<b>ORCHIDACEAE</b>					
indet.	single plant on cliff face	Orn.	Cf	R	
<b>POACEAE (GRAMINEAE)</b>					
<i>Bambusa vulgaris</i> cv. "vittata"	golden bamboo	Orn.	PI	O	
<i>Chloris radiata</i> (L.) Sw.	radiate fingergrass	Nat.	Ba	O	(2)
<i>Digitaria insularis</i> (L.) Mez ex Ekman	sourgrass	Nat.	Ba	R	(2)
<i>Eleusine indica</i> (L.) Gaertn.	beach wiregrass	Nat.	Ba	U	(2)
<i>Melinis repens</i> (Willd.) Zizka	Natal redtop	Nat.	Ba	C	
<i>Panicum maximum</i> Jacq.	Guinea grass	Nat.	Ba	AA	
			Cf	AA	
			PI	AA	
<i>Paspalum fimbriatum</i> Kunth	Panama grass	Nat.	Ba	U	(2)
<i>Phyllostachys nigra</i> (Lodd. ex Lindley) Munro	black bamboo	Nat.	PI	O	
indet. bamboo	---	Orn.	PI	O	

Legend to Table 1

Status = distributional status	
end. =	endemic; native to Hawaii and found naturally nowhere else.
ind. =	indigenous; native to Hawaii, but not unique to the Hawaiian Islands.
nat. =	naturalized, exotic, plant introduced to the Hawaiian Islands since the arrival of Cook Expedition in 1778, and well-established outside of cultivation.
orn. =	exotic, ornamental or cultivated; plant not naturalized (not well-established outside of cultivation).
pol. =	Polynesian introduction before 1778.
Site - abundance is related to these environments or areas:	
Ba -	Base of the cliff and swale areas; "riparian", rocky and talus debris slope; low to moderately steep
Cf -	Cliff face; rocky, steep, exposed
PI -	Plateau area; above cliff, soil slopes; houses adjacent at upper boundary.
Abundance = occurrence ratings for plants by area:	
R -	Rare - only one or two plants seen.
U -	Uncommon - several to a dozen plants observed.
O -	Occasional - found regularly, but not abundant anywhere.
C -	Common - considered an important part of the vegetation and observed numerous times.
A -	Abundant - found in large numbers; may be locally dominant.
AA -	Abundant - abundant and dominant; defining vegetation type.
Notes:	
(1)	plant without flowers or fruit; identification uncertain
(2)	Plant mostly ruderal here; found along Komo Mai Drive or swale culvert in areas regularly disturbed by mowing or cutting.

The highest part of the property is the plateau ("PI" under "AREA" in Table 1) a low sloping or less steep part of the interfluvium. This area is still moderately steep towards the west. The natural vegetation consists of *koa-haole* scrub and Guinea grass. However, as this area grades into the backyards of houses along Aamanu and Akaikai streets, much of the vegetation consists of planted and escaped ornamental yard plants including several bamboos in one area, and a variety of succulents (especially night-blooming cereus or *Hylocereus undatus*) in another. Where these species had clearly spread down the slope, they were included in Table

1; but the many ornamentals found along the back sides of the house lots were ignored for survey purposes.

In this survey, a total of 73 different species of plants were recorded as growing in the project area. Of these, only three species (4.1 %) are recognized as truly native; all three are common indigenous plants (defined as native to Hawaii, but also found naturally elsewhere in the Pacific Basin). No endemics were noted. One other plant (*Cocos* or coconut) is considered a Polynesian introduction. The vast majority of species are alien plants that have become naturalized in this low elevation, urban/suburban environment on leeward O`ahu. Fifteen (15) percent of the species recorded are ornamentals that have escaped yards in the nearby neighborhoods and are persisting, although not presently regarded as truly naturalized.

Vertebrate Survey ~ Three alien mammalian species were detected during the course of this survey. A number of barking dog (*Canis f. familiaris*) were heard barking from housing areas above and to the south of the study site. One small Indian mongoose (*Herpestes a. auropunctatus*) was seen running into the vegetation along the roadside, and we encountered dog and cat (*Felis catus*) sign and scat throughout the study area. All of the alien mammalian species recorded during this survey are deleterious to avian and floristic components of the remaining native ecosystems present on the Island.

A total of 201 individual birds of 15 different species, representing 11 separate families were recorded during the course of the avian survey (Table 2). Ten avian species representing 8 separate families were recorded during station counts, and 12 species representing 8 separate families were detected during the 30-minute time-dependent counts were recorded (Table 2).

All of the species detected are considered to be alien to the Hawaiian Islands. Avian diversity and densities were relatively low. During the point counts one species, Common Waxbill (*Estrilda a. astrild*) accounted for 40% of the total number of individual birds recorded. An average of 39 birds were detected per station count, while we recorded an average of 41.5 birds during the time-dependent counts.

## Discussion

None of the plants observed are listed or special in any respect that would require care to be taken in planning or conducting slope stabilization and rockfall mitigations on this property. No protected avian or mammalian species were recorded from within the study area, nor is the habitat that is present likely to support listed vertebrate species. It is highly unlikely that the stabilization of the hillside within the project area will have any impacts on protected avian or mammalian species. It is likely that during the construction phase of the proposed



action some individual alien birds or mammals may be temporarily disturbed, and elements of the vegetation destroyed. It is to be expected that following the completion of the construction phase of the project that any displaced birds and mammals will again resume use of the area and the alien vegetation will re-establish itself.

Table 2. Avian species detected during station and time dependant counts, Komo Mai Drive Stabilization Project.

Common Name	Scientific Name	ST	RA	TC
PHEASANTS & ALLIES – Phasianidae				
Red Junglefowl	<i>Gallus gallus.</i>	D	0.67	-
PIGEONS & DOVES - Columbidae				
Rock Pigeon	<i>Columbia livia</i>	A	-	2.50
Spotted Dove	<i>Streptopelia chinensis</i>	A	2.00	6.00
Zebra Dove	<i>Geopelia striata.</i>	A	5.33	5.00
BULBULS – Pycnonotidae				
Red-vented Bulbul	<i>Pycnonotus cafer</i>	A	0.67	4.00
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	A	4.33	3.50
THRUSHES - Turdidae				
White-rumped Shama	<i>Copsychus malabaricus indicus</i>	A	1.33	-
BABBLERS - Timaliidae				
Red-billed Leiothrix	<i>Leiothrix lutea</i>	A	3.00	-
SILVEREYES - Zosteropidae				
Japanese White-Eye	<i>Zosterops japonicus</i>	A	5.33	3.00
STARLINGS - Sturnidae				
Common Myna	<i>Acridotheres tristis</i>	A	-	2.50
EMBERIZIDS - Emberizidae				
Red-crested Cardinal	<i>Paroaria coronata</i>	A	-	2.00
SALTATORS, CARDINALS & ALLIES -- Cardinalidae				
Northern Cardinal	<i>Cardinalis cardinalis</i>	A	1.33	0.50
CARDULINE FINCHES & ALLIES - Fringillidae				
House Finch	<i>Carpodacus mexicanus frontalis</i>	A	-	0.75
WAXBILLS & ALLIES – Estrildidae				
Common Waxbill	<i>Estrilda a. astrild</i>	A	15.33	2.25
Java Sparrow	<i>Padda oryzivora</i>	A	-	0.25

KEY TO TABLE 2

ST Status

A Alien Species (introduced to Hawai'i by humans)

D Domesticated Species: Not considered to be established on the Island of O'ahu.

Relative Abundance: Number of birds detected divided by the number of VCP count stations (3)

RA

Relative Abundance of birds recorded during time dependant counts: Number of birds detected

TC divided by TC counts (2)

## References

- American Ornithologist's Union. 1998. *Check-list of North American Birds*. 7th edition. AOU. Washington D.C. 829pp.
- 2000. Forty-second supplement to the American Ornithologist's Union *Check-list of North American Birds*. *Auk* 117:847-858.
- Banks, R. C., C. Cicero, J. L. Dunn, A. W. Kratter, P. C. Rasmussen, J. V. Remsen, Jr., J. D. Rising, and D. F. Stotz. 2002. Forty-third supplement to the American Ornithologist's Union *Check-list of North American Birds*. *Auk* 119:897-906.
- 2003 Forty-fourth supplement to the American Ornithologist's Union *Check-list of North American Birds*. *Auk* 120:923-931.
- 2004 Forty-fifth supplement to the American Ornithologist's Union *Check-list of North American Birds*. *Auk* 121:985-995.
- Department of Land and Natural Resources (DLNR). 1998. Indigenous Wildlife, Endangered And Threatened Wildlife And Plants, And Introduced Wild Birds. Department of Land and Natural Resources. State of Hawaii. Administrative Rule §13-134-1 through §13-134-10, dated March 02, 1998.
- Federal Register 1999a. Department of the Interior, Fish and Wildlife Service, Endangered and Threatened Wildlife and Plants. 50CFR 17:11 and 17:12 - December 3, 1999
- 1999b. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Endangered and Threatened Wildlife and Plants; Review of Plant and Animal Taxa that are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Recycled Petitions, and Annual Description of Progress on Listing Actions. *Federal Register*, 64 No. 205 (Monday, October 25, 1999): 57534-57547.
- 2001. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Notice of Findings on Recycled Petitions. *Federal Register*, 66 No. 5 (Monday, January 8, 2001): 1295 - 1300.
- 2002. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidate or Proposed for Listing as Endangered or Threatened; Annual

Notice of Findings on Recycled Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 67 No. 114 (Thursday, June 13, 2002): 40657-40679.

Federal Register. 2004. Department of the Interior, Fish and Wildlife Service, 50 CFR 17. Endangered and Threatened Wildlife and Plants. Review of Species That Are Candidates or Proposed for Listing as Endangered or Threatened; Annual Notice of Findings on Resubmitted Petition; Annual Description of Progress on Listing Actions. *Federal Register*, 69 No. 86 (Tuesday, May 4, 2004): 24876-24904.

Palmer, D. D. 2003. *Hawai'i's ferns and fern allies*. University of Hawaii Press, Honolulu. 324 pp.

Tomich, P.Q. 1986. *Mammals in Hawaii*. Bishop Museum Press. Honolulu, Hawaii. 375 pp.

Wagner, W.L., D.R Herbst, and S.H. Sohmer 1990. *Manual of the Flowering Plants of Hawai'i*. University of Hawaii Press, Honolulu, Hawaii 1854 pp.

-----, -----, ----- 1999. *Supplement to the Manual of the flowering plants of Hawai'i*, pp. 1855-1918. In: Wagner, W.L., D.R. Herbst, and S.H. Sohmer, *Manual of the flowering plants of Hawai'i. Revised edition*. 2 vols. University of Hawaii Press and Bishop Museum Press, Honolulu.

**Appendix D**  
**Archaeological Resource Survey Report**



Pacific  
Consulting  
Services, Inc.

720 Iwilei Road, Suite 424 • Honolulu HI 96817  
Phone (808) 546-5557 • Fax (808) 546-5557

January 31, 2005

Ms. Michelle Mason  
Earth Tech, Inc.  
841 Bishop Street, Suite 500  
Honolulu, Hawaii 96813

Subject: Archaeological Reconnaissance Survey of TMK 1-9-7-025:010 (Komo Mai Drive, Pearl City), Waimano *Ahupua`a*, `Ewa District, Island of O`ahu, Hawaii.

Dear Ms. Mason;

This letter report summarizes the archaeological reconnaissance survey undertaken by Pacific Consulting Services, Inc. (PCSI) on January 12 and 13, 2005. Earth Tech, Inc. contracted PCSI to conduct archaeological services to support upcoming rock-fall mitigation along Komo Mai Drive below Pacific Palisades in the Waimano area (TMK1-9-7-025:010), Waimano *Ahupua`a*, `Ewa District, Island of O`ahu. Project personnel included Dennis Gosser, M.A., Keola Nakamura, B.A., and Reid Yamasato, B.A. Twelve hours were spent in the field.

The project area (approximately 10.6 acres) is located along the steep, northern ridgeline of Waimano Valley (Figure 1). The project area is bounded on the north and west by the Pacific Palisades neighborhood, on the east by an unnamed gravel road, and on the south by Komo Mai Drive.

Vegetation in the project area consists predominantly of California Grass (*Brachiaria mutica*) growing to heights of up to eight feet. In addition, the slope includes *haole koa* (*Leucaena leucocephala*), various vines and weeds, allspice (*Pimenta dioica*), bamboo (*Schizostachyum glaucifolium*), octopus tree (*Schefflera actinophylla* Endl.), prickly pear cactus (*Opuntia megacantha*), and coconut (*Cocos nucifera*).

The project area is on a steep south facing slope located along the tip of Waimano Valley's northern ridgeline. A narrow drainage bisects the project area. The base of the drainage is the steepest portion of the project area, while the higher elevations—near the Pacific Palisades residences—are more moderately sloped. Beneath the grass cover, the surface consists of small cobble to extra large boulder talluvium. The project area receives nearly 50 inches of rainfall per year, generally between November and April (Foote et al. 1972). Waimano Stream is fed from the Ko`olau's and flows into Pearl Harbor to the south.

No previous archaeological studies have been conducted within the project area. However, according to State Historic Preservation Division (SHPD) records, four archaeological studies have been conducted within Waimano Gulch

to the east of the current project area (Folk 1990; Griffin and Yent 1978, 1979; Jensen 1989). In addition, Anderson 1995 provides regional background for Waimano and Manana Ahupua`a.

The results of previous studies indicate that Waimano Gulch supported some pre-Contact dryland agriculture (terraces) and habitation (terraces and platforms), as well as possible boundary or ceremonial *ahu* (mounds). In addition, there is evidence of historic land use, including railroad tracks, an abandoned slaughterhouse and dairy, as well as a dressed-stone irrigation ditch, and an historic cemetery.

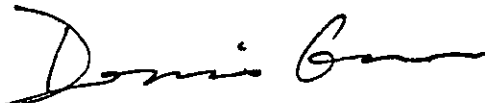
Based on the previous archaeological studies in Waimano Gulch, we expected pre-Contact dryland agricultural and habitation features as well as remnants of historic activities associated with railroading and sugarcane to be present in the project area. In addition, we also expected temporary habitations to be present in the project area if caves or rock overhangs were present.

The current study was conducted by two team members spaced 10-15 meters apart transecting along contours on each side of the drainage bisecting the project area. Documentary photographs of the project area were taken as were field notes. Global Positioning System (GPS) locations were obtained to record the project boundaries. Ground visibility throughout the study area was extremely limited (3-5%) where the thick California grass was growing, and generally poor due to dense under story growth elsewhere. In order to observe as much of the surface as possible, the survey transects zigzagged across the slope. Special consideration was given to basalt outcrops where caves and overhangs might be present.

No archaeological features were recorded during the reconnaissance. However, a remnant gravel road and concrete culvert abutting Komo Mai Drive were noted and photographed, but not recorded as archaeological features. Modern trash (e.g., kitchen pots, chicken wiring, beer bottles, aluminum cans, etc.) was located near residential housing and in the drainage. Although no archaeological features were observed during this project, there is a possibility that historic properties could be present below the ground surface. In the event that archaeological or human remains are inadvertently discovered during subsequent phases of the rock fall mitigation, it is required that the State Historical Preservation Division (SHPD) be notified. Furthermore, it is recommended that a qualified archaeologist be retained in the event that historic properties, or suspected historic properties, are encountered during the rock fall mitigation work.

If you have any questions or comments, please feel free to contact me at 546-5557, extension 205.

Sincerely,



Dennis C. Gosser  
Senior Archaeologist

**REFERENCE CITED**

**Anderson, Lisa**

1995 Final Report: Archaeological Monitoring at the Site of Project R26-92, "Replace Sewage Ejector Station 11", Pearl City Peninsula, O'ahu, Hawai'i. Ogden Environmental and Energy Services Co., Inc., Honolulu, Hawai'i.

**Folk, William .H**

1990 Archaeological Reconnaissance of the Waimano Training School and Hospital, Waimano, 'Ewa, O'ahu. Cultural Surveys Hawaii.

**Foote, D.E., E.L. Hill, S. Nakamura, and F. Stephens**

1972 Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Dept. of Agriculture, Soil Conservation Service, in Conjunction with the U.H. Agricultural Experiment Station. Washington D.C: U.S. Government Printing Office.

**Griffin, Agnes and Martha Yent**

1979 Results and Recommendation on a Walkthrough Reconnaissance Conducted at Waimano Valley. State of Hawai'i Department of Land and Natural Resources, Honolulu, Hawai'i.

**Jensen, Peter .M**

1989 Archaeological Inventory Survey Waimano Home Department of Health Facility, Land of Waimano, Ewa District, Island of Oahu. Paul H. Rosendahl, Ph.D., Inc., Hilo, Hawai'i.

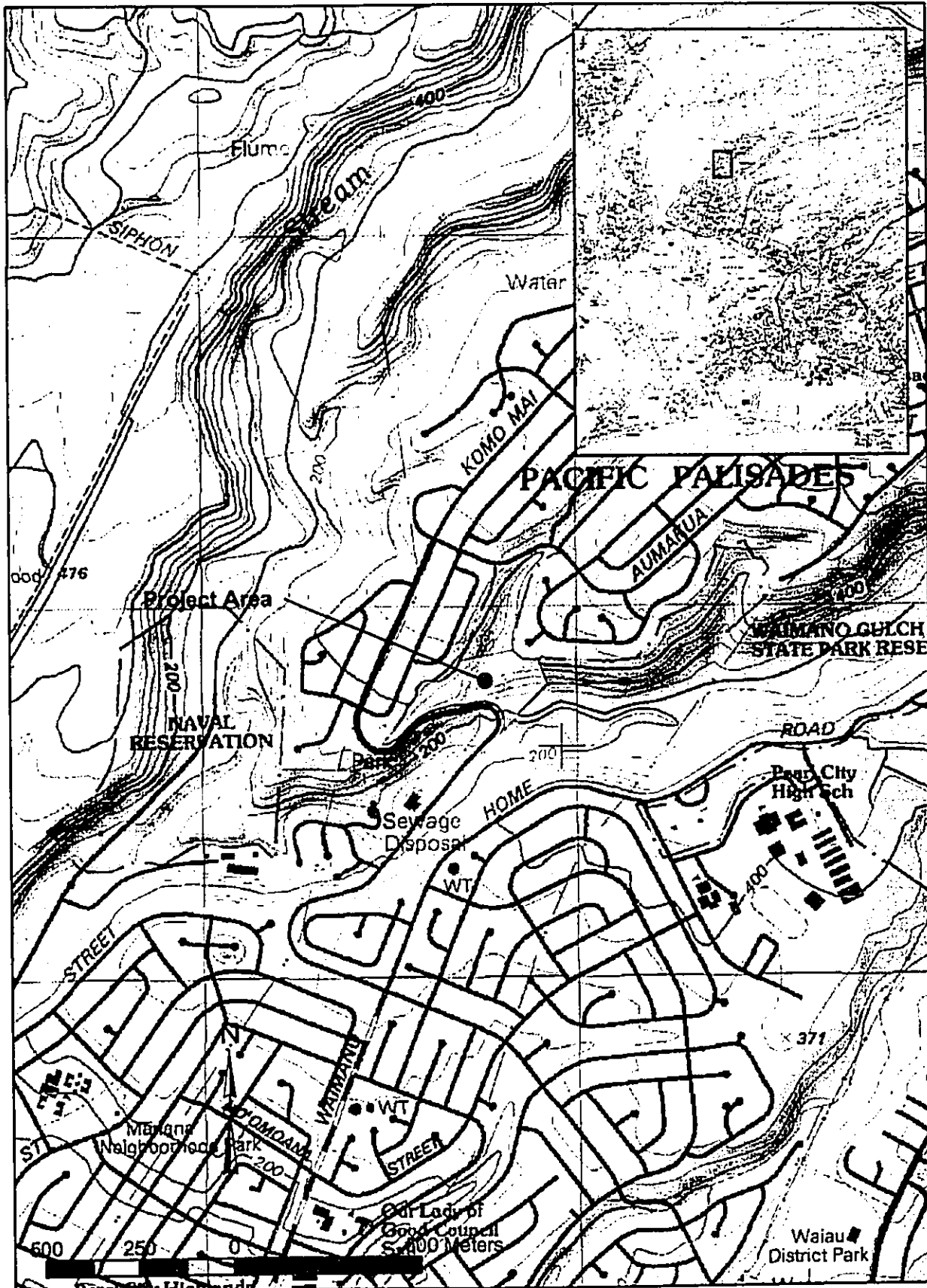


Figure 1. Waimano Gulch Area Showing Komo Mai Project Area. Inset: Central O'ahu.



1

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100