Acceptance Letter

UNIVERSITY OF HAWAI'I AT HILO

UH Hilo Administration
Office of the Chancellor

May 14, 2002

Mr. George T.P. Huang
GEO International Explorer, Inc.
13-1F, 336, Tun Hua S. Road, Sec.1
Taipei, 106, Taiwan, ROC

Dear Mr. Huang:

I am pleased to accept the Final Environmental Impact Statement for the China-US Center as satisfactory fulfillment of the requirement of Chapter 343, Hawai`i Revised Statutes. This environmental impact statement will be a useful tool in the process of deciding if the action described therein should be allowed to proceed. My acceptance of the statement is an affirmation of the adequacy of that statement under the applicable laws and does not constitute an endorsement of the proposed action.

When the decision is made regarding the proposed action itself, I expect the appropriate legislative bodies and governmental agencies to consider if the societal benefits justify the economic, social and environmental impacts which will likely occur. These impacts are adequately described in the statement, and together with the comments made by reviewers, provide useful analysis of the proposed action.

Sincerely,

Rose Tseng
Chancellor, University of Hawai`i at Hilo
Senior Vice President, University of Hawai`i System

c Genevieve Salmonson, Office of Environmental Quality Control

200 W. Kawili Street, Hilo, Hawai'i 96720-4091
Telephone: (808) 974-7444, Facsimile: (808) 974-7622, www.uhh.hawaii.edu

Final Environmental Impact Statement

China-U.S. Center

Waiakea. South Hilo District. Hawai'i Island. State of Hawai'i
TMK: 2-4-01:05 (por.)

Prepared for:

George T.P. Huang, Chairman
GEO International Explorer Inc.
13-1F, 336 Tun Hua S. Road
Sec. 1. Taipei 106, Taiwan
Republic of China

Prepared by:

Ron Terry, Ph.D.
HC 2 Box 9575
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and

SSFM International Inc.
501 Sumner Street, Suite 502
Honolulu HI 968 17

March 2002

This document is prepared pursuant to the Hawai'i Environmental Protection Act,
Chapter 343, Hawai'i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai'i Department of Health Administrative Rules (HAR).

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and

University of Hawai`i at Hilo
200 West Kawili Street
Hilo HI 96720-4091

This document and all ancillary documents were prepared under my direction and supervision. The information contained herein fully addresses the document content requirements set forth in section 11-200-17, Hawai`i Administrative Rules.

Applicant: George T.P. Huang Date: March. 15, 2002

GEO International Explorer Inc
by George T.P. Huang, Chairman

Prepared by:

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March 2002

Note: Sections of text with substantive additions, deletions or revisions are delineated with double underlines.

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SUMMARY

PROJECT NAME:	China-U.S. Center
APPLICANT:	GEO International Explorer. Inc.
APPROVING AGENCY:	University of Hawai'i at Hilo
LOCATION:	*Waiakea, Hilo District. County of Hawai'i*
TAX MAP KEY:	2-4-01:05 (por.)
CLASS OF ACTION:	Use of State Lands
DETERMINATION:	Environmental Impact Statement Required
PROPOSED ACTION:	Construction and Operation of UH Hilo China-U.S. Center
PURPOSE:	Provision of Residential, Classroom. Conference and Commercial Facilities on Campus
ESTIMATED COST:	$60.000,000 (Estimated Design/Construction Costs)
STATE LAND USE DISTRICT:	Urban
ZONING:	RS-10
PERMITS REQUIRED:	*State:* Underground Injection Control, State Historic Preservation Division Chapter 6E Concurrence, NPDES *County*: Plan Approval. Grading and Grubbing. Building Permits

PROJECT PURPOSE

The purposes of the project are to:

- Increase the inventory and broaden the range of student housing:
- Build facilities for commercial operations tailored to create a "college town" atmosphere adjacent to campus, in order to serve existing students and the Hilo community and attract new students:
- Provide a cultural conference center with space for international academic and cultural conferences, seminars, conventions, and workshops:
- Develop a full-service University Inn for families and academic visitors:
- Provide new business opportunities for local entrepreneurs and jobs for students;
- Extend the range of cultural offerings for community and academic purposes in the vital new direction of Asia; and
- Promote peaceful and enriching international exchange.

ALTERNATIVES

The proposed China-U.S. Center would support the above purposes by constructing a complex of buildings comprising four main elements: a commercial plaza, the China-U.S. Cultural Center, a student housing unit, and the Harmony Tower, with its University Inn. This comprehensive university center is expected to foster a powerful educational experience promoting international exchange and academic excellence in an intimate and culturally rich setting. Phase I is targeted at serving the immediate needs of the students and faculty of UH Hilo, including student housing and shopping. Phase II would concentrate on the China-U.S. Cultural Center as a venue for academic exchanges. Phase III would provide a University Inn and other specialized services that would offer a full-function environment for visitors attending conferences and short-term programs. Public and park spaces would be built as integral parts of the facility within the various phases. The development plan is flexible, and the precise description, number and timing of the China-U.S. Center's components will be determined based on the unfolding of demand for residential, commercial and conference space.

Under the No-Action Alternative, the Subject Property would not be utilized for the China-U.S. Center or any similar UH Hilo expansion of residential, classroom, conference and commercial activities. No short-term construction impacts or long-term impacts, such as traffic, would occur. Similarly, none of the benefits of the expansion of UH Hilo's residential, classroom and conference space would occur, and the ability to support a college town atmosphere at UH Hilo would be severely constrained.

Through the years UH Hilo has considered various other properties on or near campus that could be utilized for this and similar projects. and has also considered alternate uses for the proposed site. However. UH Hilo has determined that the Subject Property is the most suitable location for the China-U.S. Center and that all other proposed University facilities have more suitable locations on campus or State land.

SUMMARY OF IMPACTS AND MITIGATION MEASURES

Geology and Soils. The surface of the Subject Property consists of low slope. basalt lava flows from Mauna Loa's northeast rift zone dating from 5.000-10.000 years ago. Two rocky. mucky soil types are present, neither of which has problematic erosion. runoff or construction characteristics. No valuable soils. agricultural land or farms are present. and no soils or farming operations would be adversely impacted by the project. Terrain and soils are not anticipated to pose problems during construction.

Lava Flow and Earthquake Hazards. The U.S. Geological Survey classifies the area as Lava Flow Hazard Zone 3, on a scale of ascending risk 9 to 1. The entire island of Hawai`i is rated Zone 4 (highest) Seismic Probability Rating under the Uniform Building Code. Any development in Hilo would be located in similar volcanic and seismic zones. and there are thus no reasonable alternatives. All construction would conform with the provisions of the current *Uniform Building Code* appropriate to the hazard zones.

Drainage, Erosion and Water Quality. No adverse drainage impacts would occur. No flood hazard areas or floodplains as defined in the Flood Insurance Rate Maps (FIRM) are present in or near the Subject Property. and none would be affected in any direct or indirect way. The project would construct impervious surfaces in the form of buildings. parking areas and water features, increasing onsite runoff. All additional runoff attributable to development activities would be contained onsite through proper design on roadways, gutters, drainage structures and injection wells. A wide range of Best Management Practices (BMPs) to minimize nonpoint source pollution would be implemented during construction in compliance with permits and approvals. Additional BMPs with respect to injected stormwater. hazardous substances. and pesticides would be implemented as appropriate as part of project operation.

Flora and Fauna. As a result of its location in the lowlands and its history of use for sugar cane and ranching, the current flora and fauna of the Subject Property is composed almost entirely of alien species. No rare. threatened or endangered species listed by the U.S. Fish and Wildlife Service are present on the parcel. nor are there unique or valuable wildlife habitats. No biological impacts are expected.

Air Quality. Short-term direct and indirect impacts could occur through fugitive dust and exhaust emissions from construction. Mitigation would consist of implementation of a dust control plan and practices to reduce emissions from onsite construction vehicles and equipment. Operationally, the project would cause few regional impacts and may in fact improve overall emissions from motor vehicles by developing a more pedestrian-oriented, residential campus, an important benefit of the project. The proposed design mitigates any potential micro-scale air quality impacts derived from motor vehicle emissions (which may occur until the Puainako Street Widening project is undertaken) by setting back buildings and other public spaces away from the intersection.

Visual Character. The project is being designed with visual interest as one of its key components However, viewplanes from mauka of the property toward the coast are of concern. Visual modeling determined that the Harmony Tower would be clearly visible from various locations in the upper Waiakea area, but that existing vegetation to the north of Puainako Street would screen out any views of all but the top floors. The tower would not impair coastal views. From the standpoint of the campus or vehicles passing by on Kawili Street, the architecture and landscaping of the China-U.S. Center would have a striking and elegant appearance, and would harmonize well with the existing campus.

Noise. Development would entail excavation, grading, blasting, compressors, vehicle and equipment engine operation, and construction of new buildings and infrastructure. These activities would generate noise exceeding 95 decibels at times, impacting nearby areas. In cases where construction noise is expected to exceed the Department of Health's (DOH) "maximum permissible" property-line noise levels, contractors would obtain a permit per Title 11, Chapter 46, HAR (Community Noise Control) prior to construction. DOH would review the proposed activity, location, equipment, project purpose, and timetable in order to decide upon conditions and mitigation measures, such as restriction of equipment type, maintenance requirements, restricted hours, and portable noise barriers. On a permanent basis, vehicles, student housing and conference activities would also generate noise, but the Subject Property is ideally located with respect to sensitive noise receptors such as residences, churches, or parks. Six lanes of traffic and two vegetation buffers would separate the nearest point of the China-U.S. Center from sensitive noise receptors. It is unlikely, given this context, that the proposed center would add any measurable noise to areas in which it would be a nuisance.

Hazardous Substances. The parcel was used for sugar cane and pasture land from the late 19th century to 1961, after which there has been no active land use. No uses that would tend to produce adverse environmental conditions have occurred. Site reconnaissance indicated no evidence of Underground Storage Tanks, offsite contamination sources with the potential to migrate onto the Subject Property, or material containing asbestos, polychlorinated biphenyls, or lead.

Social. Direct social impacts from the construction and operation of the China-U.S. Center would be largely beneficial. No relocation of residences, businesses, community facilities, farms or other activities would occur because of the project. Perhaps the most significant social impact is highly beneficial: the China-U.S. Center would broaden and enrich Hilo's and the entire State's educational and cultural environment.

Cultural Impacts. Based on historical research, botanical reconnaissance and interviews with knowledgeable informants, it would appear that no known valuable natural, cultural or historical resources are present on the Subject Property. The Subject Property does not support any traditional resource uses, nor are there any Hawaiian customary and traditional rights or practices known to be associated with the property. The exercise of native Hawaiian rights related to gathering, access or other customary activities would not be affected and there would be no adverse effect upon cultural practices or beliefs.

Archaeological and Historic Resources. Archaeologists identified one site comprising 117 features. All features in the site, which includes clearing mounds, enclosures and walls, are interpreted as being associated with sugarcane cultivation from the historic period (early 20th century), and are significant for information content only. The State Historic Preservation Division (SHPD) has concurred with the results of the inventory survey. No impact to historic sites is expected to occur. However, if any previously unidentified sites, or remains such as artifacts, shell, bone or charcoal deposits, human burials, rock or coral alignments, pavings, or walls are encountered, work would stop immediately and SHPD would be consulted to determine the appropriate mitigation.

Economic. The China-U.S. Center would strengthen and solidify the already highly beneficial impact of UH Hilo on the economy of Hilo and Hawai'i as a whole. Aside from the substantial direct, indirect and induced one-time worker income and tax receipts from $60 million of expenditures for design and construction, other significant secondary benefits would occur. Enrollment increases enabled by new dormitory facilities would increase job income for faculty, staff and support personnel, and thus provide local businesses with a substantial base of new customers. Conference facilities would increase local expenditures for goods and services associated with conferences (e.g., food and guided tours) and would also provide local jobs. The proposed University Inn would diversify the visitor industry in Hilo by providing a new type of high-quality facility catering to educational tourists. Visitors not normally attracted to Hilo are expected to take advantage of this new specialization, and other visitors (e.g., astronomers) may extend their stays in response to facilities better tailored to their needs. The commercial facilities on campus would answer a need for pedestrian-accessible goods and services for the University population, providing an essential component of the "college-town" atmosphere that students and University planners have expressed a desire to create. On-campus commercial outlets may divert business from off-campus stores currently

providing goods and services to students, faculty, staff and University visitors. However, local businesses may choose to open campus outlets.

Roads and Traffic. A Traffic Impact Analysis Report (TIAR) commissioned for the project examined existing streets, intersections and traffic volumes, highway and land use plans, and traffic forecasts. The Subject Property is accessed by Puainako Street, a major collector with a number of signal intersections, slated for widening and extension within the next ten years, and Kawili Street, which would separate the China-U.S. Center from the main UH Hilo campus. Without construction of the Puainako Street Widening project (for which an EIS was completed in 2000), Level-of-Service (LOS) for various movements at many intersections would be at unacceptable levels during the AM and PM peak hours, regardless of whether the China-U.S. Center is constructed. If the Puainako Street Widening project is built, LOS at most intersections would be acceptable during the AM and PM peak hours, again, regardless of whether the China-U.S. Center is constructed, given implementation of proposed mitigation measures. The proposed China-U.S. Center, although it involves a substantial amount of traffic, represents only one small component of University growth and would not be primarily responsible for traffic impacts in the area. A series of mitigation measures involving signalization as well as addition and lengthening of lanes can largely mitigate LOS to acceptable levels.

Electrical, Telephone and Cable Utilities. Electrical power is provided by Hawai'i Electric Light Company (HELCO), Verizon Hawai'i currently supplies telephone service, and Hawaiian Cablevision provides cable television service. HELCO plans to meet the energy needs of the next 20 years through 141 megawatts (MW) of new generating capacity from conventional power plants (oil and coal fired) along with a growing contribution from renewable energy (solar, wind, etc.). An overhead 12.47 kV line from the HELCO substation on Komohana Street runs along Kawili Street, the poles for which also carry telephone and cable lines. Future service lines could cross Kawili Street to the Subject Property through underground lines. The China-U.S. Center would increase demand on the existing HELCO system by an estimated 33,000 kilowatt-hours (kWhr) per day. Discussions with HELCO's engineering division indicate that the existing system is adequate to provide the demand. The prime supply to the site would be from the Komohana substation. The extension of electricity, telephone and cable service is not expected to have any adverse impact upon the site or upon the ability of the utilities to provide the services. GEO proposes to adopt standards and procedures similar to those of UH Hilo in regard to energy use and efficiency, which include conservation measures to reduce unnecessary energy use, design and construction of energy-efficient buildings, and an administration commitment to closely monitor and evaluate energy consumption and correct inefficiencies. The China-U.S. Center would consult sustainable building guidelines and implement practices as appropriate.

Water Supply. An 8-inch transmission line runs along Kawili Street, which is part of the Hawai'i County Department of Water Supply (DWS) Kawailani/Haihai system. The line is fed by the Kawailani Reservoir, with a capacity of 0.5 million gallons (MG), as well as the two Haihai Reservoirs, with capacities of 0.1 MG and 0.5 MG. The system serves approximately 3,000 residential lots off Kawailani, Haihai, and Puainako Streets and the southern portion of the UH Hilo campus. The existing system cannot support the China-U.S. Center, and additional transmission improvements will be necessary. One-time facilities charges will also be imposed upon the Center, the amount of which will depend upon the nature and number of new services. Construction of the water facilities would require development of a traffic control plan, and would be timed, as feasible, to coincide with other aspects of the project to minimize traffic disruption.

Wastewater. The wastewater system in Hilo consists of municipal treatment plants near Hilo International Airport and various sizes of sewer mains and pump stations owned and maintained by the Hawai'i County Department of Public Works (DPW). Sludge generated at the treatment plant is disposed of at the Hilo Landfill. An existing 8-inch sewer trunk line is located along West Kawili Street. Based on the preliminary site layout, the future onsite sewer system could connect to the County system at an existing sewer manhole. Construction of the wastewater facilities would require development of a traffic control plan, and would be timed, as feasible, to coincide with other aspects of the project to minimize traffic disruption.

Solid Waste. The County of Hawai'i's landfill site on Leilani Street in Hilo does not have a capacity limitation at present, but as expansion of the Hilo landfill is unlikely, the County is currently working to develop a long-range solid waste plan. Solid waste would be removed from the site by a private contractor. GEO proposes to adopt recycling standards and procedures similar to those of UH Hilo, which has one of the most extensive and active recycling plans of any government facility on the island of Hawai'i.

Other Public Facilities and Services. As many as 600 new students at UH Hilo may impact, mostly through secondary means, police, fire and emergency, medical, recreational, educational and other facilities and services. However, the expansion of the economic base and tax revenues would probably more than compensate for the slight additional demand on public facilities and services. UH Hilo and GEO plan to work with Department of Education (DOE) officials to develop a physical boundary and an access plan that meet DOE concerns about unauthorized access between Waiakea High School and the China-U.S. Center.

CONSISTENCY WITH GOVERNMENT PLANS AND POLICIES

Hawai'i State Plan. The proposed China-U.S. Center is highly consistent with the goals, objectives and policies of the *Hawai'i State Plan*. Supporting growth and enrichment of UH Hilo would provide not only educational but also cultural and economic opportunities, which would encourage an increase in economic activities and employment opportunities in a manner consistent with community needs and desires. It would help achieve full employment, increased income and job choice, and improved living standards, while promoting a diversified economic base not overly dependent on a few industries. The Subject Property does not contain important natural or cultural resources, and the project represents prudent use and protection of Hawai'i's land-based, shoreline, marine, historic and scenic resources.

State Land Use Law. The entire Subject Property is within the State Land Use Urban District. According to §205-2, HRS, Urban Districts shall include activities or uses as provided by County ordinances or regulations, with which the project is consistent.

Hawai'i County General Plan. The China-U.S. Center is highly consistent with the goals, objectives, policies, and recommended courses of action of the General Plan. Economically, education is a relatively low-impact, high-quality economic sector that significantly improves the quality of life for students, employees, and the community at large. The proposed project would promote cultural and scientific exchange and would strengthen other elements of the economy, including tourism, construction, retail, wholesale and services. In terms of energy, the project would adopt high energy efficiency standards and incorporate sustainable building practices to highest degree practicable. Furthermore, the establishment of retail and service businesses on campus would encourage a pedestrian-oriented campus and conserve automobile fuels. Environmentally, the Subject Property lacks important cultural and natural resources, and its construction and use would not degrade environmental quality in any way. The Center would adopt the extensive recycling policy of UH Hilo. General Plan statements regarding flood control, historic sites, housing, and public facilities are all fulfilled by the project. Most importantly, the China-U.S. Center would fulfill the letter and spirit of the General Plan's recommended courses of action for expanding and improving the University and integrating it harmoniously with the community.

General Plan Land Use Pattern Allocation Guide Map (LUPAG). The LUPAG map component of the *General Plan* designates the Subject Property as *University Use*.

Hawai'i County Zoning. Zoning for the entire Subject Property is RS-10. The proposed action is exempt from rezoning requirements because its purpose is to expand the UH Hilo campus and facilitate implementation of its programs through use of public land.

Hilo Community Development Plan. The proposed action is generally consistent with this 1975 plan's goals, polices and courses of action for natural resources and shorelines, economic development, land use, transportation, housing, public facilities, recreation, historic sites, public utilities, flood control and drainage, and natural beauty and urban form.

UNRESOLVED ISSUES

At the time of the publication of the Draft EIS, the nature, scope and timing of the additional water supply improvements had not yet been specified. As reported in Section 4.4.3, further coordination among GEO, UH Hilo, and the Hawai'i County Department of Water Supply has determined the basic scope and scale of improvements, as well as the steps and schedule necessary to more precisely determine the necessary improvements.

Unless the Puainako Street Widening project is completed, traffic Level of Service will be unacceptable at many intersections on Puainako Street, including at Kawili Street, near the China-U.S. Center. This would be partly, although not primarily, due to traffic generated by the center. The Hawai'i State Department of Transportation (HDOT) has expressed concern about the timing of the two projects, and requested in their comment letter to the Draft EIS that the University consider improvements to existing intersection of Kawili and Puainako Streets should the widening not occur in time. UH-Hilo and GEO recognize the issue, and are also concerned that any improvements to the existing intersection would not reduce congestion on Puainako Street to any meaningful degree and would also require removal when the widening project was eventually undertaken.

The compelling State interest in widening Puainako Street in order to link State highways and serve the public State elementary, secondary and higher education facilities has induced officials to work to identify funding mechanisms to accomplish the project. It is likely that the Puainako Widening project will be undertaken during the next five years.

The issue of the timing of the Puainako Street Widening project in relation to the China-U.S. Center will be resolved in one of the following ways: 1) funding for the widening project will be obtained and the project will begin within the next two years, before the China-U.S. Center is at any advanced state of operation, ensuring a lack of impacts; 2) a definite timetable and funding source for the widening project will have been identified, which will allow clear determination of whether, which and when temporary traffic mitigation measures will be required; or 3) no definite timetable and funding source for the widening project will be identified, necessitating consideration of longer-term temporary traffic mitigation measures, operational changes or other strategies to cope with the traffic brought on by the University of Hawai'i at Hilo, the Waiakea Schools, the China-U.S. Center and other sources. As the China-U.S. Center project plans progress, GEO and UH-Hilo will coordinate with HDOT concerning the existing Puainako/Kawili

intersection. If necessary, these partners could work towards placing temporary improvements to the existing intersection on the Statewide Transportation Improvement Project list and receiving federal match funding.The substantial public benefit offered by the China-U.S. Center and the likelihood of the construction of the Puainako Street Widening project within the reasonably near future represent overriding reasons for proceeding without a full resolution of this issue.

PART 1: INTRODUCTION

1.1 Applicant and Approving Agency

The University of Hawai'i at Hilo seeks to develop the China-U.S. Center in partnership with GEO International Explorer Inc. (hereafter referred to as GEO). GEO is acting as the applicant in the context of Hawai'i Environmental Policy Act (HEPA. Chapter 343 Hawai'i Revised Statutes). The Final EIS will require approval from the University of Hawai'i at Hilo. The area requested for reclassification will be referred to throughout the EIS documents as the *Subject Property.*

1.2 Environmental Impact Statement Process: Overview

Scoping. The preparation of an Environmental Impact Statement (EIS) begins with the scoping process. The purpose of scoping is to notify the public of the proposed action. identify issues and assess the relative significance of these issues. determine the alternatives for study, allocate the proper resources for environmental investigation, and plan a schedule for the EIS. The scoping process for this project commenced with the publication of the availability of this EIS Preparation Notice (EISPN) document in the *Environmental Notice* of the Hawai'i State Office of Environmental Quality Control (OEQC) on March 23. 2001.

A key element in scoping is public participation. The public is invited to provide written comments upon reviewing the EISPN. Ideally. the comments should identify concerns or issues that should be addressed in the EIS. suggest resource persons or references that could provide useful information, confirm the accuracy of information presented in the EISPN. suggest alternatives, or identify persons or organizations who should be contacted because they may be affected by the project. Appendix 1 contains comments to the EISPN and responses to these comments.

Draft EIS. Notice of availability of the Draft EIS was published in the November 8, 2001 *Environmental Notice*. The public had a 45-day period to review the Draft EIS and provide comments. The University of Hawai'i at Hilo held a public meeting on the project on December 11. 2001 (see Section 1.5. below. for discussion for the comments and the public meeting).

Final EIS. The Applicant. in conjunction with the Approving Agency, reviewed and responded to the comments received on the Draft EIS. The Final EIS incorporates revisions based on the comments, and includes copies of the comments and responses in Appendix 6. The University of Hawai'i at Hilo, in its role as the Approving Agency, will determine whether the Final EIS meets the EIS requirements of the State of Hawai'i.

1.3 EISPN Consultation Process

1.3.1 Agencies and Organizations That Received EISPN

The following agencies and organizations received a copy of the EISPN and were formally invited to be consulted as part of the EIS process (agencies that responded are denoted by an asterisk):

• *Federal*
U.S. Department of the Interior, Fish and Wildlife Service

• *State*
Land Use Commission*
Department of Accounting and General Services*
Department of Business, Economic Development, and Tourism
Department of Education*
Department of Health*
Department of Land and Natural Resources, Director*
Department of Land and Natural Resources, Division of Forestry and Wildlife
Department of Land and Natural Resources, State Historic Preservation Division*
Department of Transportation, Highways Division*
Office of Hawaiian Affairs*
University of Hawai'i, Water Resources Research Center
University of Hawai'i, Environmental Center
Waiakea Elementary School
Waiakea Intermediate School
Waiakea High School

• *County*
Civil Defense Agency
County Council
Department of Parks & Recreation
Department of Public Works*
Department of Water Supply
Fire Department*
Office of Housing and Community Development
Office of the Mayor
Planning Department
Police Department*
Research and Development Department

• *Organizations and Individuals*
Hawai`i Island Chamber of Commerce
Hilo Outdoor Circle
Sierra Club. Moku Loa Group

The EISPN was made available at the Hilo and Kailua-Kona Public Libraries. as well as the University of Hawai`i at Hilo Library. The EISPN was also sent to the *Hawai`i Tribune Herald* newspaper in Hilo.

1.3.2 Informal Meetings During EISPN Preparation and Review

In addition to the opportunity for formal public review that occurred during the EISPN process. GEO International Explorer and/or its representatives met with individuals and agencies who had special concerns. These meetings offered an informal setting for soliciting concerns and gathering information. Groups consulted included various university officials, the State Department of Transportation. Waiakea High School. the Hawai`i County Planning Department. and the Hawai`i County Mayor and representatives of various County agencies in a meeting arranged by Mayor Harry Kim.

1.3.3 Summary of Comments and Concerns Raised During EISPN Process

During the a 30-day comment period initiated by the publication of the EISPN on March 23. 2001, and ending on April 23. 2001. 13 comment letters were received. These letters and the responses to them are included in Appendix 1. In general. the information identified by commenters has been included in the EIS where relevant. and the issues identified by commenters have been investigated as part of the research for the EIS. The following is a general summary of issues and concerns:

- Traffic congestion and pedestrian safety
- Noise from construction and operation of the facility
- Fugitive dust from construction
- Controlling access between China-U.S. Center and Waiakea High School
- Office of Hawaiian Affairs revenue from ceded land
- Secondary and cumulative impacts
- Sustainable building practices

1.4 Agencies and Organizations Sent Draft EIS

The following agencies and organizations have been sent a copy of the Draft EIS:

• *Federal*
U.S. Department of Agriculture. Natural Resources Conservation Service
U.S. Department of the Interior. Fish and Wildlife Service
U.S. Department of the Interior. Geological Survey
U.S. Army Corps of Engineers

• *State*
Office of Environmental Quality Control
State Land Use Commission
Hawai'i State Environmental Center
Housing and Community Development Corp. of Hawaii
Department of Transportation
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Energy, Resources and Technology Division
DBEDT. Library
DBEDT, Office of Planning
Department of Agriculture
Department of Education
Department of Hawaiian Home Lands
Office of Hawaiian Affairs
UH Manoa Water Research Center
Department of Health
Department of Health, Environmental Health Administration
Department of Defense
Department of Accounting and General Services
Department of Land and Natural Resources
Department of Land and Natural Resources. State Historic Preservation Division
Department of Land and Natural Resources. Comm. on Water Resource Management

• *County*
Civil Defense Agency
County Council
Department of Parks & Recreation
Department of Public Works
Department of Water Supply
Fire Department
Office of Housing and Community Development

Planning Department
Police Department

• *Elected Officials*
Councilmember James Arakaki, Hawai'i County Council
Councilmember Aaron Chung, Hawai'i County Council
Councilmember Bobby Jean Leithead-Todd, Hawai'i County Council
State Senator David Matsuura, State Senate
State Representative Jerry Chang, State House
State Representative Eric Hamakawa Chang, State House

• *Organizations and Individuals*
Sierra Club, Moku Loa Group
Verizon Hawaii
Hawai'i Island Chamber of Commerce
Hawai'i Electric Light Company
Hilo Outdoor Circle

• *Libraries*
Hawai'i State Library, Hawai'i Documents Center
University of Hawai'i at Hilo, Edwin Mookini Library
University of Hawai'i at Manoa, Hamilton Library
Legislative Reference Bureau
Hilo Public Library
Kaimuki Regional Library
Kaneohe Regional Library
Hawai'i Kai Regional Library
Kailua-Kona Public Library
Pearl City Regional Library
Kahului Regional Library
Lihue Regional Library

• *Press*
Honolulu Star Bulletin
Hawai'i Tribune Herald
Honolulu Advertiser
West Hawai'i Today

1.5 Comments on Draft EIS and Public Meeting

The 45-day comment period for the Draft EIS extended from November 8 to December 24, 2001. A total of 20 comments were received within this period. Appendix 6 provides the full text of each letter and the responses to them. A public meeting was held on December 11, 2001. Appendix 7 contains materials related to the public meeting, including agendas, the press release and local newspaper coverage.

To summarize comments and responses, most comments raised minor issues or were generally supportive, confirming of information contained in the Draft EIS, or no-comment letters, but two agencies raised substantive issues. State Civil Defense

requested consideration of a warning siren on the China-U.S. Center grounds. GEO responded that it understands that Hawai'i Community College is working with State and County Civil Defense to locate a site on the Lower Campus that could serve the entire University area, as well as adjacent properties. The State Department of Transportation questioned certain assumptions and conclusions of the traffic impact analysis, and requested that the developer upgrade the Kawili-Puainako Street intersection if the planned Puainako Street Widening project has not yet been completed by the time the China-U.S. Center begins operation. GEO responded that it recognized this problem, as well as the compelling State interest in the Puainako Street Widening project in terms of linking State highways and serving the various public elementary, secondary and higher education facilities. As the China-U.S. Center project plans progress, GEO and UH-Hilo request continued coordination with this agency concerning the existing Puainako/Kawili intersection and the possibility for placing this project on the Statewide Transportation Improvement Project list and receiving federal match funding, should upgrades be necessary.

Comments at the public meeting were also generally supportive, but concerns were raised about whether Chinese architectural styles could be applied in the climate of Hilo, maintenance of any water features that might be constructed, financial feasibility of the project, and the appropriateness of housing a China-themed center on a campus with a strong emphasis in Hawaiian studies

The following parties commented on the Draft EIS:

• *Federal*
U.S. Department of the Army, U.S. Army Engineer District, Honolulu
U.S. Natural Resources Conservation Service

• *State*
Hawai'i State Department of Accounting and General Services
Hawai'i State Department of Business, Economic Development & Tourism
    Land Use Commission
Hawai'i State Department of Defense
Hawai'i State Department of Education
Hawai'i State Department of Hawaiian Home Lands
Hawai'i State Department of Land & Natural Resources
    State Historic Preservation Division
    Commission on Water Resource Management
Hawai'i State Department of Transportation
Housing and Community Development Corp. of Hawai'i
Hawai'i State Office of Environmental Quality Control

• *County*
Hawai'i County Department of Water Supply
Hawai'i County Fire Department
Hawai'i County Parks and Recreation Department
Hawai'i County Planning Department
Hawai'i County Police Department
Hawai'i County Office of Housing and Community Development

• *Organizations and Individuals*
Hawai'i Island Chamber of Commerce
Royal Order of Kamehameha

The applicant continues to welcome assistance in identifying others who may have special information or might be impacted by the proposed project, and who should therefore be consulted in the process of preparing the Final EIS and project plans.

PART 2: DESCRIPTION OF PROPOSED ACTION

2.1 Project Location, Ownership and Current Land Use

The Subject Property is a 36.066-acre portion of TMK 2-4-01:05 (Fig. 2-1). The portion of the parcel that has been identified for development as the China-U.S. Center has the following boundaries:

- *North*: State land that borders Waiakea High School, at an elevation of about140 *feet above sea level;*
- *East*: State land bordering Waiakea Elementary and Intermediate Schools.
- *South*: Puainako Street;
- *West*: Kawili Street, and across Kawili Street, facilities of the University of Hawai'i at Hilo, at elevations of 160 to 200 feet.

The 36.066 acres requested for use as the China-U.S. Center will be referred to throughout the EIS documents as the *Subject Property*. The property is ceded land of the State of Hawai'i. On January 12, 1999, Governor Cayetano, through Executive Order No. 3752, set aside the 36.066 acres for the "U.S. China Center, General University, Student Housing, and Campus Related Commercial purposes."

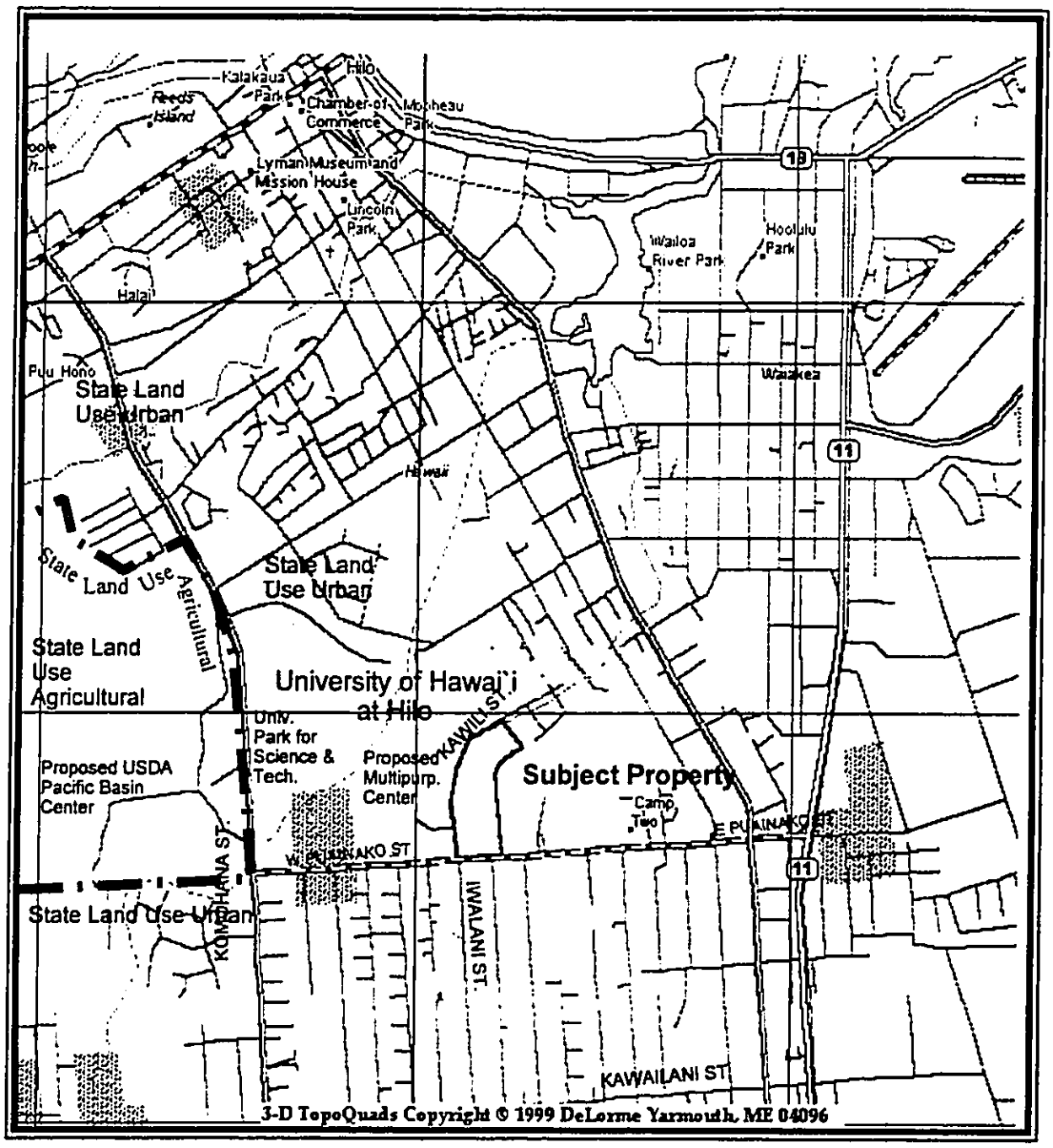
The Subject Property, which is marginal agricultural land farmed for sugar cane and then used for pasture in the late 19th and early to mid 20th centuries, is currently vacant of any active land use. The vegetation consists of second-growth alien trees, shrubs, grasses and herbs (Fig. 2-2).

2.2 Project Purpose and Need

The University of Hawai'i at Hilo (UH Hilo) is a dynamic comprehensive regional university, and the second state-funded university in Hawai'i. For several years in the 1990s, *U.S. News & World Report* has ranked UH Hilo third among western public liberal arts colleges in the United States. This national recognition is testimony to the University's overall quality and excellence.

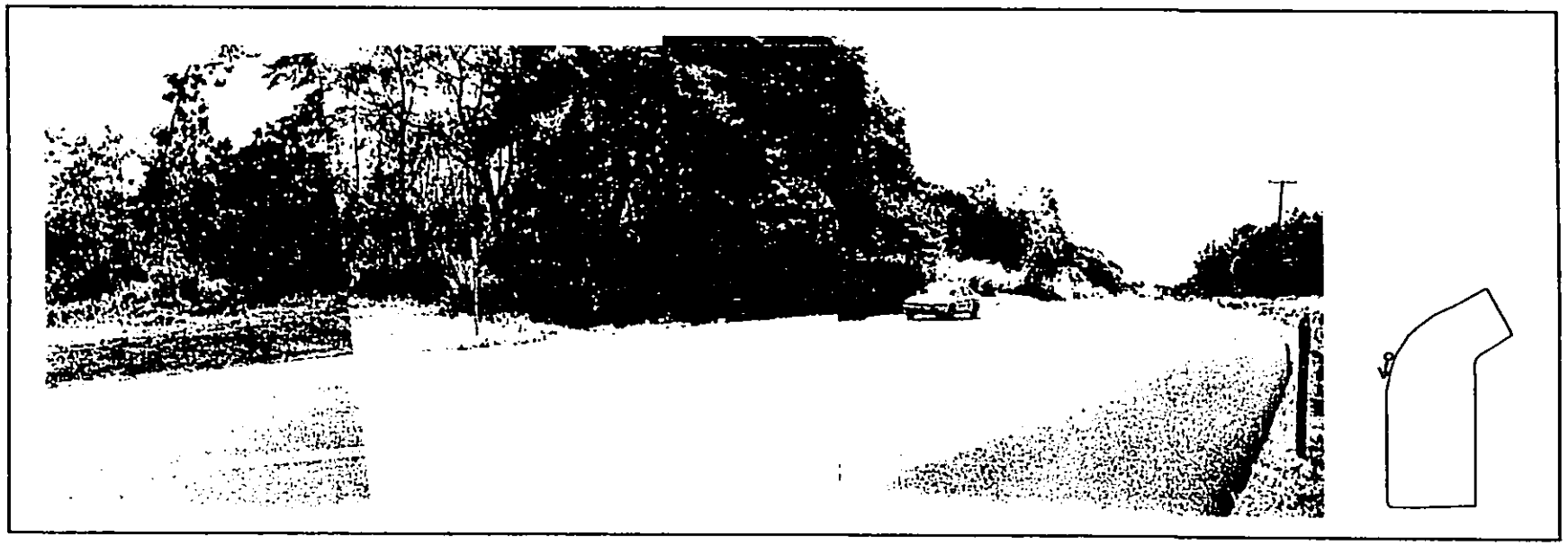
The University campus consists of 115 acres, plus a 110-acre Agriculture Farm Laboratory five miles from campus. There are five residence halls, and resident students have access to two dining halls. Adjacent to the campus is the University Park for Science and Technology, where five U.S. and international land-based astronomy facilities are located on 116 acres.

PROJECT AREA MAP

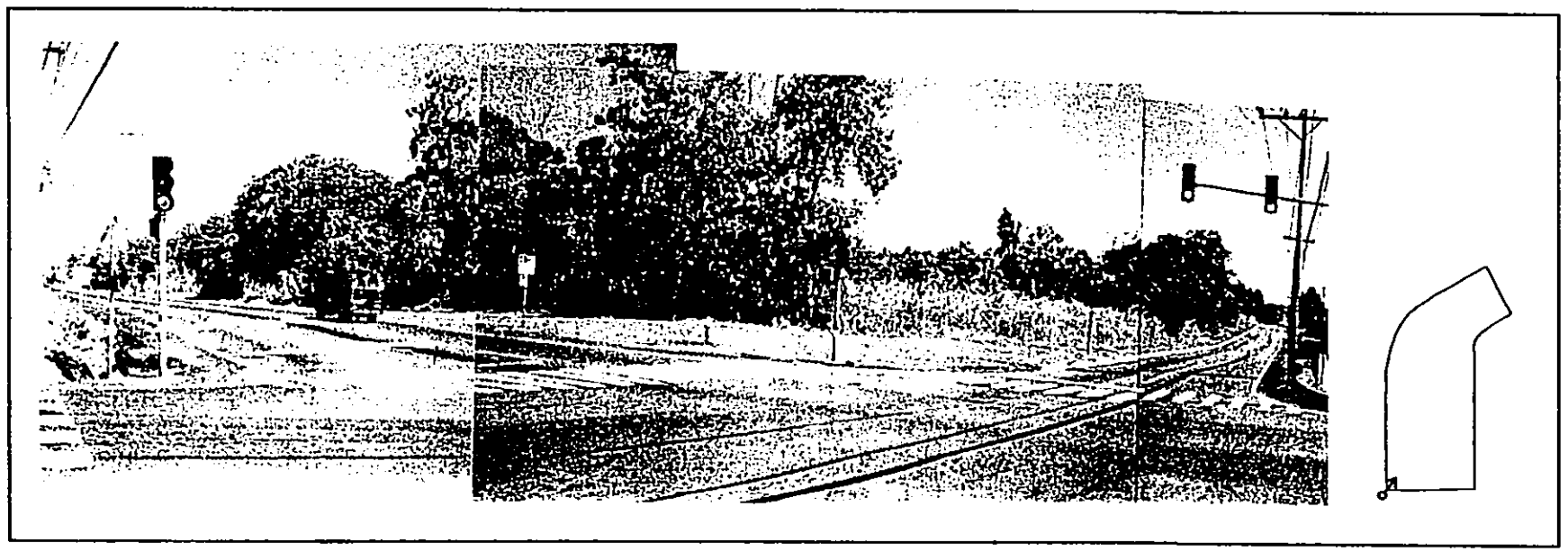


Source: DeLorme N ▲ Scale: 1 inch = 2,400 feet

Figure 2-1



Photograph 1. A view of the subject site on Kawili Street, across the UH-Hilo campus. A strip of grassy area, left, served as an access path to the heavily grown site (March 3, 2001).



Photograph 2. A view of the subject site, intersection of Kawili and Puainako Street. UH-Hilo Student Housing is located off to the right.

Photo Credits: Myounghee Noh

The University of Hawai'i at Hilo comprises three colleges. The *College of Agriculture, Forestry and Natural Resource Management* offers Bachelor of Science degrees in seven specializations: Agribusiness, Agroecology, Animal Science, Aquaculture, Crop Protection, General Agriculture and Tropical Horticulture. The *College of Arts and Sciences* offers thirty-one baccalaureate degrees and a Master's degree in Education. The newest college, the *College of Hawaiian Language, Ka Haka 'Ula O Ke'elikōlani*, offers a Bachelor of Arts in Hawaiian Studies and a Master's Degree in Hawaiian Language and Literature.

The University of Hawai'i at Hilo promotes a rigorous education in a caring, personalized atmosphere. It is a collaborative teaching and learning environment, where students and professors engage in stimulating academic debates and hands-on research. Many of the academic programs reflect the island's beautiful geographic diversity. Majestic Mauna Kea, deep oceans, tropical rainforests and volcanoes constitute living laboratories — classrooms money cannot buy.

Enrollment at UH Hilo stands at approximately 2,900 students who come from across the State of Hawai'i, the mainland and many foreign countries. Its central location between Asia and North America represents a hub for academic and cultural exchanges and partnerships. UH Hilo's learning environment is enriched by the cultural diversity of the local, mainland and international students. For the past three years, UH Hilo has shown consistent and steady gains in enrollment. The goal as stated in the UH Hilo Strategic Plan 1997-2007 is to attain a total enrollment of 5000 students by 2007.

Another goal in the UH Hilo Strategic Plan is to become a premier residential campus that offers a variety of services for students and faculty. Some of the University's critical needs are to increase student housing options and to provide services located convenient to campus. Students often lack the means to travel beyond walking distance from campus. Student surveys and focus groups reveal a consistent demand for restaurants, banking and postal services, coffee shops, and other services located on or near the campus. This sentiment has been echoed by the Hilo community in general, who have a history of active participation in sports, lecture, theater, and concert presentations at the university, and who would also be expected to patronize the full complement of commercial facilities that are an integral part of a well-rounded university.

Presently, UH Hilo lacks a commercial center and falls short of the "college town" atmosphere desired by its students, faculty and wider community. Having such facilities would not only provide students with necessary and desired services, it would also spark a sense of belonging to the University and connection to the Hilo community.

The proposed China-U.S. Center responds to these critical university needs in an integrated way. Specifically, the purposes of the project are to:

- Increase the inventory and broaden the range of student housing;
- Build facilities for commercial operations tailored to create a "college town" atmosphere adjacent to campus, in order to serve existing students and the Hilo community and attract new students;
- Provide a cultural conference center with space for international academic and cultural conferences, seminars, conventions, and workshops;
- Develop a full-service University Inn for families and academic visitors;
- Provide new business opportunities for local entrepreneurs and jobs for students;
- Extend the range of cultural offerings for community and academic purposes in the vital new direction of Asia; and
- Promote peaceful and enriching international exchange.

2.3 Historical Perspective: Project Background

The 1981 Long Range Development Plan for the University of Hawai'i at Hilo stated that

> "...the success of the Hilo complex as a viable academic community with a high percentage of residential students will depend on the proximity of commercial amenities. While the University is not in the position to plan for this commercial development, it should encourage the development of some commercial use adjacent to campus."

Over the last 20 years, UH Hilo has been pursuing the private-public partnership model for development of the area south of Kawili Street, across from the campus. A proposal from the 1980s for a *Vulcan Village* – as it was then called – was promoted by a Japanese business owner with support from local lawmakers. A site feasibility study in 1985 determined that the area was appropriate for such a purpose. Development was ultimately stymied by poor economic conditions in Japan, the source of the proposed financing, as well as the lack of UH Hilo control over the site.

In 1996, Dr. Hsueh-Li Cheng, a professor of philosophy at UH Hilo, revived the concept and teamed with other faculty, administrators and students to expand the vision to encompass one unique facility that would address a variety of academic, housing, social and cultural goals of the university. A key element was the exchange of both culture and people, involving students, their families, scholars, seminar and workshop participants, as well as other visitors. The Hawai'i County Council passed Resolution No. 286-96 that year, encouraging private development of commercial and residential uses surrounding the university. In early 1997, UH Hilo began discussions with Taiwanese investors. Later that year Interim Chancellor William Pearman visited Taiwan, and by 1998 serious negotiations were underway. UH Hilo contracted topographic survey, archaeological

inventory, and subdivision appraisal for a 36.066-acre portion of State land fronting Kawili Street in anticipation of obtaining site control. Public informational briefings held on the proposed center demonstrated strong community support. Governor Benjamin Cayetano became aware of the project and offered the State's encouragement and assistance.

Later in 1998, the Taiwanese investor group came to be headed by George Tai-Ping Huang, Chair of Crown Asia Construction Co., Ltd. Mr. Huang formed a corporation to do business in Hawai'i: GEO International Explorer, Inc. Upon assuming the role of Chancellor of UH Hilo, Rose Tseng took a strong interest in the project and met with Taiwanese investors and officials in Hawai'i and Taiwan. On January 12, 1999, Governor Cayetano signed Executive Order No. 3752, setting aside the 36.066 acres for the "U.S. China Center, General University, Student Housing, and Campus Related Commercial Purposes." In June 1999, a Letter of Intent was signed by Mr. Huang, confirming agreement to finalize the ground lease contingent upon certain conditions. A Business Plan was subsequently prepared, and the University then requested Mr. Huang to prepare an Environmental Impact Statement.

2.4 Project Description and Schedule

Overall Theme and Goals

The proposed China-U.S. Center would support campus-related commercial activities, student and visitor housing, general academic programs, and cultural exchange between Hawai'i, the U.S. Mainland and China. The four main elements are a commercial plaza, the China-U.S. Cultural Center, a student housing unit, and the Harmony Tower with its University Inn. This comprehensive university center is expected to foster a powerful educational experience promoting international exchange and academic excellence in an intimate and culturally rich setting. Figures 2-3 and 2-4 are conceptual illustrations of the China-U.S. Center. It should be noted that design plans are not yet finalized.

Detailed Description and Phasing

Phase I is targeted at serving the immediate needs of the students and faculty of UH Hilo, including student housing and shopping. Phase II would concentrate on the China-U.S. Cultural Center as a venue for academic exchanges. Phase III would provide a University Inn and other specialized services as part of a full-function environment for visitors attending conferences and short-term programs. Public and park spaces would be built as integral parts of the facility within the various phases. Table 2-1 outlines the basic components and phasing of the project. It should be emphasized that the development plan is flexible, and that the precise description, number and timing of the China-U.S. Center's components will be determined based on the unfolding of demand for residential, commercial and conference space. Furthermore, activities initiated in Phase I would be implemented throughout the duration of the project: i.e., until 2010 or later.

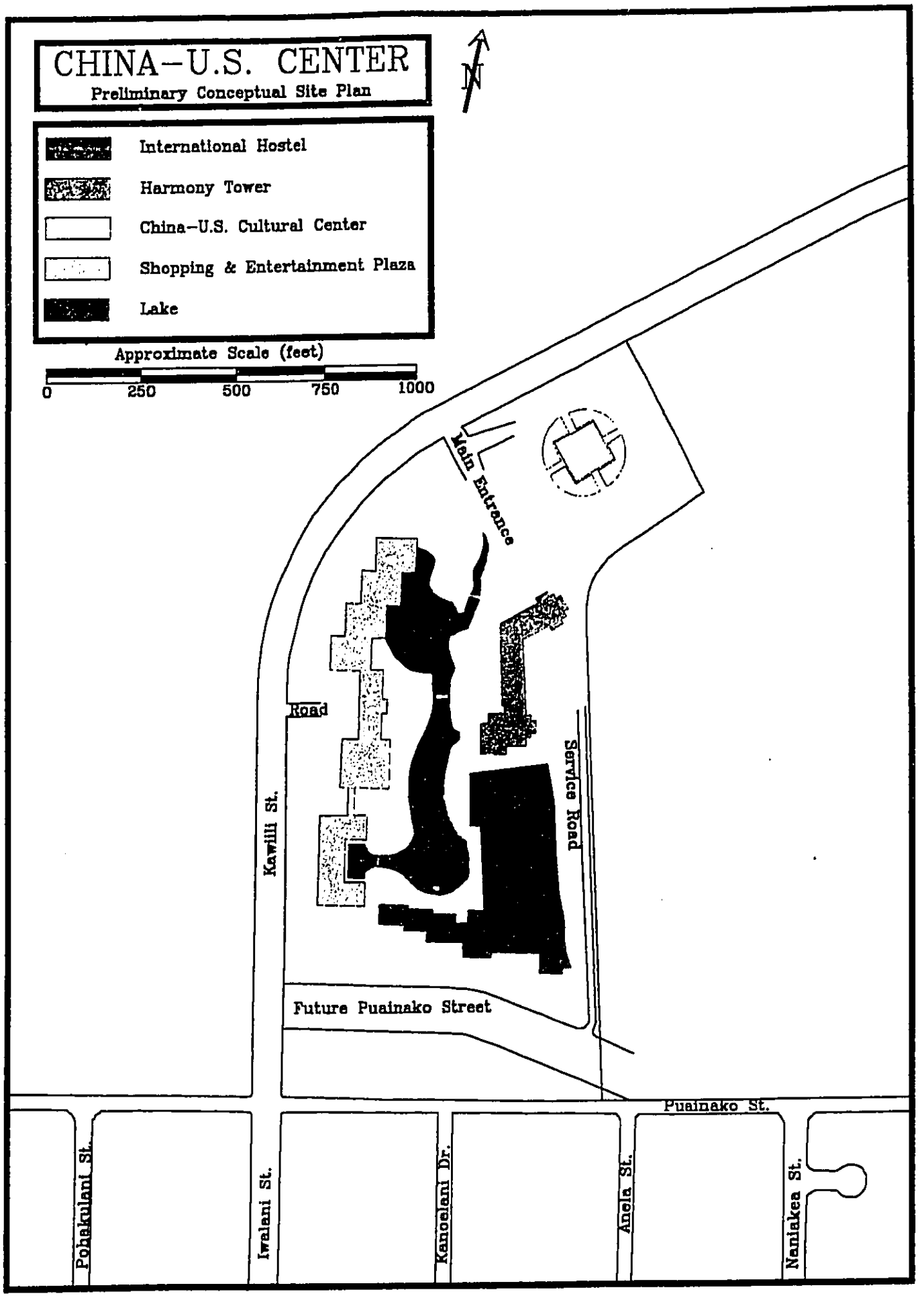

CHINA–U.S. CENTER
Preliminary Conceptual Site Plan
N
International Hostel
Harmony Tower
China–U.S. Cultural Center
Shopping & Entertainment Plaza
Lake
Approximate Scale (feet)
0
250
500
750
1000
Main Entrance
Road
Service Road
Kawilli St.
Future Puainako Street
Puainako St.
Pohakulani St.
Iwaleni St.
Kanoelani Dr.
Anela St.
Naniakea St.

Fig. 2–3

RECEIVED AS FOLLOWS

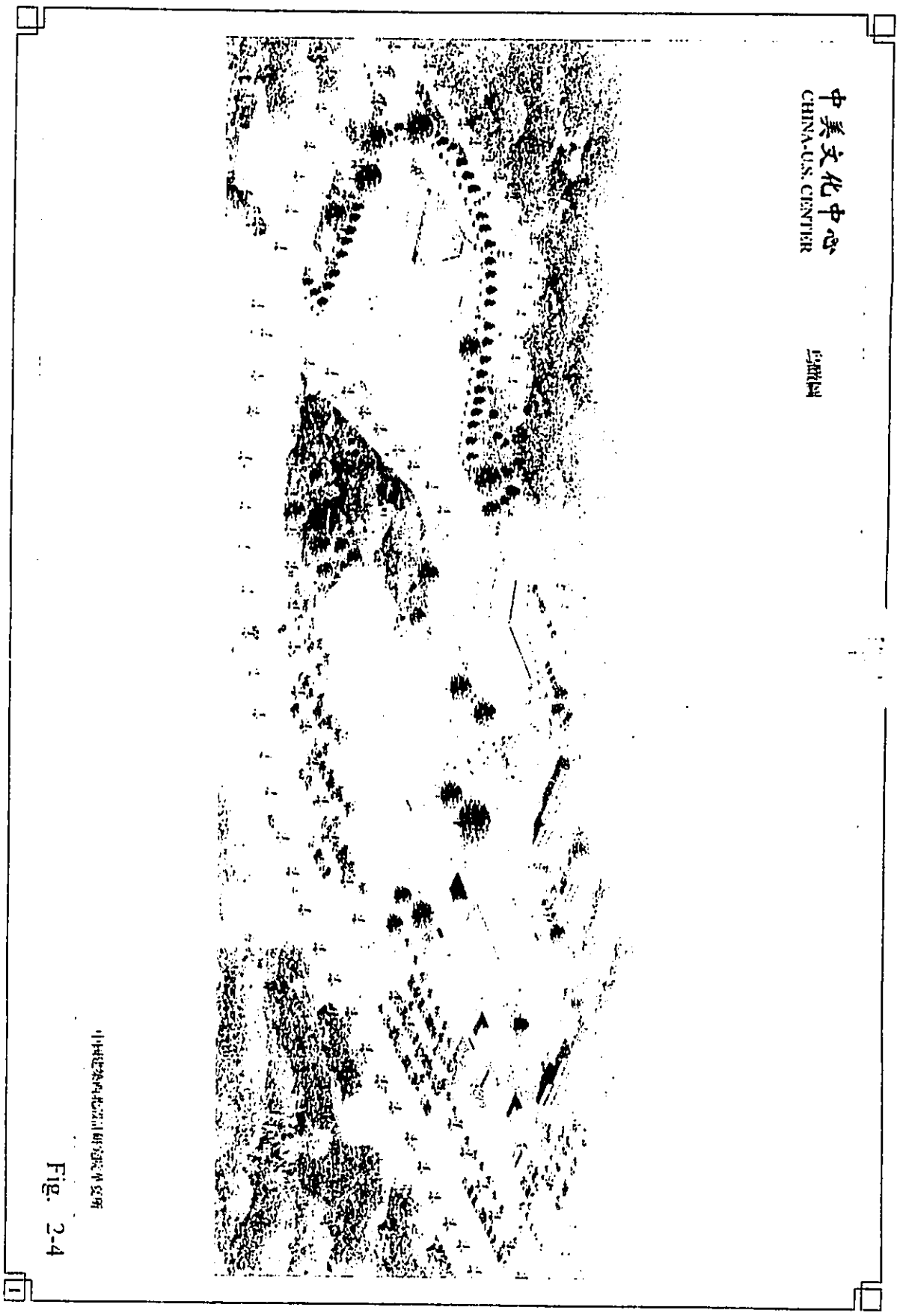


Fig. 2-4

Table 2-1
Facility Components and Phasing

Phase/Years	Facility/Content	Estimated Land Area (acres)
I 2002-2010	Shopping and Entertainment Plaza Retail Shops Entertainment Services Art Gallery Teahouse and Museums Cineplex International Hostel Student Housing Residential Halls Visitor Suites Family Lodging Units	3.195 7.909 4.714 3.195
II 2004-2010	China-U.S. Cultural Center Symposium Room Conference Hall Exhibition Hall Office	6.870
III 2006-2010	Harmony Tower University Inn Time-share Visitor Units Health Spa Dining Center	4.714

Notes: The list of commercial activities represents typical uses and is conceptual in nature; actual tenants will be determined based on demand. Residential and commercial components would be initiated in Phase I and would be built in increments throughout the lifetime of the project. Area estimates are preliminary.

Phase I

Phase I would meet the primary needs of UH Hilo for residential units and for the commercial facilities that are an integral part of a college town atmosphere.

In this phase, the International Hostel, comprising residential halls, visitor suites, and family lodging units, would be built to meet the student and visitor housing needs of the campus. Residential facilities for as many as 600 students would be built on the site, in increments beginning in Phase I and continuing throughout the project's duration. A range of living styles would be accommodated, and most units would be "apartment" style, with two to four bedrooms, a living room, bath and kitchen. The units are intended for both international and U.S. students, in order to create a varied international residential experience.

The residential halls would also include common areas, with a lounge, laundry, and similar accessory facilities. A unique aspect of the halls would be the provision of classrooms, meeting rooms, seminar rooms, and faculty offices, in order to promote a mini-campus that links residential and academic life. The capacity to accommodate performances, films, lectures, debates, and social events within the common spaces of the facility would provide opportunities for students to interact and make friendships, and thus promote cultural understanding. The goal is to contribute significantly to the personal and intellectual development of the residents by involving faculty and staff more intimately in student life than in conventional residential halls.

Approximately 50 Visitor Suites would be built. These are primarily intended as temporary housing for visiting scientists and scholars, such as astronomers, who require lodging convenient to the campus.

Family Lodging Units would be targeted for longer-term occupation by student families, faculty or other University-related personnel. It is estimated that about 20 Family Lodging Units would be built.

The commercial plaza is envisioned as a series of detached one- and two-story buildings, arranged in clusters set back from and paralleling Kawili Street, interspersed with parking and landscaping. Various retail outlets and services (e.g. hair salons, copy services, video stores) would occupy the plaza. The side facing the road would be designed to have the lively feeling of a shopping arcade, while the interior would have a courtyard atmosphere, suitable for coffee shops, tearooms, and cafes. The convenient shopping village would help make UH Hilo more self-contained and integrated, promoting a residential campus where a student does not depend on auto transportation for everyday needs.

Phase II

This phase would build the China-U.S. Cultural Center. The complex, currently planned as three stories, would include a medium-sized conference auditorium, an exhibition hall, symposium and meeting rooms, a library, and offices, linked with escalators and elevators. It is envisioned as a venue for conferences and training seminars, primarily on China-U.S. topics.

Phase III

In Phase III, the Harmony Tower would be built. This pagoda-like edifice would command fine views of the campus and Hilo town and would perform a central function in the overall Han architectural theme. It would house the approximately 100-unit University Inn and other specialized services that would round out a full-function environment for visitors attending conferences and short-term programs. The lower floors would contain auxiliary facilities, including conference rooms and a water court teahouse. Although serving University needs would be the priority for the hotel, it would

also be a commercial venture, and some rooms may be marketed in Taiwan as a visitor destination, with possible time-share purchases, as part of a larger Chinese international vacationing club. The 25-year old RCI club is a well-known exchange for international vacationing with a membership of over 2.1 million families. Time-share would occur during a limited time of the year when regular classes are out of session and the University Inn is not being occupied by special conferences or training activities. Visitor amenities would include the architectural and cultural attractions of the China-U.S. Center; restaurants; the small-town, historic atmosphere of Hilo; proximity to other visitor destinations in East Hawai'i; and a health care facility/spa.

Architecture and Landscaping

A vital element of the proposed China-U.S. Center is exposition of Han Dynasty cultural themes. The centerpiece would be the China-U.S. Cultural Center, which would be linked to the University Inn, International Hostel, the shopping and entertainment plaza, and a Chinese courtyard. The overall design theme incorporates cultural elements of the classic Han Dynasty, which uses contrasting and harmonizing zones and features. Although Han Dynasty architectural themes are considered the "classical" Chinese style that formed the basis of later Chinese styles and influenced cultures throughout East Asia, few examples are extant today, even in China itself. The China-U.S. Center's design incorporates principles of a unified, harmonious look, where high and low buildings are varied in proper order and features are tied to the traditional courtyard. In contrast to more ornate styles from later periods, Han architecture is often characterized as simple, classical and elegant.

Landscaping will reflect Han courtyard principles in the organization of space and elements of harmony and contrast. Parking lots would be separated by shade trees and would also incorporate trees for natural cooling and visual interest. Artificial water features would be surrounded by gardens expressing themes of cultural exchange. Landscaping species suitable for Hilo would be selected for their qualities of form and color, but would carry the traditional Chinese significance in terms of variety, number, grouping, and other landscape elements. Shrubs and trees would be set off from each other by expanses of lawn, water features, stones and art objects.

The China-U.S. Center would be designed and built to embody significant and rare architectural values, and it is thus expected to represent an attraction in itself.

2.5 Project Team, Cost and Funding

The University of Hawai'i at Hilo and the State of Hawai'i are partners with GEO International Explorer, Inc. (GEO), in the agreement to develop the China-U.S. Center. GEO, which is fully responsible for financing and developing the estimated $60,000,000 project, has assembled an international team of professionals for various aspects of the project. Notable on the team is architect Zhang Jinqui. Mrs. Zhang, a fellow of the

National Architecture Institute in Mainland China. has been designated a living treasure of China. GEO has also retained local attorneys. architects. engineers. planners and environmental scientists to carry out the project. and is working in close partnership with the administration of the University to ensure complete compatibility of the China-U.S. Center with UH Hilo's overall development plans.

It should be noted that although this EIS is meant most specifically to cover the China-U.S. Center. in a broader sense it would cover any similar UH Hilo expansion of residential, classroom. conference and commercial activities onto the Subject Property that would result in the same basic set of adverse and beneficial impacts.

2.6 List of Permits and Approvals Required

State

- Underground Injection Control
- State Historic Preservation Division Chapter 6E Concurrence
- National Pollutant Discharge Elimination System Permit (NPDES)

County

- Plan Approval
- Grading and Grubbing
- Building Permits

PART 3: ALTERNATIVES

3.1 Proposed Project

The proposed project is described above in Section 2.4 and illustrated in Figures 2-3 and 2-4.

3.2 No-Action

Under the No-Action Alternative, the Subject Property would not be utilized for the China-U.S. Center or any similar UH Hilo expansion of residential, classroom, conference and commercial activities. No short-term construction impacts or long-term impacts, such as traffic, would occur. Similarly, none of the benefits of the expansion of UH Hilo's residential, classroom and conference space would occur. The ability to support a college town atmosphere at UH Hilo would be severely constrained. For most categories of impact, the No-Action Alternative would result in little or no change or increase in the impact from the existing UH Hilo operations, particularly as related to activities on the Subject Property. Therefore, unless explicitly mentioned, discussion of impacts and mitigation would relate to the alternative of implementing the China-U.S. Center only.

3.3 Other Alternatives Considered and Dismissed

1. Alternative Locations. Through the years UH Hilo has considered various other properties on or near the existing campus that could be utilized for this and similar projects. The area mauka (west) of Komohana Street was considered but rejected because of its remoteness from the center of campus and its potential for other uses, including a campus for Hawai'i Community College, expansion of the University Park for Science and Technology, and a large facility for the U.S. Department of Agriculture. Closer to the center of campus is a large undeveloped area extending from the Campus Center towards Puainako and Komohana Streets. A number of building sites are available here, although the Waiakea Drainage is a major factor in providing access. After consideration of parking, access, and campus integration issues, UH Hilo determined that these sites would be more appropriate for other planned projects, including a Multi-Purpose Arena.

2. Alternative Uses of Site. The site identified for the China-U.S. Center might also have utility for various other proposed campus facilities, such as athletic fields, stand-alone dormitories, the Multi-Purpose Arena, or classroom buildings. However, all such facilities that are in planning for the foreseeable future can be accommodated on the existing campus, and there is no immediate need for the China-U.S. Center site. Although no alternative use is currently envisioned, if for some reason the China-U.S. Center is not developed, UH Hilo would evaluate the site and determine whether there is another appropriate use that could benefit the development of the campus.

3. Alternative Funding Mechanisms. UH Hilo has considered funding of additional student residential units, commercial facilities, a campus hotel, and conference centers through a combination of special legislative appropriations, grants, and more modest partnerships with private developers. Although such approaches are of course feasible – it has been the standard method by which the campus has developed and expanded – it has the disadvantage of requiring substantial public funds and additional development time. UH Hilo and other University of Hawai'i units are being encouraged to seek innovative partnerships with the private sector that can fulfill the State's educational goals in an efficient and cost-effective manner. The proposed project is a good example of this approach.

After consideration of alternative means of satisfying the project's purpose and need, UH Hilo has chosen to restrict the range of alternatives advanced for detailed consideration to the *Proposed Project* and the *No-Action Alternatives*.

PART 4: ENVIRONMENTAL SETTING, IMPACTS AND PROPOSED MITIGATION MEASURES

This chapter describes the various physical, biological and socio-cultural resources as well as existing public facilities and services. After each description, the potential beneficial and adverse impacts of the proposed action are evaluated and mitigation measures to reduce adverse impacts are proposed.

Direct, secondary (indirect), and cumulative impacts are all addressed. Secondary impacts occur as a "side-effect" of a particular project, and may include impacts to air quality, water quality, noise, open space, natural vegetation, historic sites, and demands for public infrastructure. Cumulative impacts may be defined as impacts on the environment which result from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions, regardless of what agency or entity undertakes the action (Council on Environmental Quality [CEQ] 1997:v).

4.1 Project Context

4.1.1 Basic Orientation to Site

For purposes of the EIS documentation, the term *Subject Property* (or simply *property*) is used to denote the actual area that would be occupied by the China-U.S. Center, where most of the actual physical impacts would occur. The *study area* is a more flexible term, meant to provide context for resources or impacts under discussion in the Subject Property and to help evaluate impacts that potentially extend off-site (e.g., air quality and traffic). It will vary according to the resource under discussion, usually including certain portions of surrounding properties; it may refer to much larger areas, such as the South Hilo District or the island of Hawai'i.

The Subject Property is 36.066-acre portion of TMK 2-4-01:05, surrounded by Kawili Street, Puainako Street, and a buffer of land east of the southwest of Waiakea High/Intermediate/Elementary Schools complex (see Fig. 2-1). Elevation ranges from about 140 to over 200 feet above sea level, with a moderate slope. The high average annual precipitation of over 130 inches per year on Holocene pahoehoe lava flows from Mauna Loa has produced a mucky, organic soil. This marginal agricultural land was cultivated in sugar cane for several decades in the late 19th and early 20th centuries, and then used as pasture, but has been vacant of any active land use since about 1960. The Subject Property currently supports a vegetation of secondary growth alien trees, shrubs, grasses and herbs (see Fig. 2-2 for project site photographs).

4.1.2 Past, Present and Future Actions in Study Area

This section contains a list (Table 4-1), references a map (Fig. 2-1), and discusses relevant, major past, present and future land use activities in the Waiakea area south of Lanikaula Street and mauka of Kilauea Avenue. This discussion frames the basic surroundings of the proposed project and identifies activities or projects that have a potential to interact with the proposed project in a substantial way to create cumulative impacts.

Table 4-1
Existing and Proposed Land Uses in Study Area

EXISTING DEVELOPMENT	
Residential	Nearly fully-developed residential areas surround University on three sides.
Agricultural/Open	Upper campus and areas mauka of Komohana Street presently open - no agriculture.
Commercial and Industrial	Activity confined to areas makai of Kapiolani Street, with little activity within one-half mile of the University.
Public Facilities	University of Hawai'i at Hilo. About 340,656 sf of buildings on an 115-acre campus with enrollment of =2,900. Associated facilities include the Komohana Ag Complex and Research and Technology Park, with major facilities for agriculture and astronomy. Waiakea Elementary, Intermediate and High Schools. Three churches and a YMCA also in immediate vicinity.
Transportation Facilities	Basic network of two-lane streets - Puainako, Mohouli, Kinoole and Kilauea Streets - often over capacity at peak hours.
MAJOR PLANNED - NON-UNIVERSITY	
Facility	**Description, Scope and Scale**
Mohouli Street Extension	Under construction (completion 2002); will connect Kaumana with Waiakea - providing better access to University
Puainako St. Extension and Widening	Extension under construction 2001-2004. Widening awaits funding. With completion of both, State Highway Gateway to UH Hilo established.
Saddle Road	EIS completed; when built (completion =2010), cross-island standard State Highway will be present.
Subdivisions/Rezone	No major new actions planned; General Plan Land Use Pattern Allocation Guide Map, however, changes designation of several areas, notably about 250 acres south of Mohouli Street from Medium Density to High Density Urban.

(Table 4-1, continued)	
*USDA Pacific Basin Ag. Research Center**	$45-50 million, 100,000 sf laboratory and research center on 30-acre site. several hundred jobs at buildout, with accesses from Komohana Street (future extension of Nowelo Street), slated for construction in 2003
MAJOR PLANNED- UNIVERSITY RELATED	
Facility	**Description, Scope and Scale**
New and Renovated Instructional and Support Buildings	*UH Hilo Long-Range Plan* specifies facilities needed to support growth to 2020 goal of 5,000 enrollment. About half of existing 211,000 sf of instructional facilities at UH Hilo and Hawai'i Community College will be retained, a quarter removed, and a quarter renovated. An additional 350,000 sf of instructional facilities will be built., In addition, the area of support facilities will increase from about 129,000 sf to 230,000 sf.
Student Housing	An additional 750 units required. China-U.S. Center, if built, will supply majority. Additional areas above Waiakea Drainage Canal, as well as possible associations with private sector housing providers near campus, planned for remainder.
*Multi-Purpose Sports and Recreational Complex**	Phase IA is 2,000-seat, with successive phases accumulating up to 10,000, as necessary. Also involves 50-meter pool, parking and infrastructure improvements with total value of $58 million.
Research and Technology Park Expansion	Major planned facilities include Smithsonian headquarters and Mauna Kea Astronomy Education Center, which will fill complete northern unit of Park. Six additional 2-acre lots may be developed in southern part on an uncertain timetable

Note: * See Figure 2-1 for locations.

4.2 Physical Environment

4.2.1 Geology and Soils

Environmental Setting

The Subject Property is situated entirely on basalt lava flows from Mauna Loa's northeast rift zone dating from 5,000-10,000 years ago (Wolfe and Morris 1996). Slopes range from 1 to 7 degrees.

The U.S. Soil Conservation Service mapped two basic soil types on the Subject Property (Fig. 4-1). Keaukaha extremely rocky muck is a thin soil that is permeable above the pahoehoe layer (typically located at about 8 inches in depth) but very slowly permeable below. Runoff is medium and erosion hazard is slight. Permeability and runoff are variable and erodibility minor to moderate. Panaewa very rocky silty clay loam is typically a few inches thicker and slightly less rocky, and is also formed over pahoehoe. Permeability is rapid, runoff slow, and erosion hazard slight (USSCS 1973).

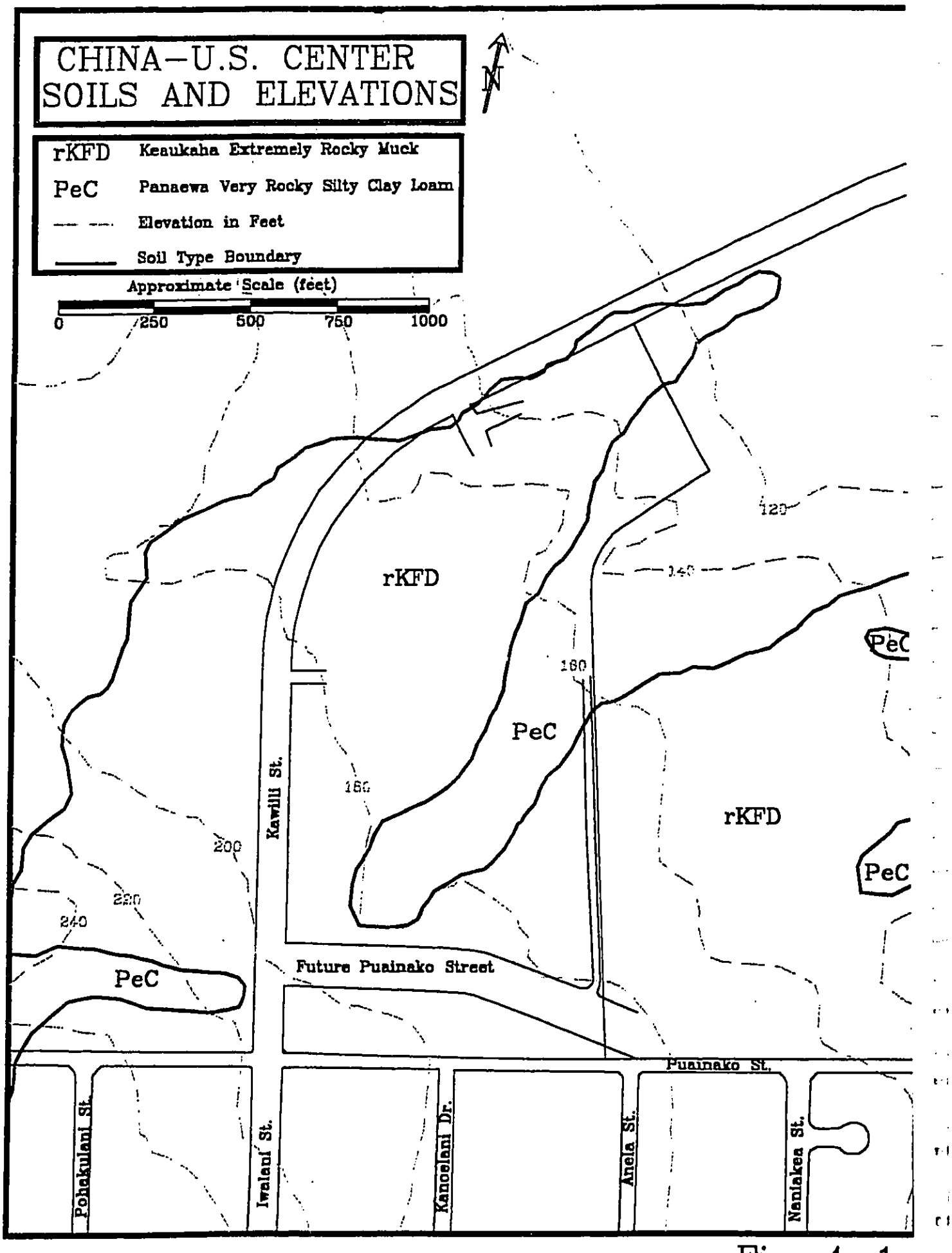

CHINA–U.S. CENTER
SOILS AND ELEVATIONS
N
rKFD Keaukaha Extremely Rocky Muck
PeC Panaewa Very Rocky Silty Clay Loam
Elevation in Feet
Soil Type Boundary
Approximate Scale (feet)
0 250 500 750 1000
120
140
160
180
200
220
240
rKFD
PeC
rKFD
PeC
PeC
Kawili St.
Future Puainako Street
Puainako St.
Pohakulani St.
Iwalani St.
Kanoelani Dr.
Anela St.
Nanlakea St.

Fig. 4–1

Inventory maps of important farmland from the U.S. Natural Resources Conservation Service (USNRCS) show no lands in the Subject Property that are identified as Prime. Unique. or Other Important Lands in the *Agricultural Lands of Importance to the State of Hawai'i* (ALISH) map series. The entire area is urban and hence unclassified.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

No valuable soils. agricultural land or farms are present. and no soils or farming operations would be adversely impacted by the project. Terrain and soils are not anticipated to pose a problem during construction. Construction and operation of the facility would not cause any secondary impacts to soil or farmland. As no non-negligible adverse effects are likely to occur. there would be no cumulative impacts.

4.2.2 Lava Flow and Earthquake Hazards

This study area (like all development in Hilo) is subject to volcanic hazard. particularly lava inundation. The United States Geological Survey classifies the area as Lava Flow Hazard Zone 3. on a scale of ascending risk 9 to 1. Zone 3 is considered:

> "...less hazardous than [Z]one 2 [which is adjacent to and downslope of active risk zones] because of greater distance from recently active vents and/or because the topography makes it less likely that flows will cover these areas" (Heliker 1990:23).

The Northeast Rift Zone of Mauna Loa has produced eruptions many times in the last century. sending flows toward Hilo in the years 1881. 1899, 1935. and 1942 (Macdonald et al 1986:64). The 1881 lava flow penetrated what is now the urban area of Hilo, including part of the UH Hilo campus. A 22-day eruption in 1984 again threatened Hilo, approaching within six miles of the Kaumana neighborhood before halting.

In terms of seismic risk, the entire island of Hawai'i is rated Zone 4 Seismic Probability Rating (*Uniform Building Code. 1997 Edition.* Figure 16-2). Zone 4 areas are at risk from major earthquake damage. especially to poorly-designed or -built structures.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

In general, geologic conditions impose no important constraints on the project. Although the Subject Property is exposed to geologic hazard. any development near UH Hilo would be located in similar volcanic and seismic zones. and there are thus no reasonable alternatives. As required under County of Hawai'i regulations, all construction would conform with the provisions of the current *Uniform Building Code* appropriate to the Zone 4 Seismic Probability Rating. Construction and operation of the facility would not cause any secondary impacts in terms of geologic conditions or hazards. As no non-negligible adverse effects are likely to occur. there would be no cumulative impacts.

4.2.3 Drainage, Erosion and Water Quality

Environmental Setting

Floodplain status for many areas of the island of Hawai'i has been determined by the Federal Emergency Management Agency (FEMA). which produces the National Flood Insurance Program's Flood Insurance Rate Maps (FIRM). Applicable Special Flood Hazard Area (SFHA) designations include the following:

1. Zone A: SFHAs subject to inundation by the 100-year flood. Because detailed hydraulic analyses have not been performed. no base flood elevation or depths are shown.
2. Zone AE: SFHAs subject to inundation by the 100-year flood determined in a Flood Insurance Study by detailed methods. Base flood elevations are shown within these zones.
3. Zone AH: SFHAs subject to inundation by 100-year shallow flooding (usually areas of ponding where average depths are between 1 and 3 feet). Base flood elevations derived from detailed hydraulic analyses are shown in this zone.
6. Zone VE: SFHAs along coast subject to inundation by the 100-year flood with additional hazards due to velocity (wave action). Base flood elevations derived from detailed hydraulic analyses are shown within these zones.
7. Zone X: Areas identified in the community flood insurance study as areas of moderate or minimal hazard from the principal source of flood in the area. However, buildings in these zones could be flooded by severe. concentrated rainfall coupled with inadequate local drainage systems. In this area, such a zone may be inundated by the 500 year flood.

The Subject Property is classified in the National Flood Insurance Program's Flood Insurance Rate Maps as Zone X – areas with moderate or minimal hazard from the principal source of flood in the area.

Stormwater runoff from more than half of the Subject Property flows eastwards onto the Waiakea Intermediate School site through two existing 24-inch concrete pipes and overland flow. Runoff from the rest of the property sheet flows either onto West Kawili Street or into the open area between the property and Waiakea High School. Along the property's southern boundary, runoff from half of Puainako Street flows onto the property. Along the western boundary, runoff sheet flows onto the property from the southern portion of West Kawili Street. In addition, an existing 36-inch concrete pipe under West Kawili Street, which is connected to an earth swale running along the west side of West Kawili Street, also conveys some off-site runoff onto the property.

In terms of potential for erosion, as stated above in Section 4.2.2, permeability is medium to rapid, erodibility is minor to moderate, runoff is slow to medium, and erosion hazard is slight on the Keaukaha extremely rocky muck and Panaewa very rocky silty clay loam soils that occupy the Subject Property (USSCS 1973).

Direct Drainage Impacts and Mitigation Measures

The proposed development would construct impervious surfaces in the form of buildings and parking areas. Therefore, the onsite runoff would increase. However, all additional runoff attributable to development activities would be required to be contained onsite.

Since the area of the project site is less than one hundred acres, the onsite drainage system shall be designed for a minimum 10-year storm recurrence, per the County's design criteria. The systems shall be able to maintain current pre-development runoff rate that is discharging onto the downstream properties. Drywells shall be employed to dispose all increased runoff due to the proposed construction. The locations of drywells shall be determined during the design phase after the site layout is finalized.

Direct Construction-Phase Water Quality Impacts and Mitigation Measures

The Subject Property is now covered with heavy vegetation and soil erosion is minimal. However, the potential for soil erosion and/or surface and groundwater pollution would increase during the construction period due to the removal of existing vegetal ground cover. Increased erosion could consequently degrade water quality of downstream receiving water by the sediment transported through surface runoff.

Best management practices (BMPs) to minimize nonpoint source pollution would be implemented in keeping with the requirements of permits and approvals, which may include the National Pollutant Discharge Elimination System (NPDES) Permit, that may be necessary prior to major grading activities. Such measures may include:

1. Installation of temporary ground cover through hydromulching or placing erosion control matting/geotextile material to stabilize slopes and to reduce exposure time of barren surfaces. Surface flow from an exposed slope shall not be permitted.
2. Construction of gravel vehicle ingress/egress at entrance to the site to minimize tracking debris offsite. Reduction in the tracking of sediments onto paved roads helps prevent the deposition of sediments into local storm drainage systems and reduces airborne dust. The stabilized construction entrance shall be located at any point where traffic would be entering or leaving a construction site to or from Kawili Street.
3. Installation of silt fences, berms, and temporary silt basins to lessen the potential of sediment transportation. These "filter" devices prevent sediment form entering

receiving waters. Sediment trapping devices should be used downslope of all disturbed areas and around the base of all material stockpiles.

4. Installation of temporary grassed interceptor swales to divert off-site runoff away from disturbed areas where the erosion risk is high.
5. Conformance with the air pollution control standards contained in Hawai'i Administrative rules Chapter 11-60. "Air Pollution Control." The Contractor shall keep the project site and surrounding area free from dust nuisance. Different forms of dust control can be employed to reduce dust emission. such as vegetative cover. mulch. spray on adhesives. water sprinkling. topsoiling. and barriers.
6. Erosion control plans shall be prepared for construction activities during the design phase or be furnished by the construction contractor. The plans shall coordinate with construction schedules. A set of approved plans shall be kept at the construction site all the time. The contractor shall be responsible for monitoring and maintenance of erosion and sediment control devises.
7. Further BMPs may be devised and implemented as part of a National Pollutant Discharge Elimination System (NPDES) permit. if the Hawai'i State Department of Health determines that this permit is necessary.

Operational-Phase Water Quality Impacts and Mitigation Measures

If unmitigated by proper performance of Best Management Practices. the operation of any large facility such as the China-U.S. Center has at least some potential to adversely impact water quality through introduction of sediments or toxic substances.

Unvegetated or incompletely vegetated soil or surfaces that are subject to periodic erosion can yield sediment during heavy rainfall that may leave the site if drainage is not properly handled. Given the characteristics of the Subject Property and the proposed plan. the following Best Management Practice would mitigate any sediment impacts:

- The site surface shall be landscaped to control onsite erosion and grass areas/swales shall be used to the maximum extent as filters to reduce sediment transportation. thus minimizing the potential impact on storm water quality.

A variety of chemicals that have adverse impacts on the health of plants. animals. humans even at fairly dilute levels are classified as toxic substances. Toxic substances include petroleum-based hydrocarbons. synthetic organic compounds found in pesticides. heavy metals, and radioactive substances. Toxic substances are often constituents of very commonly used substances such as gasoline. household cleaning fluids. weed-killers. and batteries. and they can enter sensitive waters through improper handling and disposal. Biologists and health specialists have studied the effects of many such toxic substances and determined levels below which there appears to be little risk in terms of mortality or health. The U.S. Environmental

Protection Agency and the Hawai'i State Department of Health maintain lists of such standards and regularly sample drinking water wells and some ponds, streams and coastal waters to guard against these often invisible menaces to human health and natural ecosystems. Toxic substances are often removed from or neutralized in surface or groundwater or soil through treatment or natural bioremediation.

Although educational, residential, hotel and conference facilities are not normally associated with the adverse impacts to water quality, it is important to recognize this potential. Fortunately, today's strict environmental controls and regulations effectively limit the likelihood of contaminant releases. Of primary importance in limiting potential contamination are adherence to applicable laws and regulations and implementation of appropriate Best Management Practices (BMPs). The following is a brief summary of various sources of toxic substances and the laws and regulations that, properly adhered to, ensure that impacts to water quality are minimized:

- Injection wells are regulated under the Safe Drinking Water Act, and in Hawai'i are administered by the State's Safe Drinking Water Branch (SDWB) under HAR §11-23, "Underground Injection Control". The State's underground injection control (UIC) program establishes standards which govern the location, construction, and operation of injection wells so that the injected fluids do not migrate or pollute groundwater.
- Due to the nature of the proposed facility, hazardous waste issues are anticipated to be minimal. However, the University of Hawai'i at Hilo is characterized under federal Resource Conservation and Recovery Act (RCRA) as a RCRA-Small Generator, which means that between 100 and 1000 kilograms of non-acutely hazardous waste is generated. All generators and transporters of hazardous waste are regulated under RCRA. All wastes defined as "hazardous" are regulated under HAR §11-260 to §11-279. Hazardous waste is defined to include all solid wastes or combination of solid wastes or combination of solid wastes which may: (1) cause or significantly contribute to an increase in mortality or an increase in a serious or irreversible or incapacitating reversible illness; or (2) pose a substantial existing or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of or otherwise managed. HAR §11-261 further identifies the characteristics of hazardous waste, and has rules that establish standards applicable to generators, transporters, treatment, storage or disposal facilities, and persons who deal with hazardous waste fuel. These standards are, in effect, Best Management Practices for hazardous waste facilities. The standards include operating practices, record keeping requirements, corrective action plans and other standards. In the event of a hazardous waste release from a facility that handles hazardous wastes, the facility may be required to take response actions, including any corrective measures necessary to protect human health or the environment.

- Small quantities of pesticides may be stored used on the Subject Property as part of building and landscaping maintenance. Pesticides are regulated by the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA). The licensing, sale and use of pesticides in Hawai'i are governed by the Hawai'i Pesticides Law. Although FIFRA places ultimate supervisory responsibility for uniform control of pesticides with the federal Environmental Protection Agency (EPA), the State may regulate the sale or use of pesticide used intra-state and may regulate the sale or use of pesticides which are not prohibited by FIFRA. The Hawai'i Department of Agriculture (DOA) is responsible for the administration of the Pesticide Law, under HAR §4-66, "Pesticides".

Secondary and Cumulative Impacts and Mitigation Measures

Construction and operation of the facility would not cause any secondary impacts to water quality other than that imposed by general population. No critically sensitive surface or ground water source would experience adverse impacts as a result of the project. Because the direct water quality impacts related to the project can be minimized to negligible levels with proper adherence to laws, regulations and permit conditions, it is unlikely that any adverse effects would occur to accumulate with similar impacts from other construction projects (e.g., the Puainako Extension) or operational activities (e.g., the University of Hawai'i at Hilo). The presence of other construction and operational activities emphasizes, however, the importance of adhering strictly to Best Management Practices.

4.2.4 Flora and Fauna

Environmental Setting

A biological survey of the Subject Property was undertaken in December 2000. A total of 46 plant species was identified within the project site. Of these, only two species are indigenous, while three were introduced to Hawai'i by early Polynesians. No rare, threatened or endangered species listed by the U.S. Fish and Wildlife Service are present on the parcel, nor are there unique or valuable wildlife habitats. Based on elevation, rainfall and geologic substrate, the area probably supported a Lowland Wet Forest (Gagne and Cuddihy 1990) dominated by 'ohi'a (*Metrosideros polymorpha*). Agricultural activities, including sugar cane cultivation and grazing in the late 19th and early 20th centuries, long ago destroyed the original vegetation. The present vegetation is now almost entirely alien and may be classified as a Lowland Alien Wet Forest (Gagne and Cuddihy 1990). The dominant canopy tree species are Gunpowder tree (*Trema orientalis*), Chinese Banyan (*Ficus microcarpa*), African tulip (*Spathodea campanulata*) and Bingabing (*Macaranga mappa*). In many areas, these trees create a dense shade with Basket grass (*Oplismenus hirtellus*) as the dominant ground cover. Where gaps in the canopy occur, numerous alien shrubs, grasses, and vines are found.

including Melastoma (*Melastoma candidum*). California grass (*Brachiaria mutica*). Thimbleberry (*Rubus rosifolius*). Sugar cane (*Saccharum officinarum*) and Glycine (*Glycine wightii*). A few native tree ferns. Hapu'u (*Cibotium* sp.). have also recolonized the site.

No native vertebrate fauna were observed at the site. The proposed project site represents poor habitat for native passerine bird species for two reasons. First. the vegetation is highly disturbed. Second. native passerines rarely inhabit low elevation areas where large numbers of disease-carrying mosquitoes are present. The native Hawaiian Hawk or 'Io (*Buteo solitarius*) probably makes some use of the study area for hunting or nesting. It is also possible that certain native seabirds fly over the site, but it is unlikely that any with threatened or endangered status would find the site suitable habitat or be affected by activities that occur on the parcel. The only native Hawaiian land mammal. the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*). may also be present in the area. as it is common in certain areas on the island of Hawai'i. Observation took place in daylight. and therefore the lack of bat observations does not signify an actual absence of bats. The Subject Property would not be expected to represent essential habitat for this species. Introduced bird species observed included Common Myna (*Acridotheres tristis*). Japanese White-eye (*Zosterops japonicus*). Nutmeg Mannikin (*Lonchura punctulata*). House Finch (*Carpodacus mexicanus*) and Melodius Laughing Thrush (*Garrulax canorus*). Other introduced bird species such as Northern Cardinal (*Cardinalis cardinalis*). Spotted Dove (*Streptopelia chinensis*) and Barn Owl (*Tyto alba*) undoubtedly make use of the property. Introduced mongooses (*Herpestes auropunctatus*). feral cats (*Felis catus*). rats (*Rattus spp.*) and mice (*Mus musculus domesticus*) are also likely to inhabit the property.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

No substantial biological impact would result from the proposed project. Very few native species occur and no native vegetation or habitats are present. Construction and operation of the facility would not cause any secondary impacts to biological resources. As no non-negligible adverse effects are likely to occur, there would be no cumulative impacts.

4.2.5 Air Quality

Environmental Setting

Regional and local climate along with the type and amount of human activity generally dictate air quality of a given location. The climate of Hilo is warm and humid. with average annual rainfall of more than 130 inches. The wind regime is dominated by light but persistent east to northeast trade winds, especially in summer. A shallow, low-velocity drainage wind from the opposite direction occurs at night (UH Hilo Dept. of Geography 1998).

Humans impact air quality in many ways. Industrial activity outputs pollutants in smokestacks, and farming and construction activity may produce fugitive dust. Most important in Hawai'i are the pollutants produced by motor vehicle engines. Harmful substances include particulate matter, sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3) and lead. Each of the regulated air pollutants has the potential to create or exacerbate some form of adverse health effect or to produce environmental degradation when present in sufficiently high concentration for prolonged periods of time.

Air quality in the study area is currently most affected by emissions from motor vehicles, industry and natural sources. Volcanic emissions of sulfur dioxide convert into particulate sulfate that causes a volcanic haze (vog) to blanket the area during occasional episodes when trade winds are not present. The major industrial source is oil-fired power plants, which emit SO_2, nitrogen oxides, and particulate matter. Motor vehicles emit CO, nitrogen oxides and hydrocarbons (an ozone precursor), and smaller amounts of other pollutants.

The State of Hawai'i operates a network of air quality monitoring stations around the State. Very little data are available for the Hilo area. In general, these data indicate that concentrations are well within State and federal air quality standards. The excellent air quality in Hilo is mainly influenced by the dispersive effects of the trade winds and the isolation of the island from any outside sources of pollution. The more stringent State standards pertaining to CO are probably exceeded on occasion near high-volume intersections during periods when traffic congestion and poor dispersion conditions coincide.

Direct Construction-Phase Impacts and Mitigation Measures

Short-term direct and indirect impacts on air quality could potentially occur due to project construction, principally through: 1) fugitive dust from vehicle movement and soil excavation; and 2) exhaust emissions from on-site construction equipment.

Fugitive dust emissions may arise from the grading and dirt-moving activities associated with site clearing and preparation work. The State of Hawai'i Air Pollution Control Regulations (Chapter 11-60, HAR) prohibit visible emissions of fugitive dust from construction activities beyond the property line. Thus, an effective dust control plan for the project construction phase is essential.

Adequate fugitive dust control can usually be accomplished by the establishment of a frequent watering program to keep bare-dirt surfaces in construction areas from becoming significant sources of dust. In dust-prone or dust-sensitive areas, other control measures such as limiting the area that can be disturbed at any given time, applying chemical soil stabilizers, mulching and/or using wind screens may be necessary. Control regulations further stipulate that open-bodied trucks be covered at all times when in motion if they are transporting materials

that could be blown away. Haul trucks tracking dirt onto paved streets from unpaved areas is often a significant source of dust in construction areas. Some means to alleviate this problem. such as road cleaning or tire washing. may be appropriate. Paving of parking areas and/or establishment of landscaping as early in the construction schedule as possible can also lower the potential for fugitive dust emissions.

On-site mobile and stationary construction equipment also would emit air pollutants from engine exhausts. The largest of this equipment is usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment. but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines. on the other hand. are low and should be relatively insignificant compared to vehicular emissions on nearby roadways.

In addition. to avoid air quality impacts from slow-moving construction vehicles traveling to and from the site on major roadways, heavy construction equipment should be moved on-site during periods of low traffic volume.

Direct Operational (Permanent) Impacts and Mitigation Measures

After construction is completed. use of the proposed facilities would result in increased motor vehicle traffic on nearby roadways. Vehicles driving past. turning into and out of. and driving and parking with the proposed center would generate emissions. Motor vehicles with gasoline-powered engines are significant sources of carbon monoxide. They also emit nitrogen oxides and other contaminants. Regional impacts can occur if projects generate significantly more net traffic; micro-scale impacts can occur with or without regional impacts. particularly at congested intersections near sensitive air quality receptors (e.g.. residences with small or no front yards and thus little space between windows and the travel lanes).

The proposed project would cause few regional impacts and may in fact help improve overall emissions from motor vehicles by developing a more pedestrian-oriented. residential campus. This overall decrease in traffic and emissions is an important benefit of the project.

On the micro-scale, the key factor influencing the level of emissions is traffic Level of Service (LOS). As discussed in Section 4.4.1.5. given construction of the Puainako Street Widening project and the mitigation measures proposed as part of the Traffic Impact Analysis Report (App. 3) and summarized in Section 4.4.1.6. the LOS at most modeled intersections in the affected study area would be acceptable during the AM and PM peak hours. regardless of whether the China-U.S. Center is constructed (see Tables 15-20, App. 3). If the Puainako Street Widening does not occur. LOS would be unacceptable at some movements of several intersections. although it would be generally adequate at the UH Hilo campus main drive. In

general. whether the China-U.S. Center is built or not would not have a substantial influence on the LOS and subsequent emissions level. which influence micro-scale air quality.

The proposed design mitigates for any potential micro-scale air quality impacts derived from motor vehicle emissions by setting back buildings and other public spaces. where people would tend to occupy or linger. away from the intersection. As such. no additional mitigation is necessary or recommended.

Secondary and Cumulative Impacts and Mitigation Measures

Very slight secondary impacts would occur as the result of the increased regional driving induced by more students on the UH Hilo campus. It should be noted that off-campus housing would lead to greater increases. East Hawai'i has generally excellent regional air quality and any such increases would not likely be noticeable or critical. even when considered on a cumulative basis. Micro-scale cumulative effects (i.e.. on and near the UH Hilo campus) were considered as part of the analysis of traffic Level-of-Service. the primary determinant of micro-scale air quality near intersections (see above).

4.2.6 Visual Character

Existing Environment

The *Hawai'i County General Plan* identifies sites and vistas of natural beauty. In general. few features with scenic value or viewplanes are present in the UH Hilo area.

The project is being designed with visual interest as one of its key components. However. viewplanes from areas mauka of the property toward the coast are of concern. Although slopes in Hilo are for the most part moderate. certain elevated areas are present. One such area is the upper Waiakea neighborhood. an area bounded by Iwalani Street. Kawailani Street. Komohana Street. and Puainako Street (see Fig. 2-1 for map). Many of the homes and properties have sweeping views of the coast or ocean horizon. This neighborhood is perched between 80 and 400 feet higher in elevation than the UH Hilo campus.

Figure 4-2a is a photograph taken from Iwalani Street looking seaward to the UH Hilo campus. This vantage point was selected because it had one of the most direct views in the neighborhood and could represent. in general. the maximum level of visual impacts. It should be noted that the photograph was taken from a front yard: upper floors of certain houses on these streets would have somewhat more elevated views. Note that with the exception of a view corridor along the north-south line of Kawili Street. trees on and mauka (left. in photo) of the Subject Property currently block views of the campus. the ocean and the horizon. Within

the view corridor, a construction crane at the site of the new classroom buildings is clearly visible.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

Figure 4-2b is an approximate simulation of the appearance of the China-U.S. Center from the viewpoint on Iwalani Street. The Harmony Tower (represented here by a typical ten-story building) would be clearly visible from this and other neighborhood locations. The existing vegetation to the north of Puainako Street would screen out any views of all but the top floors of the Harmony Tower. No other part of the China-U.S. Center would be visible from here (and, in fact, all surrounding areas except ASH Housing across Kawili Street) because of the screening effect of the vegetation. Although the top part of the Harmony Tower would be clearly visible from many homes, the minimum 1,500 foot distance to the nearest homes would mean that little blocking of ocean views or significant widths of the horizon would happen. It is also noteworthy that the proposed tower (along with that of the entire China-U.S. Center) would have a graceful appearance and substantial architectural value, and would thus contribute positively to the scenic environment of the UH Hilo campus and surrounding areas. From the standpoint of the campus or vehicles passing by on Kawili Street, the architecture and landscaping of the China-U.S. Center would have a striking and elegant appearance, and would harmonize well with the existing campus.

No other development projects in the area are planned to have buildings exceeding three stories, and no adverse cumulative visual impact would occur. Secondary visual impacts are not expected to arise as a result of the project.

4.2.7 Noise

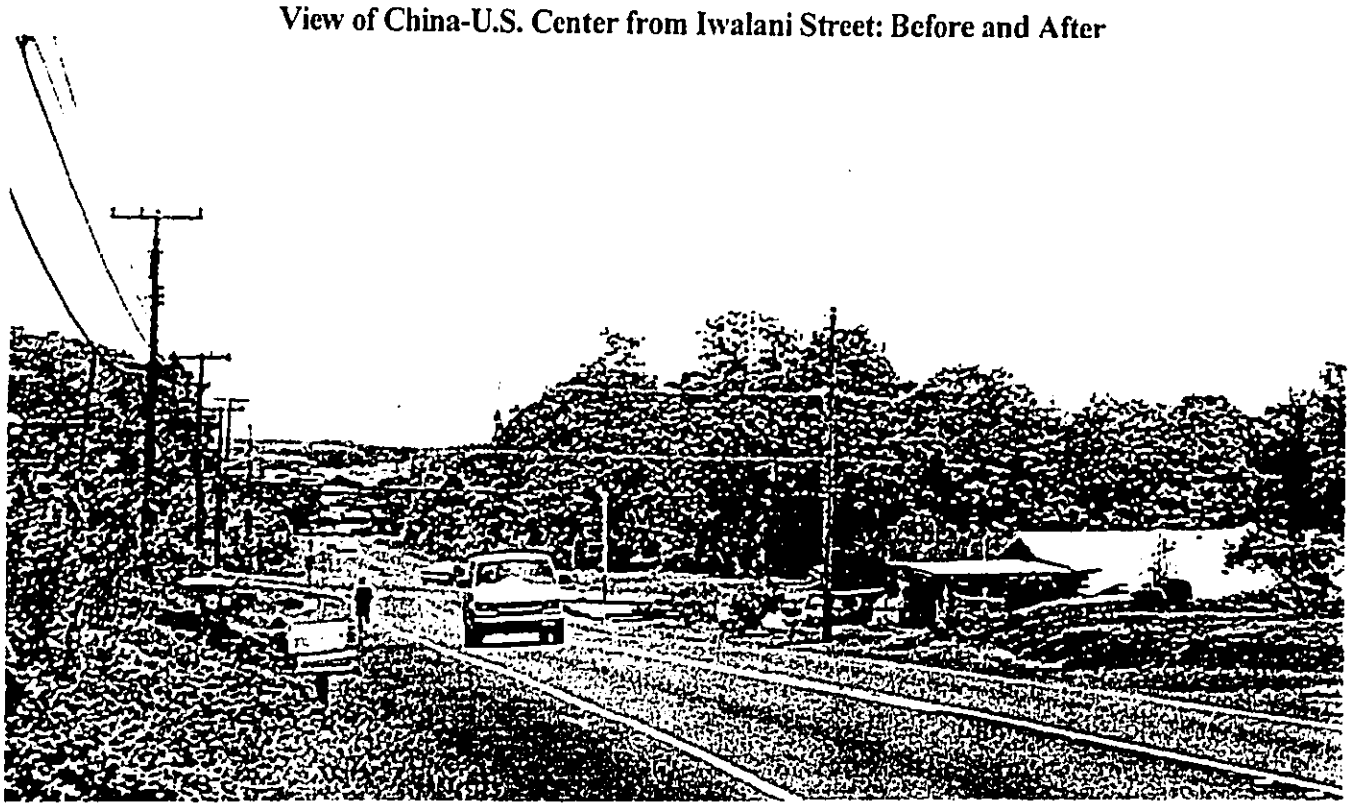
Existing Environment

Noise levels on the Subject Property are generally low in the interior of the property; on the perimeter, noise levels are influenced by adjacent activities at UH Hilo and the Waiakea schools as well as traffic from Kawili and Puainako Streets, and can occasionally be high.

Direct Construction-Phase Impacts and Mitigation Measures

Development of the China-U.S. Center would involve excavation, grading, blasting, compressors, operation of vehicle and equipment engines, and construction of new buildings and infrastructure. These construction activities may generate noise louder than 95 decibels at times, which exceeds the Hawai`i State Department of Health (DOH) "maximum permissible" property-line noise levels.

View of China-U.S. Center from Iwalani Street: Before and After



2-4a (before) ▲ 2-4b (after) ▼

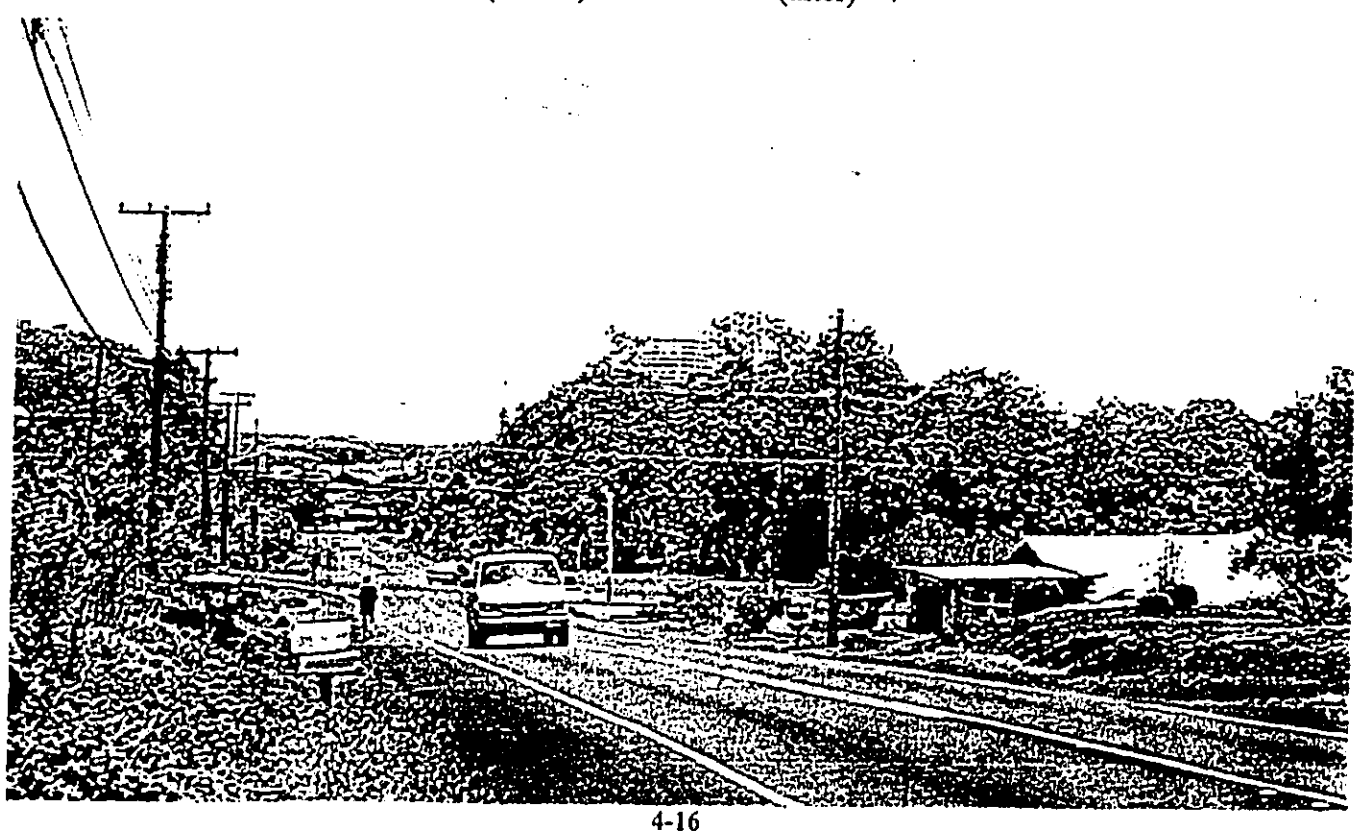


Fig. 4-2

As mitigation, the contractor would be required to conform to the requirements of Chapter 11-46, "Community Noise Control." The contractor would prepare specific information on construction activities and locations and would consult with the DOH as appropriate regarding the need for a construction noise permit prior to construction. All construction equipment and on-site vehicles would be equipped with mufflers as stated in Section 11-46-6(b)(1)(A), and the contractor would be obligated to comply with the requirements pertaining to construction as specified in the rules and the conditions issued with the permit, as specified in 11-46-7(d)(4). Sound levels emanating from stationary equipment at the China-U.S. Center must be attenuated to comply with the provisions of Chapter 11-46.

Direct Operational (Permanent) Impacts

Vehicles, student housing and conference activities would also generate noise. However, the Subject Property is ideally located with respect to sensitive noise receptors such as residences, churches, or parks. Furthermore, the Waiakea schools and UH Hilo have a number of existing facilities, including playing fields and courts, gymnasiums, theaters, student housing and open-air concert areas that generate levels of noise exceeding those that would be expected at the China-U.S. Center. As illustrated in Figure 2-1, many existing areas of these campuses are closer to streets with residences and churches than the China-U.S. Center would be, and there are few reported problems with noise from campus activities. The southern boundary of the buildable portion of the Subject Property (the only border near residences or churches) is approximately 300 feet from any noise sensitive uses, which are all located on the south side of Puainako Street (the north side is vacant state land and is expected to serve as a buffer). Furthermore, it is important to note that this 300-foot wide area is occupied by dense vegetation and Puainako Street, a noisy two-lane State Highway. Puainako Street is planned to be relocated northward and widened to four lanes. The existing Puainako Street will remain but will become a minor local street with limited access. Ultimately, therefore, six lanes of traffic, along with two vegetation buffers, would separate the nearest point of the China-U.S. Center from sensitive noise receptors such as homes or churches. It is unlikely, given this context, that the proposed center would add any measurable noise to in the area of the residences and churches of the existing Puainako Street. As such, no adverse noise impacts are expected.

Secondary and Cumulative Impacts

Because of the relatively long distances between any sensitive noise receptors and potential sources of noise on or near the Subject Property, noise from the China-U.S. Center is not liable to combine with noise from other areas to produce adverse, high levels of noise. In terms of secondary impacts, traffic generated from the students, conference attendees, employees and customers of the China-U.S. Center would add to the volume of noise produced on all roads on which they travel. The major highways on which much of this added

traffic would occur are federal aid projects and have been subject to federal and State noise evaluation criteria. or would be subject to these when federal funding is requested. They have thus been designed to avoid sensitive land uses within areas that exceed Noise Abatement Criteria or to employ noise attenuation measures. when feasible. where noise impacts do occur.

4.2.8 Hazardous Substances

Existing Environment

A Phase I Environmental Site Assessment was conducted for the property by Myounghee Noh & Associates in January 2001. The report is included in full as Appendix 5 and is summarized below.

The purpose of the research was to determine the potential for hazardous substances or toxic waste. such as leaking underground storage tanks (USTs). chemical spills. historic toxic releases. on-site or nearby generators of hazardous materials or similar problems. Methodology included on-site reconnaissance. a review of the land use history of the Subject Property. analysis of geology and hydrogeology. and research in regulatory records and hazardous/toxic databases for the Subject Property and adjoining properties.

The parcel was used for sugar cane and pasture land from the late 19th century till 1961. after which there has been no active land use. No uses that would tend to produce adverse environmental conditions have occurred.

The site reconnaissance indicated no evidence of USTs. offsite contamination sources with the potential to migrate onto the Subject Property. or material containing asbestos. polychlorinated biphenyls. or lead.

The database search included the following:

- Federal National Priorities List (sites with the highest priorty for cleanup under the U.S. Environmental Protection Agency's (EPA) Hazard Ranking System (40 CFR 300)
- Federal RCRA (Resource Conservation and Recovery Act) list of sites undergoing corrective action
- State Hazardous Waste Sites
- Federal CERCLIS (Comprehensive Environmental Response. Compensation and Liability Information System) list of sites currently or formerly under review by EPA for potential hazardous substance contamination.

- Federal ERNS (Emergency Response Notification System) list of hazardous substance releases or spills
- State spill incident list
- State-equivalent CERCLIS list
- State list of landfills. incinerators and transfer stations
- State leaking UST list
- Federal RCRA Generators list
- State registered UST list

The databases indicate no events or conditions that would tend to produce adverse environmental conditions on the Subject Property.

Direct. Secondary and Cumulative Impacts and Mitigation Measures

There is a lack of known conditions or events of concern for the Subject Property. No additional research or mitigation is recommended unless such conditions be discovered during construction.

In order to prevent contamination of the site during construction or operation of the facility. Best Management Practices should be specified during construction and operation. and all applicable laws and regulations concerning hazardous or toxic materials strictly adhered to (see Section 4.2.3 for discussion of BMPs and for secondary and cumulative impacts and mitigation related to hazardous substances from future activities).

4.3 Socioeconomic and Cultural

4.3.1 Social

Environmental Setting

The population of the island has grown in tandem with visitor industry growth. increasing by 45.0 percent between 1970 and 1980 (from 63.468 to 92.053). by 30.7 percent (to 120.137) between 1980 and 1990. and by 23.6 percent (to 148.677) between 1990 and 2000. These growth rates exceed the state-wide growth rate of about 10 percent in the last two decades. According to a State population projection. Hawai'i County will continue to grow at a high rate. and population may exceed 200.000 by the year 2010. Much of this growth has been and will remain concentrated in West Hawai'i. particularly the North Kona and South Kohala Districts. Many new residents are retirees or wealthy in-migrants from the U.S. mainland.

The population of East Hawai'i has also experienced growth, particularly in the Puna District. Population in the South Hilo District has increased somewhat more slowly, from 33,915 in 1970, to 42,278 in 1980, to 44,639 in 1990, and to 47,386 in 2000. Forecasts call for East Hawai'i's population (including Hilo, Hamakua and Puna) to grow at an estimated annual rate of 2.24 percent, reaching 95,385 by the year 2010. East Hawai'i has retained a socioeconomic and ethnic structure closer to pre-1960 patterns than has West Hawai'i, the demography of which has been transformed by in-migration of job-seekers and retirees from the U.S. mainland.

As of this writing, only limited census data are available from the 2000 U.S. Census of Population. Table 4-2a compares Hilo with the entire island for selected social characteristics.

Table 4-2a
Selected Social Characteristics, 2000

CHARACTERISTIC	Hawai'i Island	Hilo
Total Population	148,677	40,759
Percent Caucasian	31.5	17.1
Percent Asian	26.7	38.3
Percent Hawaiian	9.7	13.1
Percent Two or More Races	28.4	29.7
Median Age (Years)	38.6	38.6
Percent Under 18 Years	26.1	24.7
Percent Over 65 Years	13.5	16.7
Percent Households with Children	21.3	30.6
Average Household Size	2.75	2.70
Percent Housing Vacant	15.5	9.0

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawai'i.* (U.S. Census Bureau Web Page).

Table 4-2b displays a wider range of socioeconomic data from the 1990 U.S. Census of Population for Hawai'i County and the South Hilo District, which contains the city and suburbs of Hilo.

Table 4-2b
Selected Socioeconomic Characteristics - 1990

CHARACTERISTIC	Hawai'i Island	South Hilo
Total Population	120,317	44,639
Average Household Size	2.90	2.80
Percent Caucasian	39.9	26.7
Percent Asian	37.0	59.4
Percent Pacific Islander	20.0	12.6
Percent Under 18 Years	28.7	27.2
Percent Over 65 Years	12.6	14.7
Percent Lived in State in 1985	84.5	91.4
Percent Over 25 Years With High School Diploma	77.7	78.4
Percent Adults in Labor Force	64.2	62.1
Median Family Income	$33,186	$35,579
Percent in Poverty	14.2	14.3
Percent Housing Vacant	14.1	5.7
Median Home Price	$113,000	$110,800

Source: U.S. Bureau of the Census: *1990 Census of Population and Housing*. STF 1-A, STF 3-A.

Direct Impacts and Mitigation Measures

Direct social impacts from the construction and operation of the proposed China-U.S. Center would be largely beneficial. No relocation of residences, businesses, community facilities, farms or other activities would occur because of the project. Perhaps the most significant direct social impact is highly beneficial: the China-U.S. Center would broaden and enrich Hilo's educational and cultural environment, a benefit which would extend to some degree throughout East Hawai'i and the entire State.

Secondary and Cumulative Impacts

The principal secondary social impacts derive from the fact that as many as 600 new students may be attending UH Hilo as a result of an expanded residential inventory.

Impacts actually pertain to economics, traffic generation, and public facilities, and are addressed in those sections of the EIS.

4.3.2 Cultural Resources

Background

Maly (1996) conducted historical documentary research and oral history interviews concerning Waiakea Cane Lots 12, 13, 17, 18, 19, 20 and 20A. Although this document focused primarily on land use and features directly across Kawili Street, the land use in the adjacent area of the Subject Property, comprising portions of Cane Lots 8, 10 and 11, was identical. The presence of similar archaeological features (sugar cane clearing mounds) and vegetation (secondary alien forest) is further testimony to the nearly identical land use history. Therefore, Maly's work (including his extensive array of historical sources) serves here as the primary basis for evaluating the former and current cultural context of the area, supplemented by follow-up interviews with Maly's informants who were familiar with the Subject Property and its resources. Additional resources consulted included cultural/historical research conducted as part of the Archaeological Inventory Survey (App. 2) and historical land-use research conducted for the Phase I Environmental Site Assessment (App. 5).

Environmental Setting

The Subject Property is in the lands of Kawili in the ahupua'a of Waiakea. Waiakea refers to the abundance of water in the district, which was famous for its springs. As Waiakea is on the largest ahupua'a in the islands, numerous sub-areas of land at various scales were traditionally recognized. As Maly points out (1996:6), the name Kawili is generally only recognized today as a street name, but various cultural traditions concerning bird-catching and bananas are associated with Kawili, particularly for the upper areas 1,500 feet and higher (Maly 1996:6-8). The greater area of Waiakea is associated with many traditional accounts of history and legend, commensurate with its large size and important rank among settlement areas. No traditions are specifically associated with the Subject Property or any features known to be present there.

In terms of land use, Handy and Handy (1972:539) reported that traditionally, dry taro was planted in this region wherever there was enough soil. McEldowney (1979:18-20) summarized early historic accounts of Hilo thus:

> "...an expanse of unwooded grasslands or a "plain" behind Hilo extended up approximately the 1,500 ft elevation (i.e., the edge of the forest). Scattered huts, emphasized by adjacent garden plots and small groves of economically beneficial tree species, dotted this expanse."

Important species with the potential to persist (indicating less-disturbed sites of former settlements and providing resources for current practitioners of Hawaiian culture) include bananas (*Musa* spp.). breadfruit (*Artocarpus communis*). kukui (*Aleurites moluccana*). hau (*Hibiscus tiliaceus*). `awa (*Piper methysticum*) and taro (*Colocasia esculenta*). None of these species is present on the Subject Property.

The Mahele of 1848 separated all land into Crown. Government and Konohiki lands. subject to the rights of native tenants. According to Maly (1996:20) "With the exception of house lots and agricultural parcels awarded to lesser chiefs and commoners...the entire ahupua`a of Waiakea was awarded to the *Mo`i* [King] Kauikeaouli." The majority of the smaller parcels awarded to native tenants were located close to the coast and ponds. None were present on or near the Subject Property. The lack of claims in Waiakea may not indicate a lack of cultivation or other uses of the general area. but rather the already advanced state of depopulation and social change that had drawn the remaining Hawaiians down from these isolated upland fields in Hilo into more consolidated communities. often associated with a new. money-based economy.

In 1861. the Crown Lands of Waiakea were leased by Kamehameha IV to S. Kipi for pasture for $600 a year for a period of five years. During the coming decade. sugar plantations began to dominate the landscape in Hilo. By 1874. R. A. Lyman had acquired a 25-year lease on the Waiakea lands for growing sugar. and the physical vestiges of Hawaiian cultivation and land use in Waiakea were gradually lost as the land surface and vegetation became totally altered by sugar cane cultivation. and later. cattle pastures. Table 4-3 provides information on the historical use of the Subject Property. the area of which changed through time according to leases. set-asides and Executive Orders.

Table 4-3
Subject Property Land Use History

Period (approx.)	Property User	Area (acres)	Primary Use
1999 - 2001	State of Hawai`i	36.066	Set aside as Government Land
1976 - 1999	State of Hawai`i	39.066	Set aside as Government Land
1961 - 1976	State of Hawai`i	39.066	Undeveloped parcel of Waiakea Education Complex
1960 - 1961	William K. Kamau, Sr.	20.35	Pasture land
1949 - 1959	Fairview Dairy	20.35	Pasture land
1939 - 1948	Waiakea Mill Company	19.94	Sugarcane field
Prior to 1939	Waiakea Mill Company	?	Sugarcane field since 1879

Although the Subject Property may have supported residential, agricultural, or other uses prior to the mid-19th century, little evidence remains because of extensive cultivation during the late 19th and early 20th centuries. None of the traditionally important crop or gathering species remain, having been replaced by weeds. Any stone features that may have once existed on the property were long ago rearranged by sugar cane agriculture.

One of the few informants interviewed by Maly in 1996 with any direct, personal knowledge of the Waiakea Cane Lots was Kenneth Bell. He is of Hawaiian and Caucasian ancestry and was born in 1915. His father was superintendent of the plantation railroad as well as the carpentry and blacksmith shops of the Waiakea Plantation. Mr. Bell lived about half a mile from the Subject Property, and became familiar with the area around the future Kawili Street and Puainako Street both through his father's work (a plantation rail line ran through the Subject Property at one time) and his own activities, such as summer work hoeing weeds in the rows between the cane fields. Mr. Bell identified the nature of construction and use of many of the stone features that are associated with hand-clearing of stony fields for sugar cane agriculture.

As part of the background research for the China-U.S. Center, Mr. Bell was again interviewed on July 31, 2001. He was familiar with Subject Property, and reiterated the conclusions recorded in Maly (1996:57-60) that the landscape had been entirely reformed by sugar cane agriculture. He said that he knew of no cultural resources that are or were present on the Subject Property.

Based on historical research, botanical reconnaissance and interviews with knowledgeable informants, it would appear that no known valuable natural, cultural or historical resources are present on the Subject Property. The Subject Property does not support any traditional resource uses, nor are there any Hawaiian customary and traditional rights or practices known to be associated with the property.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

It is reasonable to conclude that based upon the absence of any known traditional cultural resources, that there would no effect upon such, that the exercise of native Hawaiian rights related to gathering, access or other customary activities would not be affected, and that there would be no adverse effect upon cultural practices or beliefs. Construction and operation of the facility would not cause any secondary impacts to cultural resources. As no non-negligible adverse effects are likely to occur, there would be no cumulative impacts.

4.3.3 Archaeological and Historic Resources

Environmental Setting

As discussed in Section 4.3.2 above. historical accounts indicate that traditional patterns of land use carried on until the late 19th century. when sugar cane cultivation began to dominate the landscape. obliterating much of both the vegetation and stone features of earlier agriculture. This conversion was assisted by changes in land tenure associated with the great Mahele and the growing influence of foreign interests. particularly in ports such as Hilo.

PHRI. Inc.. undertook an archaeological inventory survey of the Subject Property in 1998. One site (State Site No. 21461) comprising 117 features was determined to be present. All features in the site. which includes clearing mounds. enclosures and walls. are interpreted as being associated with sugarcane cultivation from the historic period (early 20th century). and significant for information content only. The State Historic Preservation Division (SHPD) has concurred with the results of the inventory survey (See App. 2 for Archaeological Inventory Survey and correspondence from SHPD).

Direct. Secondary and Cumulative Impacts and Mitigation Measures

SHPD reviewed the EISPN and commented in a letter of June 14. 2001:

> "Site 21461 is an agricultural complex comprised of clearing mounds. enclosures and walls related to historic period sugarcane cultivation....We agreed that the site has been adequately studied. that is was thus 'no longer significant'. and that no mitigation would be required. We conclude that the proposed project will have 'no effect' on significant historic sites" (see App. 1 for full text of letter).

No impact to historic sites is expected to occur. However. if any previously unidentified sites. or remains such as artifacts. shell. bone or charcoal deposits. human burials. rock or coral alignments, pavings. or walls are encountered. work will stop immediately and SHPD will be consulted to determine the appropriate mitigation. Construction and operation of the facility would not cause any secondary impacts to historic sites. As no non-negligible adverse effects are likely to occur. there would be no cumulative impacts.

4.3.4 Economic

Environmental Setting

Historically, the foundation of the economy on the Big Island was been related to agriculture, directly or through services. Only in the 1960s did tourism begin to provide large numbers of jobs. With the decreasing importance of sugar plantations, tourism became increasingly vital to the economy of Hawai'i, despite its periodic downturns. In 1990, however, Hawai'i County experienced an economic slump caused by both slow growth in the visitor industry and the collapse of the sugar plantations. The share of jobs representing agriculture, contract construction and manufacturing fell steadily during the 1990s, although this was partially offset by a modest rebound of visitor industry employment.

Until the recent downturn in the U.S. economy, the State and County were showing strong signs of recovery. The outlook is now mixed, although tourism gains, recovery in construction expenditures, growth of the agricultural and aquaculture sectors and the development and strengthening of new sectors still appear to provide a foundation for growth in 2001 and beyond.

Agriculture remains one of the island of Hawai'i's prime economic industries. Sugar, macadamia nuts, and coffee have historically been the major agricultural products. The last of the Big Island's sugar operations shut down in 1996. Coffee and macadamia nuts remain important, and significant and growing contributions are being made by the State's diversified agricultural sector, with crops including papayas, vegetables, cut flowers, and nursery products. Livestock raising remains an important economic activity. Kamehameha Schools has over the last five years leased 20,000 acres to Prudential Timber for production of timber/forest products, primarily fast-growing eucalyptus trees to be used in plywood as well as other wood and wood fiber products. Fifteen thousand of those acres are located within the Hamakua district, while an additional 5,000 acres in Ka'u were leased in June 1998. The number of aquaculture operations have grown from 13 in 1988 to 44 in 1998 (Pacific Business News: June 15, 2001:9). Also noteworthy is the opening of the first operating agricultural crop irradiation plant opened recently in Keaau. The facility deals with a variety of infestations commonly found on Hawai'i produce, which would allow greater export potential for Big Island crops.

Tourism has experienced meaningful recovery since late 1996 and, apart from the current nationwide disruption caused by the terrorist events of September 11, 2001, was widely considered to be in a definite upcycle, particularly on the Kohala Coast, one of the most popular destinations in the State of Hawai'i. Expensive, resort-residential homes in both Kona and Kohala are a prominent element of this recovery.

East Hawai'i remains hard hit from the recession. as more than 1.000 sugar industry-related jobs have been lost since 1993. Over 45,000 acres have been taken out of sugar production. A small portion has been utilized for other purposes. including truck farming. timber. cattle grazing. or various start-up. experimental or low capital requirement activities. Few of these efforts employ meaningful numbers of former sugar workers. and most of the former sugar cane acreage now lies fallow.

The University of Hawai'i is a significant bright spot in East Hawai'i's economic picture. A study of the direct and indirect economic impacts of UH Hilo conducted in the early 1990s (Hammes 1994) indicated that direct expenditures - e.g.. wages and salaries for faculty. staff. support personnel. and campus-related expenditures for equipment and supplies on campus - totaled $28 million in fiscal 1993-1994 (*Ibid*:5). As significant as this figure is. expenditures by students and their visitors (surveys show that each student is associated with 21 visitor days per year on average) essentially doubles the economic contribution of the University. Faculty visitors. conference attendees and athletics increase the direct impact to over $66 million. and the total of direct and induced expenditures (using a multiplier of 1.5) accounts to nearly $100 million.

Much of the revenue is of coursed derived from State and federal taxes. and additional tax expenditures are required for direct and indirect on- and off-campus infrastructure. Although cost-benefit analyses may not be appropriate for state universities (the intrinsic value of higher education for the citizens of a state is generally assumed to accrue social worth of far higher value than the cost of providing the services). the *local* economic effect of a University can be highly positive. Most expenditures are widely shared by all state and federal taxpayers but many economic benefits are concentrated in the local community. Such is the case in Hilo, as the strong support shown for UH Hilo by local business groups demonstrates.

The project site is located on ceded land. Thus. revenues received by the University of Hawai'i from any non-exempt commercial ventures will be subject to the statutory entitlement of the Hawai'i State Office of Hawaiian Affairs (OHA). Any such revenues will represent a benefit for OHA. as the property has not generated income for many decades, and minimal income before then.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

The proposed China-U.S. Center would strengthen and solidify the already highly beneficial economic impact of UH Hilo on the economy of Hilo and the rest of Hawai'i. Aside from the substantial but one-time direct, indirect and induced one-time worker income and tax receipts from $60 million of expenditures for design and construction, significant ongoing benefits would occur through secondary effects, as outlined in the previously cited economic study. Economic benefits would accrue through the following:

- New dormitory facilities would allow enrollment increases, which would increase job income for faculty, staff and support personnel, and provide local businesses with a substantial base of new customers of students and University employees, along with their visitors.
- Conference facilities would increase local expenditures for goods and services associated with conferences (e.g. guided tours) and would also provide local jobs.
- The proposed University Inn would diversify and strengthen the Hilo visitor industry by providing a new type of high-quality facility catering to a segment of the educational tourist market not normally drawn to Hilo. Visiting scientists such as astronomers may extend their stays in response to facilities better tailored to their needs.
- The commercial facilities on campus would answer a need for pedestrian-accessible goods and services for the University population, providing an essential component of the "college-town" atmosphere that students and University planners have expressed a desire to create. On-campus commercial outlets may divert business from off-campus stores currently providing goods and services to students, faculty, staff and University visitors. However, local businesses may choose to open campus outlets.

4.4 Public Facilities and Services

Given that as many as 600 new students may be attending UH Hilo as a result of an expanded residential inventory, public facilities and services may be affected to varying degrees through direct and indirect means. The wide range of facilities and services that may be affected could include public infrastructure such roads and utility systems, police and fire services, medical and mental health services, public parks and beaches, and more. Unlike permanent households, which pay property taxes and usually include members with full-time jobs who pay income taxes, student households do not contribute substantially to the County property tax or State income coffers. However, as discussed in Section 4.3.4 above, the tertiary economic impact of students and their family and other visitors through purchases of goods and services, which stimulate local business and directly contribute to

the State general excise tax, is substantial. This expansion of the economic base and the various tax revenues it would induce in all likelihood would more than compensate for the slight additional demand on public facilities and services generated by the extra student population.

4.4.1 Roads and Traffic

4.4.1.1. Methodology

Comments to the EISPN and meetings with civic officials indicate that traffic impacts are the greatest issue related to the project. The project planning team attempted to formulate strategies for traffic and circulation that integrate community and campus needs, through a coordination process with agencies and community groups. In order to specifically identify direct, secondary and cumulative traffic impacts and develop measures capable of mitigating them, a Traffic Impact Analysis Report (TIAR) was prepared. The report is included in full as Appendix 3, and is summarized below. The traffic study consisted of several systematic sets of tasks:

- *Definition of Study Area and Issues and Analysis of Existing Traffic Facilities and Conditions*. Meetings were held with the Hawai'i State Department of Transportation (HDOT) and County of Hawai'i to identify areas of concern and issues that the TIAR should address, including intersections to be analyzed, planned street and roadway improvements, other development or redevelopment projects in the area, and other traffic related issues. Existing traffic volumes and operational conditions at the study intersections were determined from traffic counts and other investigations performed in early 2001 specifically for this study. Information on intersection configurations and traffic signals was also collected in the field at the time of the traffic counts.
- *Determination of 2010 Background Traffic Conditions*. Using the year 2010 as the design year, future background traffic conditions were defined as "future traffic conditions without the proposed project." Background traffic projections were developed using traffic projections provided in the *Hawai'i Long Range Land Transportation Plan* (HDOT 1998), the *University of Hawai'i at Hilo Long Range Development Plan* (UH Hilo 1996) and other studies. Traffic projections from such reports were superimposed on the traffic volumes determined from the field surveys.
- *Determination of Traffic Characteristics of Proposed Project*. Peak-hour traffic generated by each component of the proposed project was estimated based on standard trip generation procedures in the context of existing travel patterns observed during the traffic surveys and highway plans.
- *Estimation of 2010 Background Plus Project Traffic Projections and Determination of Traffic Impacts of Proposed Project*. Project-generated traffic was then

superimposed on 2010 background without-project traffic volumes at the study intersections. After that, standard traffic study methods were used again to conduct a traffic analysis for 2010 background plus project (termed cumulative) conditions. The results of this analysis were compared to 2010 background without-project conditions to determine the impacts of this project.

- *Formulation of Mitigation Measures.* Following analysis of the traffic impacts, road improvements capable of mitigating the impacts of the project were identified and evaluated.

The following sections briefly present the results of each step of this process. Readers interested in detailed discussion of traffic conditions, methodology and impacts are referred to Appendix 3.

4.4.1.2 Existing Facilities, Traffic Counts and Issues

The Subject Property is accessed by two roads. On the south is Puainako Street, a two-lane road designated State Route 2000. Puainako Street is currently a major collector road connecting the mauka and makai parts of the Waiakea neighborhood of Hilo. Major intersections are signalized. The 2000 Average Daily Traffic (ADT) on Puainako Street was approximately 35,000 vehicles per day (vpd) west of Kanoelehua Avenue. The ADT decreased to approximately 10,000 vpd west of Kinoole Street. East of Kawili Street, in the vicinity of the project, the ADT is approximately 7,200 vpd, based on 2001 traffic counts. Between Kawili Street and Komohana Street, the ADT is approximately 5,500 vpd.

The north and west of the property is bounded by Kawili Street, a two-lane County road that is the main access to UH Hilo and Waiakea High School.[1] There are separate left turn storage lanes at the major intersections. Based on 2001 traffic counts, the ADT is approximately 10,000 vpd adjacent to the project (north of Puainako Street).

Figure 4 of Appendix 3 depicts existing peak hour volumes in the study area. Using these data and the operations method described in the 2000 Highway Capacity Manual (HCM), the traffic engineer analyzed the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio which is related to a Level-of-Service. "Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-Service (LOS) is

[1] The existing 80-foot right of way on Kawili Street, which was built and is maintained by the County, is currently in the process of being transferred from the State to the County, as initiated by action of BLNR on April 24, 1998. Maps and descriptions are currently being prepared.

a qualitative measure of the effect of a number of factors which include space. speed. travel time. traffic interruptions. freedom to maneuver. safety. driving comfort and convenience.

There are six levels-of-service. A through F. which relate to the driving conditions from best to worst. respectively (see App. 3. Table 2 for characteristics of traffic operations for each Level-of-Service). In general. LOS A represents free-flow conditions with no congestion. LOS F. on the other hand. represents severe congestion with stop-and-go conditions. LOS D is typically considered acceptable for peak hour conditions in urban areas.

Table 4 of Appendix 3 identifies the current Level-of-Service for five intersections on Puainako Street and one on Kawili Street. In general. most movements at all intersections operate at LOS D or above at both AM and PM peak hours. Among problem areas are PM left turn movements at Kanoelehua Avenue and Kilauea Avenue.

The major traffic issues in the area involve ever-increasing traffic congestion on Puainako Street. The need to widen Puainako Street between Kilauea Avenue and Komahana Street and extend it west (mauka) from there to the Saddle Road has been recognized by State and County planners for at least three decades. A joint state-federal EIS for the Puainako Street Widening and Extension project was finalized in 2000 (Hawai'i County DPW: 2000). Part of the project would relocate the existing Puainako Street parallel to its current position about 250 feet into the Subject Property. where it would also be expanded to four lanes. When coupled with improvements on the Saddle Road. Puainako Street will be a major artery connecting East and West Hawai'i. It is also expected to be the principal gateway to UH Hilo. However. funding has only been identified for the portion above Komohana Street. where construction was begun in September 2001 and is expected to be complete by 2004. Government agencies have not yet decided upon a funding source or timetable for the widening of Puainako Street between Komohana Street and Kilauea Avenue.

4.4.1.3 2010 Background Traffic Conditions

The year 2010 was selected as the design year for the TIAR. i.e.. a time at which the China-U.S. Center is expected to be fully completed and occupied.

The widening and realignment of Puainako Street would substantially alter traffic flows in the study area. As the exact timing of the widening phase of the Puainako Street widening project is not currently defined. it cannot be assumed that the Puainako Street widening would be completed before the China-U.S. Center is built. To insure that the traffic impacts of the China-U.S. Center were addressed whether or not the Puainako Street widening occurs by they year 2010. it was necessary to analyze a "No Build Puainako" scenario as well as a "Build Puainako" scenario. The "No Build Puainako" scenario simply assumes the

existing street and roadway network adjacent to the proposed project, although improvements associated with specific related projects have been included. The "Build Puianako" scenario includes conditions anticipated with the widening and realignment of Puainako Street as defined in the TIAR for the Puainako Street Extension project (Hawai'i County DPW: 2000).

Background traffic volumes were estimated from data provided in the *Hawai'i Long Range Land Transportation Plan* (HDOT 1998) and the TIAR for the Puainako Street Extension, assuming straight-line growth and adjusting for the traffic impacts from projects planned by UH Hilo in the area discussed above in Table 4-1. Figures 5 and 6 of Appendix 3 depict Year 2010 peak hour traffic volumes in the study area for the "No Build Puainako" and "Build Puainako" scenarios, respectively. As might be expected, the background traffic levels (which do not account for traffic that might be generated from the China-U.S. Center) are modeled to increase considerably – depending on the particular intersection and movement – in the next ten years, based on general growth in Hilo, and more specifically, the expansion of facilities at UH Hilo.

4.4.1.4 Traffic Characteristics of Proposed Project

In general, the TIAR determined the distribution and assignment of peak-hour trips that would be generated by the proposed project using trip generation rates or equations recommended in the *Trip Generation Handbook 6*. For certain aspects of the project, this standard methodology could not be used because of unique traffic characteristics of that portion of the project and the interaction of the proposed project with the remainder of the UH Hilo campus, and adjustments were made accordingly.

Detailed information on methodology is contained in Appendix 3. The total trips generated by Phases 1, 2 and 3 are summarized in Table 4-4. In projects of this type, where many of the "trips" to purchase goods or services or attend or return from campus classes or activities would be on foot, project-generated trips are typically discounted to account for multi-purpose trips and walk-ins from adjacent areas, i.e., the UH Hilo campus and adjacent housing. Typically, this discount ranges from 5 to 15 percent. The TIAR did not factor in a discount and was thus highly conservative.

The total peak hour traffic volumes were assigned to the various traffic movements at the study intersections and driveways into and out of the project.

Table ~~4-4~~
Trip Generation Summary

Phase	Description	AM Peak Hour			PM Peak Hour		
		Total	In	Out	Total	In	Out
1	Commercial Center and Housing	191	105	86	562	272	290
2	Cultural Center	207	182	25	207	35	172
3	University Inn	64	35	29	74	42	32
Build-Out	~~Adjusted~~ Total*	462	322	140	843	349	494

~~*Adjusted for multi-use and walk-in (total minus 10 percent).~~ In consultation with HDOT, the discount was removed, and other conservative assumptions added, leading to an increase in generated trips of about 20 percent over levels reported in Draft EIS

4.4.1.5 2010 Cumulative Traffic Projections and Impacts

It is important to note at the outset that traffic impacts have been modeled through totaling the direct and secondary effects of the project, and are based on an inherently cumulative perspective (adding project traffic to all other reasonably foreseeable future traffic).

2010 background-plus-project (cumulative) peak hour traffic volumes were estimated by adding project related traffic assignments discussed above to the 2010 background peak hour traffic discussed in Section 4.4.1.3. The resulting 2010 peak hour traffic volumes without and with the Puainako Street Widening project are illustrated in Appendix 3 in Figures 8 and 9, respectively.

The TIAR involves an iterative process in which the traffic engineer analyzes impacts and then models potential solutions in the form of design alterations to existing roads and intersections – such as adding new lanes, lengthening additional lanes, adding signals, or adjusting signal timing – and then re-analyzes the impacts. This process is repeated until traffic impacts are mitigated to the greatest degree feasible. The goal is to maintain the Level-of-Service, or at least reduce its decline to acceptable levels.

Readers interested in detailed data are referred to Appendix 3, where Tables 15-20 provide detailed assessment of peak hour volume to capacity ratios and Level-of-Service for each movement at all key intersections studied in the TIAR. The key findings are summarized below:

- Without construction of the Puainako Street Widening project. Level-of-Service at the modeled intersections would be at unacceptable levels for most. if not all. movements during the AM and PM peak hours. This is true regardless of whether the China-U.S. Center is constructed.
- If the Puainako Street Widening project is built. Level-of-Service at most modeled intersections is acceptable during the AM and PM peak hours. Again. this is true regardless of whether the China-U.S. Center is constructed. given the proposed mitigation measures discussed in the next section.
- Although. as stated above. the China-U.S. Center does not make a substantial difference in Level-of-Service for most movements at most intersections. in general. there is less adverse traffic impact from the China-U.S. Center under the scenario in which the Puainako Street Widening project is built. This is because without the Puainako project. all intersections would be at or near critical volume to capacity levels at peak hours.
- The proposed China-U.S. Center. although it involves a substantial amount of traffic. represents only one small component of University growth and would not be primarily responsible for traffic impacts in the area.
- Level-of-Service worse than LOS D is generally capable of mitigation through measures discussed in the next section.
- In addition to identifying potential mitigation measures. a plan for access to and egress from the project site was formulated. A Level-of-Service analysis of proposed access and egress locations was then performed to insure that adequate capacity to and from the site would be provided.

4.4.1.6 Mitigation Measures

Based on the analysis in the TIAR. proposed roadway improvements to mitigate the project's traffic impacts are:

1. Widen the southbound approach of Komohana Street at Puainako Street to provide two left-turn lanes.
2. Widen Kawili Street to two lanes in each direction between Puainako Street and the main China-U.S. Center entrance (Drive A).
3. Signalize the intersection of Kawili Street at Drive A.
4. Provide a southbound right turn-only lane and a second eastbound left-turn lane at the intersection of Kawili Street at Puainako Street.
5. Add a westbound right turn-only lane at the Puainako-Kinoole Street intersection.
6. Align Drive B (the secondary entrance to the China-U.S. Center) as closely as possible with the access road to multipurpose sports and recreational complex in order to create a four-legged intersection.

7. Construct a separate southbound right-turn lane at the intersection of Puainako Street at Kanoelehua Street if feasible.

A schematic drawing of the adjacent roadway network incorporating the above recommendations is show in Figure 12 of Appendix 3. Any work within the County right-of-way will be in conformance with Chapter 22. Streets and Sidewalks. of the Hawai'i County Code.

4.4.2 Electrical, Telephone and Cable Utilities

Existing Facilities

Electrical power is provided by Hawai'i Electric Light Company (HELCO). a privately owned utility company regulated by the State Public Utilities Commission. HELCO's current strategy for meeting energy needs of the next 20 years involve 141 megawatts (MW) of new generating capacity. which will be met through a combination of conventional power plants (oil and coal fired). with an unknown portion of renewable energy (solar. wind. hydroelectric. geothermal. and ocean thermal energy conversion). HELCO's power plant network in Hilo (including Kanoelehua Power Plant. Puna Power Plant. Wailuku Hydro Power Plant. Hilo Coast Power Plant. and Shipman Power Plant) serves the Hilo area. An overhead 12.47 kV line from the HELCO substation on Komohana Street runs along Kawili Street.

Verizon Hawai'i currently provides telephone service for the region from a switching station in the Kawailani Street office. An overhead telephone line runs along the mauka side of Kawili Street from a telephone pole located at the corner of Kawili Street and Puainako Street. A future service line could cross Kawili Street to the Subject Property through either overhead or underground lines. Hawaiian Cablevision provides cable television service. There are existing trunk cable lines and feeders along Kawili Street and Puainako Street.

Impacts and Mitigation Measures

Electrical. telecommunication and cable television services are provided by privately owned utilities regulated by the Public Utilities Commission. These companies are responsible to plan for and provide services as demand arises. As demand increases with development in the region. the public utility would develop facilities to meet that demand.

The proposed development would increase the demand on the existing HELCO system. Based on the preliminary site planning and building square footages. the estimated

electricity load would be about 33.000 kiloWatt-hours (kWhr) per day. Discussions with HELCO's engineering division indicate that the existing system is adequate to provide the demand. The prime supply to the site would be from the Komohana substation. HELCO might bring in another 12kV line from Kuailani Street substation for emergency backup in the future.

The University of Hawai'i at Hilo enacted an active energy policy in 1996 that provided for: 1) conservation measures for all faculty, staff and students to reduce unnecessary energy use; 2) a campus-wide renovation to reduce energy use; and 3) an administration commitment to closely monitor and evaluate energy consumption and correct inefficiencies. A subsequent agreement with an energy-efficiency company for "Performance Contracting" was executed in 1996 in order to retrofit existing buildings for energy efficiency at no net cost to the University. As such, UH Hilo has dramatically reduced its energy consumption. Furthermore, all new construction is required to be energy-efficient.

Although the China-U.S. Center is would essentially be a private development not subject per se to UH Hilo policies, GEO proposes to adopt standards and procedures similar to those of UH Hilo in regard to energy use. Underground utilities are planned.

The extension of telephone and cable service is not expected to have any adverse impact upon the site or upon the ability of the utilities to provide the services.

Secondary impacts (e.g., offsite demand on such utilities while students shop or visit parks) would not be expected to be substantial, would not overtax existing resources, and require no mitigation.

4.4.3 Water Supply

An 8-inch transmission line runs along Kawili Street. This line is a part of the Hawai'i County Department of Water Supply (DWS) Kawailani/Haihai system. The line is fed by the Kawailani Reservoir, with a capacity of 0.5 million gallons (MG), as well as the two Haihai Reservoirs, with capacities of 0.1 MG and 0.5 MG. The system serves approximately 3.000 residential lots off Kawailani, Haihai, and Puainako Streets, the southern portion of UH Hilo campus, and ASH Housing.

According to "Water Study for the University of Hawai'i at Hilo Fire Safety Improvements" (DMT Consultant Engineers, October 1997) indicated that the existing demands on the system (average daily demand 1.263 MG, maximum daily demand 1.894 MG) already exceed the total capacity of the three reservoirs (1.10 MG). The existing supply system does not meet several DWS criteria used to ensure that maximum daily use plus fire flow are never exceeded (see App. 4 for details).

Direct, Secondary and Cumulative Impacts

For this EIS, water demand was estimated based on land use type and water usage per capita for the various types of land uses, using maximum expected quantities of the various types of land use. A table of the projected daily demands for the proposed development is located in Appendix B of Appendix 4. The average daily water usage for the project site was calculated as 134,102 gallons per day (gpd). The maximum daily demand and peak hour flow were calculated as 201,153 gpd (one and half times of the average daily demand) and 670,510 gpd (five times of the average daily demand) respectively.

For purposes of evaluation, the impacts of the project have been framed in the cumulative perspective; i.e., project demand plus all reasonably foreseeable future demands. As indicated above, the existing system is not adequate to provide new services for the proposed project. A new water supply system, a 1.0-MG reservoir with compatible transmission lines, is currently under construction as the result of the analysis presented in the Water Study. The new reservoir is set at a ground elevation of about 459 feet and spillway elevation of 479 feet to approximately match the Kawailani/Haihai reservoirs. According to the Water Study report, this new system has a reserve of 437,200 gallons maximum daily, after accounting for serving the entire UH Hilo campus and the University Park. After the new water system comes in service, the water supply (29,000 gpd) to UH Hilo from Haihai/Kawailani system will be freed up. However, this is a very limited amount of water and cannot support the entire China-U.S. Center.

The existing system cannot support the proposed project on the Subject Property, and additional water improvements, which may include source, storage and transmission facilities, would be required to serve the China-U.S. Center at full build-out. In addition, construction of such facilities would involve potential traffic disruption.

Secondary impacts (e.g., offsite demand on water systems while students shop or visit parks) would not be expected to be substantial, would not overtax existing resources, and require no mitigation.

Mitigation Measures

Project engineers have coordinated with UH Hilo planners and the Hawai'i County DWS to explore potential methods to achieve adequate supply. Officials from the University of Hawai'i and the consulting engineers for the EIS met with the Hawai'i County Department of Water Supply on February 7, 2002, to advance water system planning for the China-U.S. Center. Although still subject to refinement and negotiation, the basic course of action to provide the facility with water has now been specified. Domestic water supply would come from the Kawailani Street Tank, the capacity of which would be upgraded, probably to a 1.0

MG tank, supplemented by water from the new UH Tank, with an upgrade to the meter. Fire flow would derive from a new 12-inch line from the UH Tank that is currently under construction. The off-site improvements required would be to extend the water line from the main campus to the Center. A one-time standard facilities charge based on the number and type of new services would also be imposed, the amount of which would be determined at the time of connection. During final design of the center, GEO and UH-Hilo will supply DWS with a master plan showing all development and water demands which DWS will review in order to confirm that water will be available in the future in a Memorandum of Understanding.

To alleviate the impact on local traffic during the waterline construction, trenches located within the roadways shall be covered with steel plates during non-working hours to keep all traffic lanes open. During working hours, at least one lane shall be kept open at all times. Proper traffic devices/flagmen shall be used to inform the public and to direct the traffic. If necessary, special duty police officers shall be hired to direct the traffic flow. Traffic Control Plans shall be prepared during the design phase. Since part of the lines would be constructed within the County's road, proper permit(s) shall be obtained before starting waterline construction, which would be timed to coincide with road widening to the extent feasible in order to reduce traffic congestion.

4.4.4 Wastewater

Existing Facilities

The wastewater system in Hilo consists of municipal treatment plants near Hilo International Airport and various sizes of sewer mains and pump stations owned and maintained by the Hawai'i County Department of Public Works (DPW). Sludge generated at the treatment plant is disposed of at the Hilo Landfill. Many areas outside central area of Hilo lack municipal treatment and depend on cesspools and septic tanks.

An existing 8-inch sewer trunk line is located along West Kawili Street. This line is the end portion of the County's public sewer system in this area. The sewer system is connected to the County's Hilo Wastewater Treatment Plant, located approximately 4 miles away from the project site.

The 8-inch sewer line on West Kawili Street begins at the intersection of Kapiolani Street and West Kawili Street and ends short of the Puainako Street intersection. According to the County's Department of Public Works, Wastewater Division, there is no possibility of extending this line. This line is currently serving part of the UH Hilo campus, including the following facilities:

- ASH Housing
- Athletic Complex
- Auto Body Shop
- Auto Mechanic Shop
- Diesel Mechanic Shop
- Welding/Sheet Metal Shop
- New Classroom/Office Building
- Administration Building

Direct, Secondary and Cumulative Impacts

Appendix 4 provides detailed information on the projected capacity and use of the sewer line, including calculations of peak wastewater flows from each building/complex and connection point to the 8-inch sewer line, based on capita information, design information, or water usage records. For purposes of evaluation, the impacts of the project have been framed in the cumulative perspective: i.e., project demand plus all reasonably foreseeable future demands. The existing 8-inch sewer line is adequate to convey the existing flows plus the projected flow for the proposed development. Based on the preliminary site layout, the future onsite sewer system could connect to the County system at an existing sewer manhole.

Construction of the sewer connection to the trunk line in West Kawili Street would cause temporary inconvenience to the local traffic.

Secondary impacts (e.g., offsite demand on wastewater systems while students shop or visit parks) would not be expected to be substantial, would not overtax existing resources, and require no mitigation.

Mitigation Measures

No off-site improvements are required since the existing 8-inch sewer line has enough capacity to serve the project site.

During the construction of the sewer connection, at least one lane shall be maintained open to traffic at all times. Proper traffic devices/flagmen shall be used to inform the public and to direct the traffic. If necessary, special duty police officers shall be hired to direct the traffic flow. Traffic Control Plans shall be prepared during the design phase. Since part of the sewer lines would be located within the County's road, proper permit(s) shall be obtained before the sewer line construction begins, which would be timed to coincide with road widening to the extent feasible in order to reduce traffic congestion.

4.4.5 Solid Waste

Existing Facilities

Currently the County does not provide solid waste collection service in this area. Most large facilities contract a private company to haul solid waste to the County's landfill site on Leilani Street in Hilo. The private company charges their clients based on volume. The County does not have a capacity limitation on the landfill at the present, but as expansion of the Hilo landfill is unlikely, the County of Hawai'i is currently working to develop a long-range solid waste plan,

the details of which are not ready for discussion or evaluation in the context of the current project.

Direct, Secondary and Cumulative Impacts and Mitigation Measures

It is anticipated that solid waste from the Subject Property would be removed from the site by a private contractor. If a private contractor is hired to provide the solid waste disposal service, the contractor would provide required waste containers. The County encourages but does not require recycling.

UH Hilo has one of the most extensive and active recycling plans of any government facility on the island of Hawai'i. Developed in the late 1980s, procedures have evolved to provide for the collection of glass, aluminum, white paper, mixed paper and newspaper. Recycling bins are distributed throughout campus, and a student-worker position is dedicated to collecting recyclables from these points and bringing them to the three solid waste pick-up points. The solid waste contractor collects the recyclables at no cost to the University in exchange for the salvage sales, which has produced considerable savings for the University.

Although the China-U.S. Center would be essentially a private development not subject per se to UH Hilo policies, GEO proposes to adopt standards and procedures similar to those of UH Hilo in regard to recycling. Such policies, if practiced County-wide, can substantially reduce the cumulative impact upon the solid waste processing system.

Secondary impacts (e.g., offsite demand on solid waste systems while students shop or visit parks) would not be expected to be substantial, would not overtax existing resources, and require no mitigation.

4.4.6 Other Public Services and Facilities

Existing Services and Facilities

The Hawai'i County Police Department (HCPD), headquartered in Hilo, has law enforcement jurisdiction throughout the entire island of Hawai'i. Administrative personnel and police officers total over 500. The Hawai'i County Fire Department (HCFD) has fire protection jurisdiction throughout the entire island of Hawai'i. Firefighters must respond to calls for emergency medical, hazardous condition, rescue, building fires, brush and other outdoor fires, and vehicle fires. Fire stations generally have three 24-hour shifts. HCFD currently has a force of over 300 working as administrative personnel or as firefighters throughout the island. Hilo Medical Center is as the only hospital in Hilo and is located on Waianuenue Avenue several miles from UH Hilo. Several dozen public recreational

facilities are present in Hilo and surrounding areas. including gymnasiums. recreation centers. auditoriums. and public parks.

In addition. a complex of three public schools – Waiakea High School. Waiakea Intermediate School. and Waiakea Elementary School – are located nearly adjacent to the China-U.S. Center and may thus experience impacts through proximity.

Direct Impacts and Mitigation Measures

The Hawai'i State Department of Education (DOE) commented in a letter of May 7. 2001 (see App. 1 for full text) requesting a physical barrier such as a fence or a wall between the China-U.S. Center and Waiakea High School (WHS) in order to control unauthorized access between facilities. especially during school hours. UH Hilo and GEO plan to work with DOE and WHS officials to develop a physical boundary and an access plan that meets the needs of all parties. Heavy landscaping and other physical barriers are being considered. UH Hilo also believes that there is a great potential for benefit in interaction between the China-U.S. Center and the Waiakea schools. including international cultural and educational programs.

Secondary and Cumulative Impacts and Mitigation Measures

Given that as many as 600 new students may be attending UH Hilo. a variety of facilities and services may be affected through secondary means. For example. police must respond to traffic accidents and criminal complaints: fire and emergency personnel must attend to fires. hazardous material situations. and medical emergencies: students may avail themselves of medical and mental health services: students and their visitors may attend publically-subsidized entertainment or visit public parks and beaches: in some cases. students themselves may have children who attend public schools.

The expansion of the economic base and the various tax revenues it would induce in all likelihood would more than compensate for the slight additional demand on public facilities and services generated by the extra student population. No non-negligible impact. whether direct. secondary or cumulative. upon the ability to provide services is expected. and no mitigation is proposed.

PART 5: CONSISTENCY WITH GOVERNMENT PLANS AND POLICIES

5.1 The Hawai`i State Plan

Adopted in 1978 and last revised in 1991 (Hawai`i Revised Statutes, Chapter 226, as amended), the *Hawai`i State Plan* establishes a set of themes, goals, objectives and policies that are meant to guide the State's long-run growth and development activities. The three themes that express the basic purpose of the *Hawai`i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. §226-4 sets forth goals associated with the *Hawai`i State Plan*:

(1) A strong, viable economy, characterized by stability, diversity, and growth, that enables the fulfillment of the needs and expectations of Hawai`i's present and future generations.
(2) A desired physical environment, characterized by beauty, cleanliness, quiet, stable natural systems, and uniqueness, that enhances the mental and physical well- being of the people.
(3) Physical, social, and economic well-being, for individuals and families in Hawai`i, that nourishes a sense of community responsibility, of caring, and of participation in community life.

The aspects of the plan most pertinent to the proposed classification are the following:

- §226-5 *Objective and policies for population*. (a) It shall be the objective in planning for the State's population to be consistent with the achievement of physical, economic and social objectives contained in this chapter. To achieve the population objective, it shall be the policy of this State to [among other actions]:

  (1) Manage population growth statewide in a manner that provides increased opportunities for Hawai`i's people to pursue their physical, social and economic aspirations while recognizing the unique needs of each county.
  (2) Encourage an increase in economic activities and employment opportunities on the Neighbor Islands consistent with community needs and desires.
  (3) Ensure that adequate support services and facilities are provided to accommodate the desired distribution of future growth throughout the State.

- §226-6 *Objective and policies for the economy-in general*. (a)Planning for the State's economy shall be directed toward achievement of the following objectives:

  (1) Increased and diversified employment opportunities to achieve full employment, increased income and job choice, and improved living standards for Hawai`i's people.

(2) A growing and diversified economic base that is not overly dependent on a few industries.

- §226-10 *Objective and policies for the economy--potential growth activities.* (a) Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawai'i's economic base. To achieve the potential growth activity objective, it shall be the policy of this State to (among other actions):

  (2) Expand Hawai'i's capacity to attract and service international programs and activities that generate employment for Hawai'i's people.
  (5) Promote Hawai'i's geographic, environmental, social, and technological advantages to attract new economic activities into the State.
  (6) Provide public incentives and encourage private initiative to attract new industries that best support Hawai'i's social, economic, physical, and environmental objectives.

- §226-11 *Objectives and policies for the physical environment--land-based, shoreline, and marine resources.* Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of prudent use of Hawai'i's land-based, shoreline, and marine resources and effective protection of Hawai'i's unique and fragile environmental resources. To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of the State to:

  (1) Exercise an overall conservation ethic in the use of Hawai'i's natural resources.
  (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems.
  (3) Take into account the physical attributes of areas when planning and designing activities and facilities.
  (4) Manage natural resources and environs to encourage their beneficial and multiple use without generating costly or irreparable environmental damage.
  (5) Consider multiple uses in watershed areas, provided such uses do not detrimentally affect water quality and recharge functions.
  (6) Encourage the protection of rare or endangered plant and animal species and habitats native to Hawai'i.
  (7) Provide public incentives that encourage private actions to protect significant natural resources from degradation or unnecessary depletion.
  (8) Pursue compatible relationships among activities, facilities, and natural resources.

(9) Promote increased accessibility and prudent use of inland and shoreline areas for public recreational, educational, and scientific purposes.

- §226-12 *Objective and policies for the physical environment--scenic, natural beauty, and historic resources.* Planning for the State's physical environment shall be directed towards achievement of the objective of enhancement of Hawai'i's scenic assets, natural beauty, and multi-cultural/historical resources. To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of the State to:

(1) Promote the preservation and restoration of significant natural and historic resources.

(2) Provide incentives to maintain and enhance historic, cultural, and scenic amenities.

(3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features.

(4) Protect those special areas, structures, and elements that are an integral and functional part of Hawai'i's ethnic and cultural heritage.

(5) Encourage the design of developments and activities that complement the natural beauty of the islands.

- §226-13 *Objectives and policies for the physical environment--land, air, and water quality.* Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards maintenance and pursuit of improved quality in Hawai'i's land, air, and water resources, and greater public awareness and appreciation of Hawai'i's environmental resources. To achieve the land, air, and water quality objectives, it shall be the policy of the State to (among other actions):

(2) Promote the proper management of Hawai'i's land and water resources.

(3) Promote effective measures to achieve desired quality in Hawai'i's surface, ground, and coastal waters.

(4) Encourage actions to maintain or improve aural and air quality levels to enhance the health and well-being of Hawai'i's people.

(5) Reduce the threat to life and property from erosion, flooding, tsunamis, hurricanes, earthquakes, volcanic eruptions, and other natural or man-induced hazards and disasters.

(6) Encourage design and construction practices that enhance the physical qualities of Hawai'i's communities.

(7) Encourage urban developments in close proximity to existing services and facilities.

(8) Foster recognition of the importance and value of the land, air, and water resources to Hawai'i's people, their cultures and visitors.

Discussion The proposed China-U.S. Center is highly consistent with the goals, objectives and policies of the *Hawai'i State Plan*. The Center would support continued growth and enrichment of the University of Hawai'i at Hilo, which provides not only educational but also cultural and economic opportunities for residents of the island of Hawai'i. Thus, the project would encourage and increase in economic activities and employment opportunities on the island of Hawai'i in a manner consistent with community needs and desires. It would increase and diversify employment opportunities that would help achieve full employment, increased income and job choice, and improved living standards, while promoting a diversified economic base that is not overly dependent on a few industries. It is prime example of a project that can expand Hawai'i's capacity to attract and service international programs and activities that provides public incentives and encourage private initiative to attract new industries that best support the goals of the Hawai'i State Plan, promoting our geographic, environmental, social, and technological advantages to attract new economic activities into the State. The Subject Property does not contain important natural or cultural resources, and the project represents prudent use and protection of Hawai'i's land-based, shoreline, marine, historic and scenic resources.

5.2 Hawai'i State Land Use Law

All land in the State of Hawai'i is classified into one of four major land use districts – Urban, Rural, Agricultural and Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The primary built-up area of Hilo is classified as Urban. As illustrated in Figure 2-1, the only nearby area not within the Urban District is the land mauka of Komohana Street between Puainako Street and Mohouli Street, which is within the Agricultural District. The entire Subject Property is within the State Land Use Urban District. According to §205-2, HRS, Urban Districts shall include activities or uses as provided by ordinances or regulations of the county within which the Urban District is situated. The proposed project is consistent with the zoning regulations of the County of Hawai'i (see Section 5.5).

5.3 Hawai`i County General Plan

The *General Plan* for the County of Hawai`i is a policy document expressing the broad goals and policies for the long-range development of the island of Hawai`i. The plan was adopted by ordinance in 1989. The County of Hawai`i is currently undertaking a mandatory review of the General Plan. A draft of the *County of Hawai`i General Plan Revision Program* was released in January 2001. The draft plan is currently undergoing public hearings before the County of Hawai`i Planning Commission and County Council, which are required to take action before the plan is adopted.

The currently adopted *General Plan* is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai`i. Section 4 of the *General Plan* includes a discussion of general goals. In Section 5 courses of action for individual districts are proposed.

The elements of the *General Plan* most applicable to the project are listed below, followed by a discussion of the consistency of the proposed project with the goals, policies and standards of each element.

Economic Element

GOALS

- Provide residents with opportunities to improve their quality of life.
- Economic development and improvement shall be in balance with the physical and social environments of the island of Hawai`i.
- The County of Hawai`i shall strive for diversity and stability in its economic system.
- The County shall provide an economic environment which allows new, expanded, or improved economic opportunities that are compatible with the County's natural and social environment.

POLICIES

- The County of Hawai`i shall strive for an economic climate which provides its residents an opportunity for choice of occupation.
- The County of Hawai`i shall continue to encourage the expansion of the research and development industry by working with and supporting the university, private sector, and other agencies' programs developed to aid the County of Hawai`i.
- The County of Hawai`i shall encourage the development of a visitor industry which is consistent with the social, physical, and economic goals of the residents of the County.

- The County shall require a study of the significant social and physical impact of large developments prior to approval.
- The County of Hawai'i shall strive for diversification of its economy by strengthening existing industries and attracting new endeavors.
- The County shall identify and encourage primary industries that are consistent with the social, physical, and economic goals of the residents of the County.
- The County shall promote a distinctive identity for the island of Hawai'i to enable government, business and travel industries to promote the County of Hawai'i as an entity separate and unique within the State of Hawai'i.

STANDARDS

- The island of Hawai'i should be developed into a unique scientific and cultural model. The island should become a model of living where economic gains are in balance with social and physical amenities. Development should be reviewed on the basis of total impact on the residents of the County, not only in terms of immediate short run economic benefits.
- New industries which provide favorable benefit-cost relationships to the people of the County should be encouraged. Benefit-cost relationships as used here include more than fiscal considerations.

Discussion: The proposed China-U.S. Center is highly consistent with these statements. Education is a relatively low-impact, high-quality economic sector that significantly improves the quality of life for students, employees, and the community at large. The proposed project would promote cultural and scientific exchange and would strengthen other elements of the economy, including tourism, construction, retail, wholesale and services.

Energy Element

GOALS

- Strive towards energy self-sufficiency for Hawai'i County.
- The County shall provide incentives which will encourage the use of new energy sources and promote energy conservation.

Discussion: The proposed China-U.S. Center would adopt the high energy efficiency standards of the University of Hawai'i at Hilo and would incorporate sustainable building practices to highest degree practicable. Furthermore, the establishment of retail and service businesses on campus would encourage a pedestrian-oriented campus and conserve automobile fuels.

Environmental Quality Element

GOALS

- Maintain and. if feasible. improve the existing environmental quality of the island.

POLICIES

- The County of Hawai'i shall take positive action to further maintain the quality of the environment for residents both in the present and in the future.
- Encourage the concept of recycling agricultural and municipal waste material.

Discussion: The proposed China-U.S. Center is located in an area that lacks important cultural and natural resources. and its construction and use would not degrade environmental quality in any way. In fact. the encouragement of a pedestrian-oriented campus would improve environmental quality. The Center would adopt the extensive recycling policy of the University of Hawai'i at Hilo.

Flood Control and Drainage Element

GOALS

- Protect human life.
- Prevent damage to man-made improvements.
- Control pollution.
- Reduce surface water and sediment runoff.

POLICIES

- All development-generated runoff shall be disposed of in a manner acceptable to the Department of Public Works.

STANDARDS

- "Storm Drainage Standards." County of Hawai'i. October. 1970. and as revised.
- Applicable standards and regulations of Chapter 27. "Flood Control." of the Hawai'i County Code.

Discussion: The proposed China-U.S. Center would dispose of all runoff in conformance with County standards (see Section 4.2.1).

Historic Sites Element

GOALS

- Protect and enhance the sites. buildings and objects of significant historical and cultural importance to Hawai'i.

POLICIES

- The County of Hawai'i shall require both public and private developers of land to provide a historical survey prior to the clearing or development of land when there are indications that the land under consideration has historical significance.

Discussion: The State Historic Preservation Division has determined based on an archaeological inventory survey of the Subject Property that no significant historic sites are present and that no effect to significant historic sites would occur (see Section 4.3.2).

Natural Beauty Element

GOALS

- Protect scenic vistas and view planes from becoming obstructed.

Discussion: No designated areas of natural beauty or scenic viewplanes are present. Although certain elements of the proposed center would intrude into the skyline of coastal views from some residences in Waiakea, no significant visual disruption would occur. The architecture and landscaping of the China-U.S. Center would have a striking and elegant appearance. and would harmonize well with the existing campus (see Section 4.2.6).

Natural Resources and Shoreline

GOALS

- Protect and conserve the natural resources of the County of Hawai'i from undue exploitation. encroachment and damage.
- Provide opportunities for the public to fulfill recreational. economic. and educational needs without despoiling or endangering natural resources.
- Protect and promote the prudent use of Hawai'i's unique. fragile. and significant environmental and natural resources.
- Protect rare or endangered species and habitats native to Hawai'i.
- Protect and effectively manage Hawai'i's open space. watersheds. and natural areas.

- Ensure that alterations to existing land forms and vegetation, except crops, and construction of structures cause minimum adverse effect to water resources, and scenic and recreational amenities and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

POLICIES

- The County of Hawai'i should require users of natural resources to conduct their activities in a manner that avoids or minimizes adverse effects on the environment.
- The County shall encourage public and private agencies to manage the natural resources in a manner that avoids or minimizes adverse effects on the environment and depletion of energy and natural resources to the fullest extent.
- The County shall encourage an overall conservation ethic in the use of Hawai'i's resources by protecting, preserving, and conserving the critical and significant natural resources of the County of Hawai'i.
- The installation of utility facilities, highways and related public improvements in natural and wildland areas should avoid the contamination or despoilment of natural resources where feasible by design review, conservation principles, and by mutual agreement between the County and affected agencies.
- Encourage the use of native plants for screening and landscaping.

Discussion: The proposed China-U.S. Center is located in an area that lacks important cultural and natural resources and would avoid or minimize adverse impact on the environment. Landclearing and grading activities would not cause adverse impacts or risks. Native plants would be incorporated into the landscaping to the degree consistent with the theme of the landscape design.

Housing Element

GOALS

- Attain a diversity of socio-economic housing mix throughout the different parts of the County.
- Maintain a housing supply which allows a variety of choice.
- Develop better places to live in Hawai'i County by creating viable communities with decent housing and suitable living environments for our people.
- Improve and maintain the quality and affordability of the existing housing stock.

- Seek sufficient production of new affordable rental and fee-simple housing in the County in a variety of sizes to satisfactorily accommodate the needs and desires of families and individuals.
- Ensure that housing is available to all persons regardless of age. sex. marital status. ethnic background. and income.

Discussion: The proposed China-U.S. Center would provide housing for approximately 600 students and thus fulfill the housing needs of a unique and substantial group.

Public Facilities Element

GOAL

- Encourage the provision of public facilities that effectively service community needs and seek ways of improving public service through better and more functional facilities which are in keeping with the environmental and aesthetic concerns of the community.

POLICIES

- The County shall coordinate with appropriate State agencies for the provision of public facilities to serve the needs of the community.

Discussion: The proposed China-U.S. Center would provide a unique educational and conference facility that would contribute to the cultural and aesthetic enrichment of the community.

Education Element

POLICIES

- The County shall encourage continuous joint pre-planning of schools with the Department of Education and the University of Hawai'i to ensure coordination with roads. water. and other support facilities and considerations such as traffic and safety. and access for vehicle. bicycle. and pedestrian. Encourage master planning of present and proposed public and private institutions.

Discussion: Planning for the proposed China-U.S. Center recognizes the close connection between UH Hilo and adjacent schools. Proposed infrastructure improvements for roads. water and sewer have analyzed the combined needs of all the users in the area. The Center is being designed to both accommodate access limitation concerns on the part of the schools and encourage appropriate and enriching use by students and school groups.

Public Utilities Element

GOALS

- Ensure that adequate. efficient and dependable public utility services will be available to users.

WATER POLICIES

- Water system improvements and extensions shall promote the County's desired land use development pattern.
- All water systems shall be designed and built to Department of Water Supply standards.
- A systematic program by the County. State and private interest shall identify sources of additional water supply to ensure the development of sufficient quantities of water for future needs of high growth areas.
- The fire prevention systems shall be coordinated with water distribution systems in order to ensure water supplies for fire protection purposes.

ELECTRICITY POLICIES

- Power distribution shall be placed underground when and where feasible.
- The County shall encourage developers of new urban areas to place utilities underground.

SEWER POLICIES

- The "Sewerage Study for All Urban and Urbanizing Areas of the County of Hawai'i. State of Hawai'i." December 1970. and the "Water Quality Management Plan for the County of Hawai'i," December 1980. shall be used as guides for the general planning of sewerage disposal systems.
- Private systems shall be installed by land developers for major resort and other developments along shorelines and sensitive higher inland areas, except where connection to nearby treatment facilities is feasible and compatible with the County's long-range plans. and in conformance with state and county requirements.

Discussion: Infrastructure planning is being coordinated with the appropriate County agencies and private utility companies in order to ensure that all appropriate standards are met. Underground utilities are planned.

Recreation Element

GOALS

- Provide a wide variety of recreational opportunities for the residents and visitors of the County.
- Provide a diversity of environments for active and passive pursuits.

POLICIES

- The County of Hawai'i shall improve existing public facilities for optimum usage.
- Recreational facilities in the County shall reflect the natural, historic, and cultural character of the area.
- The use of land adjoining recreation areas shall be compatible with community values, physical resources and recreation potential.
- Facilities for compatible multiple uses shall be provided.

Discussion: The China-U.S. Center would help fulfill recreational opportunities through the cultural exchange programs. The proximity of the Center to existing and planned recreational facilities at UH Hilo would help create a diverse complex of complementary venues that would attract larger and more diverse cultural events than heretofore possible.

Transportation Element

GOALS

- Provide a transportation system whereby people and goods can move efficiently, safely, comfortably and economically.
- Make available a variety of modes of transportation which best meets the needs of the County.

POLICIES

- A framework of transportation facilities which will promote and influence desired land use shall be established by concerned agencies.
- The agencies concerned with transportation systems shall provide for present traffic and future demands, including mass transit programs for high growth areas.
- The improvement of transportation service shall be encouraged.

Discussion: The project is being coordinated with the State Department of Transportation and the County Department of Public Works to ensure that traffic impacts from the project are considered from a cumulative perspective and mitigated appropriately.

Land Use Element

GOALS

- Designate and allocate land uses in appropriate proportions and mix and in keeping with the social, cultural, and physical environments of the County.

POLICIES

- Zone urban- and rural- types of uses in areas with ease of access to community services and employment centers and with adequate public utilities and facilities.
- The county shall encourage the development and maintenance of communities meeting the needs of its residents in balance with the physical and social environment.

Discussion: The proposed China-U.S. Center is an appropriate use of land near the University, promoting a pedestrian-oriented campus meeting that meets the needs of students, faculty, staff and University visitors in balance with the physical and social environment.

Courses of Action for South Hilo

- The County shall encourage the State to provide the necessary funds for the development of the university complex and airport facilities. The County shall also provide necessary support services and facilities to aid the development of these complexes.
- The County shall support the development of a master plan for lands within the vicinity of the University of Hawai'i at Hilo to incorporate a "college town" concept utilizing an appropriate mixture of residential, commercial and other land uses to complement the university's infrastructure.
- Encourage the State to provide student, faculty, and staff housing for the University of Hawai'i at Hilo and the Community College.
- The County shall support the expansion of the University system and the campus master plan which encompasses a 600+ acre development and encourage the continuing education programs throughout the community. The transfer to the University of about 600 acres of State lands adjacent to the present campus should be actively pursued.
- The County shall support and encourage the strengthening of the University of Hawai'i at Hilo through the transfer of appropriate colleges and departments from the University of Hawai'i at Manoa to the University of Hawai'i at Hilo.
- The County shall encourage the implementation of existing State and University of Hawai'i plans for the establishment of a "Research and Technology Park" on the campus of the University of Hawai'i at Hilo.
- Commercial zoned lands in proximity to the University of Hawai'i at Hilo shall be allocated as the need arises.

Discussion: The China-U.S. Center would fulfill the letter and spirit of the General Plan's recommended courses of action for expanding and improving the University and integrating it harmoniously with the community.

5.4 Hawai'i County General Plan Land Use Pattern Allocation Guide (LUPAG)

The LUPAG map component of the *General Plan* is a graphic representation of the Plan's goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. Lands in the Subject Property are designated on this map as *University Use*.

5.5 Hawai'i County Zoning

The Hawai'i County General Plan is also the basis for Ordinance No. 63, the County Comprehensive Zoning Ordinance, which was adopted in 1967. Current zoning for the Subject Property and adjacent area on the UH Hilo campus is RS-10. The proposed action is exempt from rezoning requirements because its purpose is to expand the UH Hilo campus and facilitate implementation of its programs through use of public land.

5.6 Hilo Community Development Plan

The Hilo Community Development Plan (HCDP), prepared for Hawai'i County Planning Department in 1975 and still in effect, identifies planning priorities for the Hilo area (Hawai'i County Planning Dept. 1975). The plan adapts the objectives, policies and goals of the General Plan then in effect (dated 1971) to specific needs of Hilo.

Relevant objectives of the plan include the following:

- Provision for adequate schools and other public facilities, with special consideration given to a second high school, expansion of the University of Hawai'i at Hilo's campus...

The proposed action is generally consistent with the goals, polices and courses of action for the themes of the HCDP, which include natural resources and shorelines, economic development, land use, transportation, housing, public facilities, recreation, historic sites, public utilities, flood control and drainage, and natural beauty and urban form. The update of the General Plan in 1989 expanded the area identified for University use to include the Subject Property, which was designated "Low-Density Urban Expansion" in the HCDP.

PART 6: ENVIRONMENTAL IMPACT STATEMENT FINDINGS

6.1 Probable Unavoidable Adverse Environmental Effects

Chapter 343 of the Hawai'i Revised Statutes (HRS) is the basis for the environmental impact process in the State of Hawai'i. The implementing regulations for this law, Title 11, Chapter 200, Hawai'i Administrative Rules (HAR), contains the following requirements:

- 11-200-17(j): The draft EIS shall include in a separate and distinct section a description of the relationship between local short-term uses of humanity's environment and the maintenance and enhancement of long-term productivity.
- 11-200-17(k): The draft EIS shall include in a separate and distinct section a description of all irreversible and irretrievable commitments of resources....
- 11-200-17(n): The draft EIS shall include a separate and distinct section that summarizes unresolved issues....

This chapter addresses these requirements of the State of Hawai'i EIS law.

The proposed China-U.S. Center would engender create mostly limited, construction-phase adverse environmental impacts which can be largely mitigated by the measures detailed in Chapter 4 of the EIS. However, the following lists those short-term and long-term impacts that are expected to be unavoidable.

6.1.1 Unavoidable Adverse Short-Term Impacts

Despite mitigation:

1. Negligible temporary increases in soil erosion would result from construction operations, and a negligible amount of soil would be carried off-site through wind.
2. Operation of construction equipment, trucks, and worker vehicles may temporarily impede traffic in the area during the construction period.
3. At least some construction noise and air pollution, in the form of emissions from construction equipment and dust, would occur.
4. The visual character of the area would be affected by construction activities and by the presence of construction equipment.
5. Noise levels would increase during construction activities.

6.1.2 Unavoidable Adverse Long-Term Impacts

1. Rock and soil would be altered by grading, excavation, and mounding activities at the site during construction.

2. Modifications to the current topography would be made at the site to accommodate project development.
3. The vegetation, which is basically alien and disturbed but contains some native species, would be removed and replaced with development and landscaping.

6.2 Relationship Between Short-Term Use of Man's Environment and the Maintenance and Enhancement of Long-Term Productivity

No short-term exploitation of resources that would entail negative long-term consequences has been identified for the project. All substantial adverse impacts resulting from the project are capable of mitigation to minor levels using reasonable measures. The principal long-term benefits are to the educational, economic and cultural environment of Hawai'i. This would occur through the increase in inventory and range of student housing; new facilities for commercial operations tailored to create a "college town" atmosphere; development of a cultural conference center with space for international academic and cultural conferences, seminars, conventions, and workshops; and the construction of a full-service University Inn for families. This complex would be located in a suitable area in terms of environmental protection and community planning.

6.3 Irreversible and Irretrievable Commitments of Resources

The project would involve the irretrievable commitment of certain natural, social and fiscal resources. Although no valuable or unique natural vegetation, significant archaeological sites, wetlands, or Prime Farmland would be lost, resource commitments include land, money, construction materials, labor and energy. The commitment of resources required to accomplish the project includes labor and materials which are primarily nonrenewable and irretrievable. The operation of the project would also include the consumption of petroleum-derived fuels, which also represents an irretrievable commitment of resources. The impact of using these resources should, however, be weighed against the educational, cultural and economic benefits to the residents of the County and State and the consequences resulting from taking no action.

6.4 Unresolved Issues

At the time of the publication of the Draft EIS, the nature, scope and timing of the additional water supply improvements had not yet been specified. As reported in Section 4.4.3, further coordination among GEO, UH Hilo, and the Hawai'i County Department of Water Supply has determined the basic scope and scale of improvements, as well as the steps and schedule necessary to more precisely determine the necessary improvements.

As discussed in Section 4.4.1, the Puainako Street Widening project is a component of the Puainako Street Widening and Extension project, the upper half of which (the Puainako Extension) is currently underway. Although the widening in the lower half (Kilauea Street to Komohana Street) is a high priority for the County and State governments, funding has not yet been identified for this project.

Without construction of the Puainako Street Widening project, Level-of-Service (LOS) for various movements at many intersections along Puainako Street would be at unacceptable levels during the AM and PM peak hours, regardless of whether the China-U.S. Center is constructed. If the Puainako Street Widening project is built, LOS at most intersections would be acceptable during the AM and PM peak hours, again, regardless of whether the China-U.S. Center is constructed, given implementation of mitigation measures proposed in this EIS. The proposed China-U.S. Center, although it will generate traffic, represents only one small component of University growth and would not be primarily responsible for traffic impacts in the area.

The Hawai'i State Department of Transportation (HDOT) has expressed concern that if the Puainako Widening is not completed by the time the China-U.S. Center is in operation, the already poor level of service will be exacerbated. HDOT requested in their comment letter to the Draft EIS that the University consider improvements to existing intersection of Kawili and Puainako Streets should the widening not occur in time.

UH-Hilo and GEO recognize that if the Puainako Street Widening project is not completed by the time the China-U.S. Center is in operation, the combination of existing traffic, increased background traffic and the proposed project traffic may necessitate upgrades to this intersection. However, it is important to note that traffic signals and widened lanes at the existing intersection would not accomplish the goals of widening the entire length of Puainako and would thus probably only marginally decrease congestion. Furthermore, these costly improvements would also have to be removed when the Puainako Street Widening project was undertaken, because the existing Kawili Street intersection is planned to become a minor, unsignalized, right-in/right-out intersection.

The compelling State interest in completing the full widening project in order to link State highways and serve the various public State elementary, secondary and higher education facilities is drawing increased attention to the project. State legislators and County officials are working to identify funding mechanisms to accomplish the project. It is likely that the Puainako Widening project will be undertaken during the next five years.

The issue of the timing of the Puainako Street Widening project in relation to the China-U.S. Center will be resolved in one of the following ways: 1) funding for the widening project will be obtained and the project will begin within the next two years, before the

China-U.S. Center is at any advanced state of operation, ensuring a lack of impacts; 2) a definite timetable and funding source for the widening project will have been identified, which will allow clear determination of whether, which and when temporary traffic mitigation measures will be required; or 3) no definite timetable and funding source for the widening project will be identified, necessitating consideration of longer-term temporary traffic mitigation measures, operational changes or other strategies to cope with the traffic brought on by the University of Hawai'i at Hilo, the Waiakea Schools, the China-U.S. Center and other sources. As the China-U.S. Center project plans progress, GEO and UH-Hilo will coordinate with HDOT concerning the existing Puainako/Kawili intersection. If necessary, these partners could work towards placing temporary improvements to the existing intersection on the Statewide Transportation Improvement Project list and receiving federal match funding.

The substantial public benefit offered by the China-U.S. Center and the likelihood of the construction of the Puainako Street Widening project within the reasonably near future represent overriding reasons for proceeding without a full resolution of this issue.

PART 7: ENVIRONMENTAL IMPACT STATEMENT PREPARERS

GeoMetrician Associates LLC Lead: Ron Terry, Ph.D.	Kea`au	Lead Scientist and Author
SSFM International, Inc. Lead: Corey Matsuoka, P.E.	Hilo	Engineering Consultants
Myounghee Noh & Associates, LLC Lead: Myounghee Noh	Honolulu	Phase I EA
Phillip Rowell, Inc. Lead: Philip Rowell	Honolulu	Traffic
PHRI, Inc. Lead: Paul Rosendahl, Ph.D.	Hilo	Archaeology

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Final Environmental Impact Statement

China-U.S. Center

APPENDIX 1

Comments in Response to EISPN

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

JUN 14 2001

REF:HP-AMK

LOG NO: 27658
DOC NO: 0106PM09

Dr. Ron Terry
Geometrician
HC 2 box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

SUBJECT: ***Environmental Impact Statement Preparation Notice***
China-U.S. Center
Waiakea, South Hilo, Hawaii Island
TMK: 2-4-01: Por. 05

Thank you for transmitting the subject document to our office for review and comment. We apologize for our late response.

GEO International Explorer, Inc. proposes to construct a China-U.S. Center at the University of Hawai'i at Hilo. This will involve the construction of residential, classroom, conference and commercial facilities on the university campus.

PHRI undertook an archaeological inventory survey of the subject parcel in 1998. One historic site (21461) was found in the survey. Site 21461 is an agricultural complex comprised of clearing mounds, enclosures and walls related to historic period sugarcane cultivation. A report on the survey was reviewed and approved by our office in 2000 (our letter dated October 4, 2000 is included in the EISPN as Appendix 1). We agreed that the site had been adequately studied, that it was thus "no longer significant," and that no mitigation would be required. We conclude that the proposed project will have "no effect" on significant historic sites.

Aloha,

for DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

c. Director, Office of Environmental Quality Control
Chris Yuen, Hawaii County Planning Department
Gerald DeMello, University of Hawai'i at Hilo

/ Kim
yor

James S. Correa
Police Chief

County of Hawaii

POLICE DEPARTMENT

349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

April 24, 2001

Mr. Ron Terry, Ph.D.
Geo Metrician
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

RE: CHINA-U.S. CENTER

Staff has reviewed the above-referenced Environmental Impact Statement Notice of Preparation for the above-referenced project and is concerned about the impact the increase in traffic will have on the existing roadway.

We request to review the Traffic Impact Analysis Report when available.

Thank you for the opportunity to comment.

Sincerely,

JAMES S. CORREA
POLICE CHIEF

DAVID A. KAWAUCHI
MAJOR
FIELD OPERATIONS BUREAU, AREA I

FHR:lk

cc: Director, Office of Environmental Quality Control
Mr. Gerald DeMello, University of Hawaii at Hilo

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

David Kawauchi, Major
Field Operations Bureau, Area I
Hawai`i County Police Department
349 Kapiolani Street
Hilo HI 96720

Dear Major Kawauchi:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of April 24, 2001, commenting on the EISPN, in which you state the Police Department's concern for the increase in traffic on the existing roadway. This issue will be addressed in detail in the Draft EIS. We look forward to your review of this document.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

Harry Kim
Mayor

Edward Bumatay
Fire Chief

County of Hawaii
FIRE DEPARTMENT

80 Pauahi St • Suite 101 • Hilo, Hawaii 96720
(808) 961-8297 • Fax (808) 961-8296

April 25, 2001

Mr. Ron Terry
Geo Metrician
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: China-U.S. Center

We have reviewed the Environmental Impact Statement Notice of Preparation for the above-referenced project and we have no comments.

Sincerely,

EDWARD BUMATAY
Fire Chief

EB/mo

cc: Director, OEQC
Gerald DeMello, UHH

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Edward Bumatay, Chief
Hawaii County Fire Department
777 Kilauea, Mall Lane, Room 6
Hilo, Hawaii 96720-4239

Dear Chief Bumatay:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of April 25, 2001, commenting on the EISPN, in which you state that your agency has no comments.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

NJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

April 30, 2001

Mr. Ron Terry
Geo Metrician
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Subject: Environmental Impact Statement Preparation Notice (EISPN) for the China-U.S. Center, Waiakea, South Hilo, Hawaii, TMK 2-4-01: 5 (por.)

We have reviewed the EISPN for the subject project and confirm that the project site, as represented on the Project Area Map, is designated within the State Land Use Urban District.

We suggest that the Draft EIS include a map showing the project site in relation to the State land use districts.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the EISPN.

Should you have questions, please feel free to call me at 587-3822.

Sincerely,

BERT SARUWATARI
Acting Executive Officer

c: OEQC
Gerald DeMello, University of Hawaii (Hilo)

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Bert Saruwatari, Acting Executive Officer
Hawaii State Land Use Commission
P.O. Box 2359
Honolulu, HI 96804-2359

Dear Mr. Saruwatari:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of April 30, 2001, commenting on the EISPN, in which you suggest including a map showing the project area in relation the State Land Use Districts. A map figure in the Draft EIS will indicate State Land Use Districts. Thank you for your review of the EISPN.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

DANIEL K. INOUYE
HAWAII

APPROPRIATIONS
Subcommittee on Defense

MERCE, SCIENCE, AND TRANSPORTATION
ubcommittee on Surface Transportation
and Merchant Marine

COMMITTEE ON INDIAN AFFAIRS

DEMOCRATIC STEERING COMMITTEE

MITTEE ON RULES AND ADMINISTRATION

JOINT COMMITTEE ON PRINTING

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ROOM 7325, 300 ALA MOANA BOULEVARD
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FAX (808) 541-2549

101 AUPUNI STREET, NO. 205
HILO, HI 96720
(808) 935-0844
FAX (808) 961-6163

May 2, 2001

Mr. Gerald Demello
Office of University Relations
University of Hawaii at Hilo
200 West Kawili Street
Hilo, Hawaii 96720-4091

Dear Gerald:

This is to acknowledge receipt of the Environmental Impact Statement for the China-U.S. Center. Thank you for sending the booklet and bringing this matter to my attention.

If I can be of future assistance, please do not hesitate to contact me.

Aloha,

William Kikuchi aem

WILLIAM KIKUCHI
Field Representative

WK:aem

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

William Kikuchi, Field Representative
Office of Senator Daniel K. Inouye
101 Aupuni Street, Suite 205
Hilo HI 96720

Dear Mr. Kikuchi:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 2, 2001, stating that you had received the EISPN. We appreciate your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

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

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

May 4, 2001

LD-NAV
Ref.: UHCHINAUCTR.RCM

LOG1468

Ron Terry, Ph.D.
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

SUBJECT: Project: China-U.S. Center, University of Hawaii
Environmental Impact Statement Preparation Notice
Waiakea, South Hilo District, Hawaii 2-4-1: 05

Thank you for the opportunity to review and comment on the Environmental Impact Statement Preparation Notice covering the proposed project.

The use of the subject property for the China-U.S. Center is consistent with the purpose and intent of Governor Executive Order 3752. The Department of Land and Natural Resources' Land Division has no other comment to offer.

Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

DEAN Y. UCHIDA
Administrator

C: Hawaii District Land Office
University of Hawaii at Hilo
SSFM International Inc.
GEO International Explorer, Inc.

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Harry Yada
Land Management Administrator
Hawai'i State Department of Land and Natural Resources
P.O. Box 621
Honolulu HI 96809

Dear Mr. Yada:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

We are responding to former administrator Dean Uchida's letter of May 4, 2001, commenting on the EISPN, in which he stated that the proposed use was consistent with the purpose and intent of Executive Order 3752. We appreciate your agency's review of the document.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to
File:

51531/epo

May 7, 2001

Ron Terry, Ph.D.
Geo Metrician
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

Subject: China – U.S. Center
TMK: 2-4-01:5

Thank you for allowing us to review and comment on the subject document. We have the following comments to offer:

Control of Fugitive Dust

There is a significant potential for fugitive dust emissions during the construction activities. Implementation of adequate dust control measures during all phases of construction is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, "Fugitive Dust."

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

1. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

2. Providing an adequate water source at the site prior to start up of construction activities;

3. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

4. Controlling of dust from shoulders and access roads;

5. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

6. Controlling of dust from debris being hauled away from project site.

If you have any questions regarding these issues on fugitive dust, please contact the Clean Air Branch at 586-4200.

Noise Concerns

1. Activities associated with the construction phase of the project must comply with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

   a. The contractor must obtain a noise permit if the noise levels from the construction activities are expected to exceed the allowable levels of the rules as stated in Section 11-46-6(a);

   b. Construction equipment and on-site vehicles requiring an exhaust of gas or air must be equipped with mufflers as stated in Section 11-46-6(b)(1)(A); and

   c. The contractor must comply with the requirements pertaining to construction activities as specified in the rules and the conditions issued with the permit as stated in Section 11-46-7(d)(4).

2. Through facility design, sound levels emanating from stationary equipment such as air conditioning systems, exhaust fans, refrigeration compressors or generators must be attenuated to comply with the provisions of the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control."

3. Noise from religious and recreational activities associated with such facilities, as well as vehicular traffic entering and leaving the premises, may have adverse impacts on adjacent residences.

Should there be any questions on this matter, please call Mr. Russell Takata, Environmental Health Program Manager of the Noise, Radiation and Indoor Air Quality Branch at 586-4700.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Gary Gill, Deputy Director
Hawaii State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 7, 2001, commenting on the EISPN , in which you recite issues of concern to the Department of Health. Our responses to your individual comments are as follows:

1. *Control of Fugitive Dust.* The Draft EIS will specify that the contractor will be required to develop a fugitive dust control plan in conformance with Chapter 11-60.1-33. The plan will be required to include a combination of measures such as the ones specified in your letter to effectively address the issues of fugitive dust in conformance with all laws and regulations.
2. *Noise from Construction and Stationary Equipment.* The Draft EIS will specify that the contractor will be required to conform to the requirements of Chapter 11-46, "Community Noise Control." The contractor will prepare specific information on construction activities and locations and will consult with the DOH, as appropriate, regarding the need for a permit prior to construction. The Draft EIS will also state that construction equipment and on-site vehicles will be equipped with mufflers as stated in Section 11-46–6(b)(1)(A) and that the contractor will be obligated to comply with the requirements pertaining to construction as specified in the rules and the conditions issued with the permit, as specified in 11-46-7(d)(4). The Draft EIS will also state that sound levels emanating from stationary equipment at the China-U.S. Center must be attenuated to comply with the provisions of Chapter 11-46.
3. *Noise from Religious and Recreational Activities and Vehicles.* The Draft EIS will contain an evaluation of the potential for these noise sources to have adverse impact on adjacent residences.

Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

BENJAMIN J. CAYETANO
GOVERNOR

PAUL G. LeMAHIEU, Ph.D.
SUPERINTENDENT

STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

May 7, 2001

Mr. Ron Terry
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, Hawai'i 96749

Dear Mr. Terry:

Subject: China – U.S. Center EISPN

The proposed China – U.S. Center property is adjacent to Waiakea High and Waiakea Intermediate schools. For security reasons, the Department of Education strongly recommends that there be a physical barrier (i.e., fence or wall) along the boundary separating the proposed center and the two schools.

Without a barrier, it will be difficult for the schools to monitor visitors to the campus. The barrier will also prevent outsiders from entering the schools during non-school hours and reduce the likelihood of students visiting the proposed commercial establishments during school hours.

We have no other comments at this time. If you have any questions, please call Mr. Sanford Beppu at 733-4862.

Very truly yours,

Patricia Hamamoto

Paul G. LeMahieu, Ph.D.
Superintendent of Education

PLeM:hy

cc: P. Yoshioka, DAS
G. Salmonson, OEQC
G. DeMello, UH-Hilo
Principal, Waiakea High
Principal, Waiakea Intermediate

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Mr. Paul G. LeMahieu, Ph.D.
Supt. Of Education
Hawaii State Department of Education
P.O. Box 2360
Honolulu HI 96804

Dear Dr. LeMahieu:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 7, 2001, commenting on the EISPN, in which you request a physical barrier such as a fence or a wall between the China-U.S. Center and Waiakea High School in order to control unauthorized access between facilities. The University of Hawai'i at Hilo agrees that the issue of access is important and would like to continue coordination with DOE on this issue. The Draft EIS will include a discussion of the access control issue. During the next stage of design, the Architect-Engineering Design Team will include UH-Hilo, DOE and the administrators from Waiakea Schools in their design development addressing the issue of unauthorized access. Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

Harry Kim
Mayor

Dennis K. W. Lee
Director

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

May 11, 2001

GEO International Explorer, Inc.
HC 2, BOX 9575
Keaau, HI 96749

SUBJECT : ENVIRONMENTAL IMPACT STATEMENT
NOTICE OF PREPARATION (EISPN)
Waiakea, South Hilo, Hawaii
TMK: 2-4-01: 05 por.

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

1. In reference to Section 4.4.5 Solid Waste; the County does have a capacity limit at the Hilo Landfill, and recycling should be mandated for the proposed facility.

2. Any work within the County right-of-way shall be in conformance with Chapter 22, Streets and Sidewalks, of the Hawaii County Code.

   We will allow no on-street parking along the entire frontage of the proposed facility. The TIAR should consider the seriousness of pedestrian safety when crossing Kawili Street, particularly during the high traffic volume times; e.g., A.M. & P.M. peak hours, class changes, the high school peak traffic times, etc.

3. Kawili Street has an existing 80-ft. right-of-way and is maintained by the County. The County does not own the right-of-way. Kawili Street was constructed by the County, on State of Hawaii land in 1969. At the Board of Land and Natural Resources meeting of April 24, 1998, they approved the transfer of the Kawili Street right-of-way to the County. The State Department of Land and Natural Resources is waiting for maps and descriptions from the DAGS Survey Division before documents can be prepared and finalized.

4. The existing Puainako Street is under the jurisdiction of the Hawaii Department of Transportation (HDOT). Comments and requirements concerning this roadway should be directed to the HDOT.

5. We will give further comments on the Draft Environmental Impact Statement.

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

Galen M. Kuba, Division Chief
Engineering Division

CKY

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Dennis Lee, P.E., Director
Hawaii County Public Works Department
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Lee:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 11, 2001, commenting on the EISPN. Our responses to your individual comments are as follows:

1. *Mandating Recycling at Facility.* We expect that recycling will be an integral part of the waste management strategy for the China-U.S. Center, and will suggest so in the Draft EIS.
2. *Work with County Right-of-Way; On-street Parking; Pedestrian Safety.* The Draft EIS will state that any work within the County right-of-way will be in conformance with Chapter 22, Streets and Sidewalks, of the Hawai'i County Code. The University of Hawai'i at Hilo agrees that on-street parking in front of the facility is inappropriate, and the design will reflect this. Pedestrian safety and convenience are among the highest concerns for the project, and the design team is working to prepare a design that is highly pedestrian-friendly.
3. *Kawili Street Right-of-Way.* This information will be summarized in the Draft EIS.
4. *Puainako Street.* UH-Hilo has been consulting with State DOT on this matter.
5. *Comments to Draft EIS.* We look forward to your review and comments.

Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO-International Explorer Inc.

NJAMIN J. CAYETANO
GOVERNOR

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

May 15, 2001

GEO International Explorer, Inc.
13-1F, 336 Tun Hua S. Road
Sec. 1, Taipei 106, Taiwan
Republic of China

Mr. Gerald DeMello
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, Hawai'i 96720

Dr. Ron Terry
GeoMetrician Associates
HC 2 Box 9575
Keaau, Hawai'i 96749

Dear GEO International Explorer, Inc., Mr. DeMello and Dr. Terry:

The Office of Environmental Quality Control has reviewed the environmental impact statement preparation notice and final environmental assessment entitled "China-U.S. Center" at Waiakea in the South Hilo district, tax map key 2-4-01, portion of 05, in support of applicant GEO International Explorer's request before the University of Hawai'i to use state lands for the construction and operation of the UH Hilo China-U.S. Center. We submit the following comments.

1. **Interaction with Other Planned Projects**: Please consult with the County department of planning and discuss other planner projects in the area, and how these projects may cumulatively impact the environment.

2. **Secondary (or indirect) Impacts**: Chapter 343 Hawai'i Revised Statutes and its implementing administrative rules define three types of impacts: direct, indirect and cumulative. While direct impacts are normally discussed, the latter two are often neglected or given cursory review in environmental documents. It should be realized that actions that involve the construction of highways, airports, utility corridors, water resource projects, etc., may well stimulate or induce secondary or indirect effects. These indirect effects may be equally important as, or more important than direct impacts. Discuss the indirect impacts of the project using the following question as a guide: will the project have growth inducing effects in the general area surrounding the university? If so, what are they and what mitigation (if any) would be required?

3. **Cultural Impact Requirements of Act 50, SLH 2000**: Act 50 of the Session Laws of Hawai'i for 2000 require that projects subject to Chapter 343, Hawai'i Revised Statutes assess the impact of project on cultural practices. The inclusion of an archaeological study with no reference to current cultural practices or resources does not fulfill the requirements of Act 50. A copy of Act 50, and the environmental council's guidance on assessing cultural impacts is enclosed for your use. We would recommend that you contact Mr. Stephen Kubota of the 'Ahupua'a Action Alliance to identify cultural contacts in the Hilo area.

4. **Sustainable Building Design**: Please discuss what sustainable building design features will be incorporated into the architecture for the project. A copy of the environmental council's guidance is enclosed.

Thank you for the opportunity to comment. If you have any questions, please call Mr. Leslie Segundo of my staff at (808) 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director of Environmental Quality Control
Enclosures

UNOFFICIAL VERSION

HOUSE OF REPRESENTATIVES
TWENTIETH LEGISLATURE, 2000
STATE OF HAWAII

H.B. NO. 2895 H.D. 1

A BILL FOR AN ACT

RELATING TO ENVIRONMENTAL IMPACT STATEMENTS.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. The legislature finds that there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii's culture, and traditional and customary rights.

The legislature also finds that native Hawaiian culture plays a vital role in preserving and advancing the unique quality of life and the "aloha spirit" in Hawaii. Articles IX and XII of the state constitution, other state laws, and the courts of the State impose on government agencies a duty to promote and protect cultural beliefs, practices, and resources of native Hawaiians as well as other ethnic groups.

Moreover, the past failure to require native Hawaiian cultural impact assessments has resulted in the loss and destruction of many important cultural resources and has interfered with the exercise of native Hawaiian culture. The legislature further finds that due consideration of the effects of human activities on native Hawaiian culture and the exercise thereof is necessary to ensure the continued existence, development, and exercise of native Hawaiian culture.

The purpose of this Act is to: (1) Require that environmental impact statements include the disclosure of the effects of a proposed action on the cultural practices of the community and State; and (2) Amend the definition of "significant effect" to include adverse effects on cultural practices.

SECTION 2. Section 343-2, Hawaii Revised Statutes, is amended by amending the definitions of "environmental impact statement" or "statement" and "significant effect", to read as follows:

""Environmental impact statement" or "statement" means an informational document prepared in compliance with the rules adopted under section 343-6 and which discloses the environmental effects of a proposed action, effects of a proposed action on the economic [and] welfare, social welfare, and cultural practices of the community and State, effects of the economic activities arising out of the proposed action, measures proposed to minimize adverse effects, and alternatives to the action and their environmental effects.

The initial statement filed for public review shall be referred to as the draft statement and shall be distinguished from the final statement which is the document that has incorporated the public's comments and the responses to those comments. The final statement is the document that shall be evaluated for acceptability by the respective accepting authority.

"Significant effect" means the sum of effects on the quality of the environment, including actions that irrevocably commit a natural resource, curtail the range of beneficial uses of the environment, are contrary to the State's environmental policies or long-term environmental goals as established by law, or adversely affect the economic [or] welfare, social welfare[.], or cultural practices of the community and State."

SECTION 3. Statutory material to be repealed is bracketed. New statutory material is underscored.

SECTION 4. This Act shall take effect upon its approval.

Approved by the Governor as Act 50 on April 26, 2000

State of Hawaii
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
Guidelines for Assessing Cultural Impacts

Adopted by the Environmental Council, State of Hawaii
November 19, 1997

I. INTRODUCTION

It is the policy of the State of Hawaii under Chapter 343, HRS, to alert decision makers, through the environmental assessment process, about significant environmental effects which may result from the implementation of certain actions. An environmental assessment of cultural impacts gathers information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, and promotes responsible decision making.

Articles IX and XII of the State Constitution, other state laws, and the courts of the state require government agencies to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups. Chapter 343 also requires environmental assessment of cultural resources, in determining the significance of a proposed project.

The Environmental Council encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area. The Council provides the following methodology and content protocol as guidance for any assessment of a project that may significantly affect cultural resources.

II. CULTURAL IMPACT ASSESSMENT METHODOLOGY

Cultural impacts differ from other types of impacts assessed in environmental assessments or environmental impact statements. A cultural impact assessment includes information relating to the practices and beliefs of a particular cultural or ethnic group or groups.

Such information may be obtained through scoping, community meetings, ethnographic interviews and oral histories. Information provided by knowledgeable informants, including traditional cultural practitioners, can be applied to the analysis of cultural impacts in conjunction with information concerning cultural practices and features obtained through consultation and from documentary research.

In scoping the cultural portion of an environmental assessment, the geographical extent of the inquiry should, in most instances, be greater than the area over which the proposed action will take place. This is to ensure that cultural practices which may not occur within the boundaries of the project area, but which may nonetheless be affected, are included in the assessment. Thus, for example, a proposed action that may not physically alter gathering practices, but may affect access

to gathering areas would be included in the assessment. An ahupua'a is usually the appropriate geographical unit to begin an assessment of cultural impacts of a proposed action, particularly if it includes all of the types of cultural practices associated with the project area. In some cases, cultural practices are likely to extend beyond the ahupua'a and the geographical extent of the study area should take into account those cultural practices.

The historical period studied in a cultural impact assessment should commence with the initial presence in the area of the particular group whose cultural practices and features are being assessed. The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs.

The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man made and natural, including submerged cultural resources, which support such cultural practices and beliefs.

If the subject area is in a developed urban setting, cultural impacts must still be assessed. Many incorrectly assume that the presence of urban infrastructure effectively precludes consideration of current cultural factors. For example, persons are known to gather kauna''oa, ''ilima, ''uhaloa, noni or ki on the grassy slopes and ramps of the H-1 freeway and some state highways on the neighbor islands. Certain landmarks and physical features are used by Hawaiian navigators for sailing, and the lines of sight from landmarks to the coast by fisherman to locate certain fishing spots. Blocking these features by the construction of buildings or tanks may constitute an adverse cultural impact.

The Environmental Council recommends that preparers of assessments analyzing cultural impacts adopt the following protocol:

(1) identify and consult with individuals and organizations with expertise concerning the types of cultural resources, practices and beliefs found within the broad geographical area, e.g., district or ahupua`a;

(2) identify and consult with individuals and organizations with knowledge of the area potentially affected by the proposed action;

(3) receive information from or conduct ethnographic interviews and oral histories with persons having knowledge of the potentially affected area;

(4) conduct ethnographic, historical, anthropological, sociological, and other culturally related documentary research;

(5) identify and describe the cultural resources, practices and beliefs located within the potentially affected area; and

(6) assess the impact of the proposed action, alternatives to the proposed action, and mitigation measures, on the cultural resources, practices and beliefs identified.

Interviews and oral histories with knowledgeable individuals may be recorded, if consent is given, and field visits by preparers accompanied by informants are encouraged. Persons interviewed

should be afforded an opportunity to review the record of the interview, and consent to publish the record should be obtained whenever possible. For example, the precise location of human burials are likely to be withheld from a cultural impact assessment, but it is important that the document identify the impact a project would have on the burials. At times an informant may provide information only on the condition that it remain in confidence. The wishes of the informant should be respected.

Primary source materials reviewed and analyzed may include, as appropriate: Mahele, land court, census and tax records, including testimonies; vital statistics records; family histories and genealogies; previously published or recorded ethnographic interviews and oral histories; community studies, old maps and photographs; and other archival documents, including correspondence, newspaper or almanac articles, and visitor journals. Secondary source materials such as historical, sociological, and anthropological texts, manuscripts, and similar materials, published and unpublished, should also be consulted. Other materials which should be examined include prior land use proposals, decisions, and rulings which pertain to the study area.

III. CULTURAL IMPACT ASSESSMENT CONTENTS

In addition to the content requirements for environmental assessments and environmental impact statements, which are set out in HAR §§§§ 11-200-10 and 16 through 18, the portion of the assessment concerning cultural impacts should address, but not necessarily be limited to, the following matters:

1. A discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained.

2. A description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken.

3. Ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained.

4. Biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area.

5. A discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken. This discussion should include, if appropriate, the particular perspective of the authors, any opposing views, and any other relevant constraints, limitations or biases.

6. A discussion concerning the cultural resources, practices and beliefs identified, and, for resources and practices, their location within the broad geographical area in which the

proposed action is located, as well as their direct or indirect significance or connection to the project site.

7. A discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project.

8. An explanation of confidential information that has been withheld from public disclosure in the assessment.

9. A discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs.

10. An analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place.

11. A bibliography of references, and attached records of interviews which were allowed to be disclosed.

The inclusion of this information will help make environmental assessments and environmental impact statements complete and meet the requirements of Chapter 343, HRS. If you have any questions, please call 586-4185.

Guidelines for Sustainable Building Design in Hawai`i

A planner's checklist

(Adopted by the Environmental Council on October 13, 1999)

Introduction

Hawai`i law calls for efforts to conserve natural resources, promote efficient use of water and energy and encourage recycling of waste products. Planning a project from the very beginning to include sustainable design concepts can be a critical step toward meeting these goals.

The *purpose of the state's environmental review law (HRS Ch. 343)* is to encourage a full, accurate and complete analysis of proposed actions, promote public participation and support enlightened decision making by public officials. The Office of Environmental Quality Control offers the following guidelines for preparers of environmental reviews under the authority of HRS 343 to assist agencies and applicants in meeting these goals.

These guidelines do not constitute rules or law. They have been refined by staff and peer review to provide a checklist of items that will help the design team create projects that will have a minimal impact on Hawai`i's environment and make wise use of our natural resources. In a word, projects that are *sustainable*.

A sustainable building is built to minimize energy use, expense, waste, and impact on the environment. It seeks to improve the region's sustainability by meeting the needs of Hawai`i's residents and visitors today without compromising the needs of future generations. Compared to conventional projects, a resource-efficient building project will:

I. Use less energy for operation and maintenance
II. Contain less *embodied* energy (e.g. locally produced building products often contain less *embodied* energy than imported products because they require less energy-consuming transportation.)
III. Protect the environment by preserving/conserving water and other natural resources and by minimizing impact on the site and ecosystems
IV. Minimize health risks to those who construct, maintain, and occupy the building
V. Minimize construction waste
VI. Recycle and reuse generated construction wastes

VII. Use resource-efficient building materials (e.g. materials with recycled content and low embodied energy, and materials that are recyclable, renewable, environmentally benign, non-toxic, low VOC (Volatile Organic Compound) emitting, durable, and that give high life cycle value for the cost.)

VIII. Provide the highest quality product practical at competitive (affordable) first and life cycle costs.

In order to avoid excessive overlapping of items, the checklist is designed to be read in totality, not just as individual sections. This checklist tries to address a range of project types, large scale as well as small scale. Please use items that are appropriate to the type and scale of the project.

Although this list will help promote careful and sensitive planning, mere compliance with this checklist does not confirm sustainability. Compliance with and knowledge of current building codes by users of this checklist is also required.

TABLE OF CONTENTS

I. Pre Design

___1. Hold programming team meeting with client representative, Project Manager, planning consultant, architectural consultant, civil engineer, mechanical, electrical, plumbing (MEP) engineer, structural engineer, landscape architect, interior designer, sustainability consultant and other consultants as required by the project. Identify project and sustainability goals. Client representatives and consultants need to work together to ensure that project and environmental goals are met.

___2. Develop sustainable guideline goals to insert into outline specifications as part of the Schematic Design documents. Select goals from the following sections that are appropriate for the project.

___3. Use Cost-Benefit Method for economic analysis of the sustainability measures chosen. (*Cost-Benefit Method is a method of evaluating project choices and investments by comparing the present and life cycle value of expected benefits to the present and life cycle value of expected costs.*)

___4. Include "Commissioning" in the project budget and schedule. (Building "Commissioning" is the process of ensuring that systems are designed, installed, functionally tested, and capable of being operated and maintained in accordance with specifications that meet the owner's needs, and recognize the owner's financial and operational capacity. It improves the performance of the building systems, resulting in energy efficiency and conservation, improved air quality and lower operation costs. *Refer to Section IX.*)

II. Site Selection & Site Design

A. Site Selection

___1. Analyze and assess site characteristics such as vegetation, topography, geology, climate, natural access, solar orientation patterns, water and drainage, and existing utility and transportation infrastructure to determine the appropriate use of the site.

___2. Whenever possible, select a site in a neighborhood where the project can have a positive social, economic and/or environmental impact.

___3. Select a site with short connections to existing municipal infrastructure (sewer lines, water, waste water treatment plant, roads, gas, electricity, telephone, data communication lines and services). Select a site close to mass transportation, bicycle routes and pedestrian access.

B. Site Preparation and Design

___1. Prepare a thorough existing conditions topographic site plan depicting topography, natural and built features, vegetation, location of site utilities and include solar information,

rainfall data and direction of prevailing winds. Preserve existing resources and natural features to enhance the design and add aesthetic, economic and practical value. Design to minimize the environmental impact of the development on vegetation and topography.

___2. Site building(s) to take advantage of natural features and maximize their beneficial effects. Provide for solar access, daylighting and natural cooling. Design ways to integrate the building(s) with the site that maximizes and preserves positive site characteristics, enhances human comfort, safety and health, and achieves operational efficiencies.

___3. Locate building(s) to encourage bicycle and pedestrian access and pedestrian oriented uses. Provide bicycle and pedestrian paths, bicycle racks, etc. Racks should be visible and accessible to promote and encourage bicycle commuting.

___4. Retain existing topsoil and maintain soil health by clearing only the areas reserved for the construction of streets, driveways, parking areas, and building foundations. Replant exposed soil areas as soon as possible. Reuse excavated soils for fill and cut vegetation for mulch.

___5. Grade slopes to a ratio of less than 2 : 1 (run to rise). Balance cut and fill to eliminate hauling. Check grading frequently to prevent accidental over excavation.

___6. Minimize the disruption of site drainage patterns. Provide erosion and dust controls, positive site drainage, and siltation basins as required to protect the site during and after construction, especially, in the event of a major storm.

___7. Minimize the area required for the building footprint. Consolidate utility and infrastructure in common corridors to minimize site degradation, and cost, improve efficiency, and reduce impermeable surfaces.

___8. For termite protection, use non toxic alternatives to pesticides and herbicides, such as Borate treated lumber, Basaltic Termite Barrier, stainless steel termite barrier mesh, and termite resistant materials.

III. Building Design

___1. Consider adaptive re-use of existing structures instead of demolishing and/or constructing a new building. Consult the State Historic Preservation Officer for possible existing historic sites that may meet the project needs.

___2. Plan for high flexibility while designing building shell and interior spaces to accommodate changing needs of the occupants, and thereby extend the life span of the building.

___3. Design for re-use and/or disassembly. (For recyclable and reusable building products, see Section VII).

___4. Design space for recycling and waste diversion opportunities during occupancy.

___5. Provide facilities for bicycle and pedestrian commuters (showers, lockers, bike racks, etc.) in commercial areas and other suitable locations.

___6. Plan for a comfortable and healthy work environment. Include inviting outdoor spaces, wherever possible. *(Refer to Section VIII.)*

___7. Provide an Integrated Pest Management approach. The use of products such as Termi-mesh, Basaltic Termite Barrier and the Sentricon "bait" system can provide long term protection from termite damage and reduce environmental pollution.
___8. Design a building that is energy efficient and resource efficient. *(See Sections IV, V, VII.)* Determine building operation by-products such as heat gain and build up, waste/gray-water and energy consumption, and plan to minimize them or find alternate uses for them.
___9. For natural cooling, use
   a. Reflective or light colored roofing, radiant barrier and/or insulation, roof vents
   b. Light colored paving (concrete) and building surfaces
   c. Tree Planting to shade buildings and paved areas
   d. Building orientation and design that captures trade winds and/or provides for convective cooling of interior spaces when there is no wind.

IV. Energy Use

___1. Obtain a copy of the State of Hawai'i Model Energy Code (available through the Hawai'i State Energy Division, at Tel. 587-3811). Exceed its requirements. (Contact local utility companies for information on tax credits and utility-sponsored programs offering rebates and incentives to businesses for installing qualifying energy efficient technologies.)
___2. Use site sensitive orientation to :
   a. Minimize cooling loads through site shading and carefully planned east-west orientation.
   b. Incorporate natural ventilation by channeling trade winds.
   c. Maximize daylighting.
___3. Design south, east and west shading devices to minimize solar heat gain.
___4. Use spectrally selective tints or spectrally selective low-e glazing with a Solar Heat Gain Coefficient (SHGC) of 0.4 or less.
___5. Minimize effects of thermal bridging in walls, roofs and window systems.
___6. Maximize efficiencies for lighting, Heating, Ventilation, Air Conditioning (HVAC) systems and other equipment. Use insulation and/or radiant barriers, natural ventilation, ceiling fans and shading to avoid the use of air conditioning whenever appropriate.
___7. Eliminate hot water in restrooms when possible.
___8. Provide tenant sub-metering to encourage utility use accountability.
___9. Use renewable energy. Use solar water heaters and consider the use of photovoltaics and Building Integrated Photovoltaics (BIPV).
__10. Use available energy resources such as waste heat recovery, when feasible.

A. Lighting

___1. Design for at least 15% lower interior lighting power allowance than the Energy Code.
___2. Select lamps and ballasts with the highest efficiency, compatible with the desired level of illumination and color rendering specifications. Examples that combine improved color rendering with efficient energy use include compact flourescents and T8 flourescents that use tri-phosphor gases.
___3. Select lighting fixtures which maximize system efficacy and which have heat removal capabilities
___4. Reduce light absorption on surfaces by selecting colors and finishes that provide high reflectance values without glare.
___5. Use task lighting with low ambient light levels.
___6. Maximize daylighting through the use of vertical fenestration, light shelves, skylights, clerestories, building form and orientation as well as through translucent or transparent interior partitions. Coordinate daylighting with electrical lighting for maximum electrical efficiency.
___7. Incorporate daylighting controls and/or motion activated light controls in low or intermittent use areas.
___8. Avoid light spillage in exterior lighting by using directional fixtures.
___9. Minimize light overlap in exterior lighting schemes.
10. Use lumen maintenance procedures and controls.

B. Mechanical Systems

___1. Design to comply with the Energy Code and to exceed its efficiency requirements.
___2. Use "Smart Building" monitor/control systems when appropriate.
___3. Utilize thermal storage for reduction of peak energy usage.
___4. Use Variable air volume systems to save fan power.
___5. Use variable speed drives on pumping systems and fans for cooling towers and air handlers.
___6. Use air-cooled refrigeration equipment or use cooling towers designed to reduce drift.
___7. Specify premium efficiency motors.
___8. Reduce the need for mechanical ventilation by reducing sources of indoor air pollution. Use high efficiency air filters and ultraviolet lamps in air handling units. Provide for regular maintenance of filtration systems. Use ASHRAE standards as minimum.
___9. Locate fresh air intakes away from polluted or overheated areas. Locate on roof where possible. Separate air intake from air exhausts by at least 40 ft.
__10. Use separate HVAC systems to serve areas that operate on widely differing schedules and/or design conditions.
__11. Use shut off or set back controls on HVAC system when areas are not occupied.
__12. Use condenser heat, waste heat or solar energy. (Contact local utility companies for information on the utility-sponsored Commercial and Industrial Energy Efficiency

Programs which offer incentives to businesses for installing qualifying energy efficient technologies.)

__13. Evaluate plug-in loads for energy efficiency and power saving features.

__14. Improve comfort and save energy by reducing the relative humidity by waste reheat, heat pipes or solar heat.

__15. Minimize heat gain from equipment and appliances by using:
   a. Environmental Protection Agency (EPA) Energy Star rated appliances.
   b. Hoods and exhaust fans to remove heat from concentrated sources.
   c. High performance water heating that exceeds the Energy Code requirements.

__16. Specify HVAC system "commissioning" period to reduce occupant exposure to Indoor Air Quality (IAQ) contaminants and to maximize system efficiency.

V. Water Use

A. Building Water

___1. Install water conserving, low flow fixtures as required by the Uniform Plumbing Code.

___2. If practical, eliminate hot water in restrooms.

___3. Use self closing faucets (infrared sensors or spring loaded faucets) for lavatories and sinks.

B. Landscaping and Irrigation

(See Section VI.)

VI. Landscape and Irrigation

___1. Incorporate water efficient landscaping (xeriscaping) using the following principles:
   a. Planning, Efficient irrigation: Create watering zones for different conditions. Separate vegetation types by watering requirements. Install moisture sensors to prevent operation of the irrigation system in the rain or if the soil has adequate moisture. Use appropriate sprinkler heads.
   b. Soil analysis/improvement: Use (locally made) soil amendments and compost for plant nourishment, improved water absorption and holding capacity.
   c. Appropriate plant selection: Use drought tolerant and/or slow growing hardy grasses, native and indigenous plants, shrubs, ground covers, trees, appropriate for local conditions, to minimize the need for irrigation.
   d. Practical turf areas: Turf only in areas where it provides functional benefits.

e. Mulches: Use mulches to minimize evaporation, reduce weed growth and retard erosion.

Contact the local Board of Water Supply for additional information on xeriscaping such as efficient irrigation, soil improvements, mulching, lists of low water-demand plants, tours of xeriscaped facilities, and xeriscape classes.

___2. Protect existing beneficial site features and save trees to prevent erosion. Establish and carefully mark tree protection areas well before construction.

___3. Limit staging areas and prevent unnecessary grading of the site to protect existing, especially native, vegetation.

___4. Use top soil from the graded areas, stockpiled on the site and protected with a silt fence to reduce the need for imported top soil.

___5. Irrigate with non-potable water or reclaimed water when feasible. Collect rainwater from the roof for irrigation.

___6. Sub-meter the irrigation system to reduce water consumption and consequently water and sewer fees. Contact the local county agency to obtain irrigation sub-metering requirements and procedures. Locate irrigation controls within sight of the irrigated areas to verify that the system is operating properly.

___7. Use pervious paving instead of concrete or asphalt paving. Use natural and man-made berms, hills and swales to control water runoff.

___8. Avoid the use of solvents that contain or leach out pollutants that can contaminate the water resources and runoff. Contact the State of Hawai'i Clean Water Branch at 586-4309 to determine whether a NPDES (National Pollutant Discharge Elimination System) permit is required.

___9. Use Integrated Pest Management (IPM) techniques. IPM involves a carefully managed use of biological and chemical pest control tactics. It emphasizes minimizing the use of pesticides and maximizing the use of natural process

__10. Use trees and bushes that are felled at the building site (i.e. mulch, fence posts). Leave grass trimmings on the lawn to reduce green waste and enhance the natural health of lawns.

__11. Use recycled content, decay and weather resistant landscape materials such as plastic lumber for planters, benches and decks.

VII. Building Materials & Solid Waste Management

A. Material Selection and Design

___1. Use durable products.

___2. Specify and use natural products or products with low embodied energy and/or high recycled content. Products with recycled content include steel, concrete with glass,

drywall, carpet, etc. Use ground recycled concrete, graded glass cullet or asphalt as base or fill material.

___3. Specify low toxic or non-toxic materials whenever possible, such as low VOC (Volatile Organic Compounds) paints, sealers and adhesives and low or formaldehyde-free materials. Do not use products with CFCs (Chloro-fluoro-carbons).

___4. Use locally produced products such as plastic lumber, insulation, hydro-mulch, glass tiles, compost.

___5. Use advanced framing systems that reduce waste, two stud corners, engineered structural products and prefabricated panel systems.

___6. Use materials which require limited or no application of finishing or surface preparation. (i.e. finished concrete floor surface, glass block and glazing materials, concrete block masonry, etc.).

___7. Use re-milled salvaged lumber where appropriate and as available. Avoid the use of old growth timber.

___8. Use sustainably harvested timber.

___9. Commit to a material selection program that emphasizes efficient and environmentally sensitive use of building materials, and that uses locally available building materials. (A list of Earth friendly products and materials is available through the Green House Hawai'i Project. Call Clean Hawai'i Center, Tel. 587-3802 for the list.)

B. Solid Waste Management, Recycling and Diversion Plan

___1. Prepare a job-site recycling plan and post it at the job-site office.

___2. Conduct pre-construction waste minimization and recycling training for employees and sub-contractors.

___3. Use a central area for all cutting.

___4. Establish a dedicated waste separation/diversion area. Include Waste/Compost/Recycling collection areas and systems for use during construction process and during the operational life cycle of the building.

___5. Separate and divert all unused or waste cardboard, ferrous scrap, construction materials and fixtures for recycling and/or forwarding to a salvage exchange facility. Information on "Minimizing C&D (construction and demolition) waste in Hawai'i" is available through Department of Health, Office of Solid Waste Management, Tel. 586-4240.

___6. Use all green waste, untreated wood and clean drywall on site as soil amendments or divert to offsite recycling facilities.

___7. Use concrete and asphalt rubble on-site or forward the material for offsite recycling.

___8. Carefully manage and control waste solvents, paints, sealants, and their used containers. Separate these materials from C&D (construction and demolition) waste and store and dispose them of them carefully.

___9. Donate unused paint, solvents, sealants to non-profit organizations or list on HIMEX (Hawai'i Materials Exchange). HIMEX is a free service operated by Maui Recycling

Group, that offers an alternative to landfill disposal of usable materials, and facilitates no-cost trades. See web site, www.himex.org.

__10. Use suppliers that re-use or recycle packaging material whenever possible.

VIII. Indoor Air Quality

___1. Design an HVAC system with adequate supply of outdoor air, good ventilation rates, even air distribution, sufficient exhaust ventilation and appropriate air cleaners.

___2. Develop and specify Indoor Air Quality (IAQ) requirements during design and contract document phases of the project. Monitor compliance in order to minimize or contain IAQ contaminant sources during construction, renovation and remodeling.

___3. Notify occupants of any type of construction, renovation and remodeling and the effects on IAQ.

___4. Inspect existing buildings to determine if asbestos and lead paint are present and arrange for removal or abatement as needed.

___5. Supply workers with, and ensure the use of VOC (Volatile Organic Compounds)-safe masks where required.

___6. Ensure that HVAC systems are installed, operated and maintained in a manner consistent with their design. Use UV lamps in Air Handling Units to eliminate mold and mildew growth. An improperly functioning HVAC system can harbor biological contaminants such as viruses, bacteria, molds, fungi and pollen, and can cause Sick Building Syndrome (SBS).

___7. Install separate exhaust fans in rooms where air polluting office equipment is used, and exhaust directly to the exterior of the building, at sufficient distance from the air intake vents.

___8. Place bird guards over air intakes to prevent pollution of shafts and HVAC ducts.

___9. Control indoor air pollution by selecting products and finishes that are low or non-toxic and low VOC emitting. Common sources of indoor chemical contaminants are adhesives, carpeting, upholstery, manufactured wood products, copy machines, pesticides and cleaning agents.

__10. Schedule finish application work to minimize absorption of VOCs into surrounding materials e.g. allow sufficient time for paint and clear finishes to dry before installing carpet and upholstered furniture. Increase ventilation rates during periods of increased pollution.

__11. Allow a flush-out period after construction, renovation, remodeling or pesticide application to minimize occupant exposure to chemicals and contaminants.

IX. Commissioning & Construction Project Closeout

___1. Appoint a Commissioning Authority to develop and implement a commissioning plan and a preventative maintenance plan. Project Manager's responsibilities must include coordination of commissioning activities during project closeout.
___2. Commissioning team should successfully demonstrate all systems and perform operator training before final acceptance.
___3. Provide flush-out period to remove air borne contaminants from the building and systems.
___4. Provide as-built drawings and documentation for all systems. Provide data on equipment maintenance and their control strategies as well as maintenance and cleaning instructions for finish materials.

X. Occupancy and Operation

A. General Objectives

___1. Develop a User's Manual for building occupants that emphasizes the need for Owner/Management commitment to efficient sustainable operations.
___2. Management's responsibilities must include ensuring that sustainability policies are carried out.

B. Energy

___1. Purchase EPA rated, Energy Star, energy-efficient office equipment, appliances, computers, and copiers. (Energy Star is a program sponsored by U.S. Dep. Of Energy. Use of these products will contribute to reduced energy costs for buildings and reduce air pollution.)
___2. Institute an employee education program about the efficient use of building systems and appliances, occupants impact on and responsibility for water use, energy use, waste generation, waste recycling programs, etc.
___3. Re-commission systems and update performance documentation periodically per recommendations of the Commissioning Authority, or whenever modifications are made to the systems.

C. Water

___1. Start the watering cycle in the early morning in order to minimize evaporation.
___2. Manage the chemical treatment of cooling tower water to reduce water consumption.

D. Air

___1. Provide incentives which encourage building occupants to use alternatives to and to reduce the use of single occupancy vehicles.

___2. Provide a location map of services within walking distance of the place of employment (child care, restaurants, gyms, shopping).
___3. Periodically monitor or check for indoor pollutants in building.
___4. Provide an IAQ plan for tenants, staff and management that establishes policies and documentation procedures for controlling and reporting indoor air pollution. This helps tenants and staff understand their responsibility to protect the air quality of the facility.

E. Materials and Products

___1. Purchase business products with recycled content such as paper, toners, etc.
___2. Purchase Furniture made with sustainably harvested wood, or with recycled and recycled content materials, which will not off gas VOC's.
___3. Remodeling and painting should comply with or improve on original sustainable design intent.
___4. Use low VOC, non-toxic, phosphate and chlorine free, biodegradable cleaning products.

F. Solid Waste

___1. Collect recyclable business waste such as paper, cardboard boxes, and soda cans.
___2. Avoid single use items such as paper or Styrofoam cups and plates, and plastic utensils.

XI. Resources

Financing: Energy Efficiency in Buildings. U.S. Department of Energy, DOE/EE-0152, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Building Commissioning: The Key to Quality Assurance. U.S. Department of Energy, DOE/EE-0153, May, 1998 (Call Tel.1-800-DOE-EREC or visit local office)

Guide to Resource-Efficient Building in Hawaii. University of Hawai`i at Manoa, School of Architecture and Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, October 1998. (Call Tel. 587-3804 for publication)

Hawaii Model Energy Code. Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997 (Call Tel. 587-3810 for publication)

Photovoltaics in the Built Environment: A Design Guide for Architects and Engineers. NREL Publications, DOE/GO #10097-436, September 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Building Integrated Photovoltaics: A Case Study. NREL Publications #TP-472-7574, March 1995 (Call Tel.1-800-DOE-EREC or visit local office)

Solar Electric Applications: An overview of Today's Applications. NREL Publications, DOE/GO #10097-357, Revised February, 1997 (Call Tel.1-800-DOE-EREC or visit local office)

Green Lights: An Enlightened Approach to Energy Efficiency and Pollution Prevention. U.S. Environmental Protection Agency, Pacific Island Contact Office (Call Tel. 541-2710 for publication.)

Healthy Lawn, Healthy Environment. U.S. Environmental Protection Agency, Pacific Island Contact Office. (Call Tel. 541-2710 for this and related publications)

How to Plant a Native Hawaiian Garden. Office of Environmental Quality Control (OEQC), Department of Health, State of Hawai'i (Call Tel. 586-4185 for publication)

Buy Recycled in Hawai'i. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, November 1997. (Call Tel. 587-3802 for publication)

Hawai'i Recycling Industry Guide and other recycling and reuse related fact sheets. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, July 1999. (Call Tel. 587-3802 for publication)

Minimizing Construction and Demolition Waste. Office of Solid Waste Management, Department of Health and Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, February 1998. (Call Tel. 586-4240 for publication)

Contractor's Waste Management Guide and Construction and demolition Waste Management Facilities Directory. Clean Hawai'i Center, Energy, Resources and Technology Division, Department of Business, Economic Development and Tourism, 1999. (Call Tel. 587-3802 for publication)

Waste Management and Action: Construction Industry. Department of Health, Solid and Hazardous Waste Branch (Call Tel. 586-7496 for publication)

Business Guide For reducing Solid Waste. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

The Inside Story: A Guide to Indoor Air Quality. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for this and related publications.) Additional information is available from the American Lung Association, Hawai`i, Tel. 537-5966

Selecting Healthier Flooring Materials. American Lung Association and Clean Hawai`i Center, February 1999. (Call Tel. 537-5966 x307)

Office Paper Recycling: An Implementation Manual. U.S. Environmental Protection Agency, Pacific Island Contact Office, Tel. 541-2710 (Call for publication.)

Acknowledgments

OEQC and the Environmental Council would like to thank Allison Beale, Gary Gill, Nick H. Huddleston, Gail Suzuki-Jones, Purnima McCutcheon, Virginia B. MacDonald, Steve Meder, Ramona Mullahey, Thomas P. Papandrew, Victor Olgay, Howard Tanaka, and Howard Wiig for their assistance with this project.

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

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

Dear Ms. Salmonson:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 15, 2001, commenting on the EISPN. Our responses to your individual comments are as follows:

1. *Interaction with Other Planned Projects.* We have been working with the Planning Department and other agencies to characterize future developments in the area and help assess the cumulative impacts. This information will be presented in the Draft EIS.
2. *Secondary Impacts.* The secondary impacts of the project will be examined in the Draft EIS.
3. *Cultural Impact Assessment.* Thank you for the enclosure. The Draft EIS will address cultural impacts.
4. *Sustainable Building Design.* Thank you for the enclosure. The China-U.S. Center is expected to adopt a number of these principles, as has the main campus of the University of Hawai'i at Hilo. The Draft EIS will address this.

Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

PHONE (808) 594-1888

FAX (808) 594-1865

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

May 15, 2001

Ron Terry
GeoMetrician Associates
HC 2 Box 9575
Keeau HI 96749

Subject: Environmental Impact Statement Preparation Notice--China-US Center
Waiakea, South Hilo District, Hawai'i Island

Dear Mr. Terry,

Thank you for the opportunity to comment on the environmental impact statement preparation notice for the above referenced project.

The Office of Hawaiian Affairs is concerned that the subject property is ceded land. Pursuant to HRS Chapter 10, OHA is entitled to 20% of the proprietary revenue that is derived from these lands. Although moneys received by the University of Hawai'i from its educational programs and ancillary services are exempt, this project also involves purely commercial ventures through a partnership with Geo International Explorer Inc.

The EIS should address the issue of whether phases I and III are revenue generating operations that may be subject to the OHA trust provision. A commercial plaza with retail shops, entertainment services, and cineplex is the first phase planned for the property. Phase III is the Harmony Tower, described as "a fully commercial venture" to be marketed in Taiwan as a visitor destination.

If you have any questions, please contact Sharla Manley, Assistant Policy Analyst at 594-1944 or email her at sharlam@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

CK: sam
cc: OHA Board of Trustees
Randall K. Ogata, Administrator
Hilo CAC

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Colin C. Kippen, Jr., Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Blvd., Suite 1250
Honolulu HI 96813

Dear Mr. Kippen:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 15, 2001, commenting on the EISPN, in which you expressed your concern that the property is ceded land, and therefore that OHA is entitled to 20 percent of the revenue derived from these lands. The Draft EIS will address this issue. Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

NJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO (P)1273.1

APR 26 2001

Mr. Ron Terry, Ph.D.
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: University of Hawaii at Hilo
China - U.S. Center
Environmental Impact Statement Preparation Notice
(EISPN)

Thank you for the opportunity to review and comment on the subject project's EISPN. The proposed construction and operation of the China - U.S. Center does not directly impact any of our facilities. Therefore, we have no comments.

If there are any questions regarding the above, please have your staff call Mr. Tyler Fujiyama of the Planning Branch at 586-0492.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

TBF:mo

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Gordon Matsuoka, Public Works Administrator.
Hawaii Dept. of Accounting and General Services
P.O. Box 119
Honolulu HI 96810

Dear Mr. Matsuoka:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of April 26, 2001, commenting on the EISPN, in which you state that the proposed construction and operation of the China-U.S. Center do not directly impact any DAGS facilities, and that therefore, your agency does not have any comments.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

NJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

IN REPLY REFER TO:

HWY-PS
2.2916

MAY 2 1 2001

GEO International Explorer, Inc.
Attn: Ron Terry
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Subject: Environmental Impact Statement (EIS) Preparation Notice for China-U.S. Center, Waiakea, South Hilo District, TMK: 2-4-01: por. 5

Thank you for consulting us. We have the following comments:

1. To expedite our review, please provide us with two copies of the entire Draft EIS and transmit one copy of the draft Traffic Impact Analysis Report (TIAR) to our Highways Division Hawaii District Office.

2. The Draft TIAR should recommend necessary measures to mitigate project traffic impacts to Puainako Street's intersection with Kawili Street.

3. The portion of Puainako Street under State jurisdiction is State Route 2000 rather than State Highway 200 as stated in the EIS Preparation Notice.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

c: Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawaii 96813

University of Hawaii at Hilo
Attn: Gerald DeMello
200 West Kawili Street
Hilo, Hawaii 96720

GEO METRICIAN
Ron Terry, Ph.D.

HC 2 Box 9575
Keaau, Hawaii 96749
(808) 982-5831

October 4, 2001

Brian Minaai, Director
Hawaii State Department of Transportation
869 Punchbowl Street,
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Comment Letter in Response to Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center

Thank you for your letter of May 21, 2001, commenting on the EISPN. Our responses to your individual comments are as follows:

1. *DEIS review instructions.* We will comply with your distribution requests when the Draft EIS is published.
2. *Mitigation Measures at Puainako and Kawili Intersection.* The TIAR and Draft EIS will address this issue.
3. *State Route 2000.* This will be corrected in the Draft EIS.

Thank you for your review of the document.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

Final Environmental Impact Statement

China-U.S. Center

APPENDIX 2

Archaeological Report

RECEIVED AS FOLLOWS

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

FILE
1877

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
DEPUTY
JANET E. KAWELO
LINNEL NISHIOKA

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

October 4, 2000

LOG NO: 26281
DOC NO: 0010RC01

Dr. Paul Rosendahl
PHRI
204 Waianuenue Ave.
Hilo, Hawaii 96720

Dear Dr. Rosendahl:

SUBJECT: Review of Archaeological Inventory Survey – UH Hilo Kawili St.
Hilo, South Hilo, Hawaii
TMK: 2-4-01: 5

This letter reviews this report which your firm submitted July 7, 2000 (Rechtman & Henry 1998).

We believe that the survey adequately covered the project area, finding 1 historic site. The background context is acceptable, clearly showing that this area's land surface was heavily altered by sugarcane cultivation and documenting the types of sugarcane sites that had been found. The site description and interpretation is acceptable. Site 21,461 is clearly a sugarcane era site with numerous clearing features.

We agree with your significance evaluation, that the site is significant for its information content.

We also agree with your mitigation proposal, that no mitigation is needed because adequate and reasonable amounts of the significant information in the site was recovered/recorded during the survey. Thus, the site no longer needs to be protected, and any proposed development in this project area will have "no adverse effect" on this site.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

RC:an

RECEIVED OCT 11 2000

Report 1877-100998

University of Hawai'i-Hilo Kāwili Street Development Archaeological Inventory Survey (TMK: 3-2-4-01:5)

Waiākea Ahupua'a, South Hilo District
Island of Hawai'i

BY

Robert B. Rechtman, Ph.D. • Senior Archaeologist
and
Jack D. Henry, B.S. • Project Supervisor

PREPARED FOR

Inaba Engineering, Inc.
c/o Mr. Alan Z. Inaba, LPLS
273 Waianuenue Avenue
Hilo, Hawaii 96720

OCTOBER 1998

PHRI Paul H. Rosendahl, Ph.D., Inc.
Archaeological • Historical • Cultural Resource Management Studies & Services
HAWAII: 204 Wainuenue Avenue • Hilo, Hawaii 96720 • (808) 969-1763 • GUAM: P.O. Box 23305 • G.M.F., Guam 96921 • (671) 472-3117

EXECUTIVE SUMMARY

Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological inventory survey of the approximately 40-acre Kāwili Street Project site, adjacent to the University of Hawai'i-Hilo Campus in the Waiākea Ahupua'a, South Hilo District, Island of Hawai'i (TMK: 3-2-4-01:5). The survey was conducted to satisfy the requirements of (a) major permit processing and entitlement, and (b) compliance with the historic preservation review processes of the Hawai'i State Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) and the Hawai'i County Planning Department (HCPD).

This report details the findings of the fieldwork, which was conducted August 24–28, 1998. A total of 117 features were identified within the project area—seven individual walls, five sets of parallel walls, three enclosures, and 102 mounds. These features are interpreted as being associated with Historic Period sugarcane cultivation and are assessed within that context as significant for information content under State Criterion "d" as a related suite of features. Recordation and documentation of these features has been completed and no further historic preservation work is recommended.

Contents

Illustrations

Table

INTRODUCTION

Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological inventory survey of the approximately 40-acre Kāwili Street Project site, adjacent to the University of Hawai'i-Hilo (UHH) Campus in the Waiākea Ahupua'a, South Hilo District, Island of Hawai'i (TMK: 3-2-4-01:5). The inventory survey was conducted to satisfy the requirements of (a) major permit processing and entitlement, and (b) compliance with the historic preservation review processes of the Hawai'i State Department of Land and Natural Resources-State Historic Preservation Division (DLNR-SHPD) and the Hawai'i County Planning Department (HCPD).

The project area is the location of a proposed student dormitory and commercial center, which is intended to improve UHH campus life. The possibility exists that a conference center, including housing for visiting scholars, will also be constructed.

This report details the current project objectives and scope of work, field methods and procedures, and survey findings. A historical context is provided within which a significance assessment is made of the identified site and its association of features. Recommendations that address future historic preservation concerns are offered.

SCOPE OF WORK

Based on a review of the readily available background literature, familiarity with the general project area and the current State and County regulatory requirements, review of past archaeological and historical documentary research done within the general project area, limited recent field inspection of project area terrain and vegetation cover, and discussions with Dr. Ross Cordy, chief archaeologist at DLNR-SHPD, the following specific tasks were determined to constitute an adequate scope of work for the inventory survey:

1. Conduct limited archaeological and historical documentary background research involving review and evaluation of readily available archaeological and historical literature, historic documents and records, and cartographic sources relevant to the immediate project area;

2. Conduct a 100%-coverage surface survey of the project area to locate and record all observed archaeological resources;

3. Conduct limited subsurface testing at selected sites and features identified within the project area in order to (a) determine the presence or absence of potentially significant buried cultural features or deposits, and possibly (b) to obtain suitable samples for age determination analysis; and

4. Analyze the researched and recovered information and prepare a report of the findings that includes significance determinations and recommendation for subsequent historic preservation work that may be required.

The current project was carried out in accordance with the Rules Governing Minimal Standards for Archaeological Inventory Surveys and Reports as promoted by DLNR-SHPD and contained in the Draft Hawai'i Administrative Rules 13§13-276, dated 1996.

PROJECT AREA DESCRIPTION

The UHH Kāwili Street Project area (*Figure 1)* consists of approximately 40 acres in the Waiākea Ahupua'a, South Hilo District, Island of Hawai'i (TMK:3-2-4-01:5). It is bounded by Kāwili Street to the north and west, by Pū'āinakō Street to the south and by Waiākea Middle and High Schools to the east. The area is characterized by undulating to rolling terrain that follows the topography of the underlying pahoehoe lava (Sato et al. 1973). The soil in this area is predominately of the Keaukaha extremely rocky muck series, on 6–20% slopes. This soil is rapidly permeable, with pahoehoe outcrops present in approximately 25% of the area. The project area is between 120 and 205 feet above mean sea level. Rainfall in the general project area ranges from 6.8 to 15.2 inches per month, with the heaviest rains occurring between December and April (Sato et al. 1973).

The vegetation within the project area is a diverse complex of primarily historically introduced species that colonized the area following the abandonment of sugarcane cultivation. Patches of "wild" sugarcane are still present along the southern end of the project area. Additional floral species observed include coconut (*Cocos nucifera)*, *'akala* berry (*Rubus hawaiiensis)*, guava (*Psidium guajava*), passionfruit (*Passiflora spp.*), banyan (*Ficus benghalensis.*), Hawaiian tree ferns (*Citotium spp.*), and ti plants (*Cordyline terminalis*).

BACKGROUND

Previous investigations in the region provide the cultural and historical contexts for identifying, interpreting, and assessing the significance of cultural resources that might be present in the project area. These previous investigations are discussed below, and a historical context to facilitate the evaluation of the identified resources is presented. As only Historic Period sugar industry related resources were encountered, the historical context is limited to that topic.

PREVIOUS ARCHAEOLOGICAL RESEARCH

Very few archaeological investigations have been conducted in the Hilo area, and since western contact, Hilo's prominence as a port-of-call, has led to nearly continuous modification of the cultural landscape. No archaeological work is recorded as having been conducted within the project area, and no sites have been recorded in the project area. Previous archaeological studies in the general vicinity of Hilo are, chronologically, Thrum (1907), Stokes and Dye (1991), Hudson (1932), McEldowney (1979), Kelly, Nakamura, and Barrère (1981), Kelly and Athens (1982), Jensen (1991), Goodfellow and Fager (1992), Borthwick et al. (1993), Hunt and McDermott (1993), Maly et al. (1994), and Spear 1995. The latter four studies, Hunt and McDermott (1993), Borthwick et al. (1993), Maly et al. (1994), and Spear (1995) are the most relevant for the current project.

The Hunt and McDermott (1993) study was conducted *mauka* and west of the UHH Campus, within the proposed Pū'āinakō Street Extension alignments. During that survey project, 11 sites with 97 features were recorded; these were classified as historic in origin and associated with the Waiākea Sugar Plantation. The investigators did report that a possible prehistoric Hawaiian component, in the form of three volcanic glass flakes, was recovered below the surface of Site 50-10-35-18915 (Hunt and McDermott 1993); however, no other prehistoric remains were identified in the course of the project.

The study completed by Borthwick et al. (1993) was conducted on a UHH parcel north of and adjacent to the Hunt and McDermott study area. Four sites with associated features were identified, and

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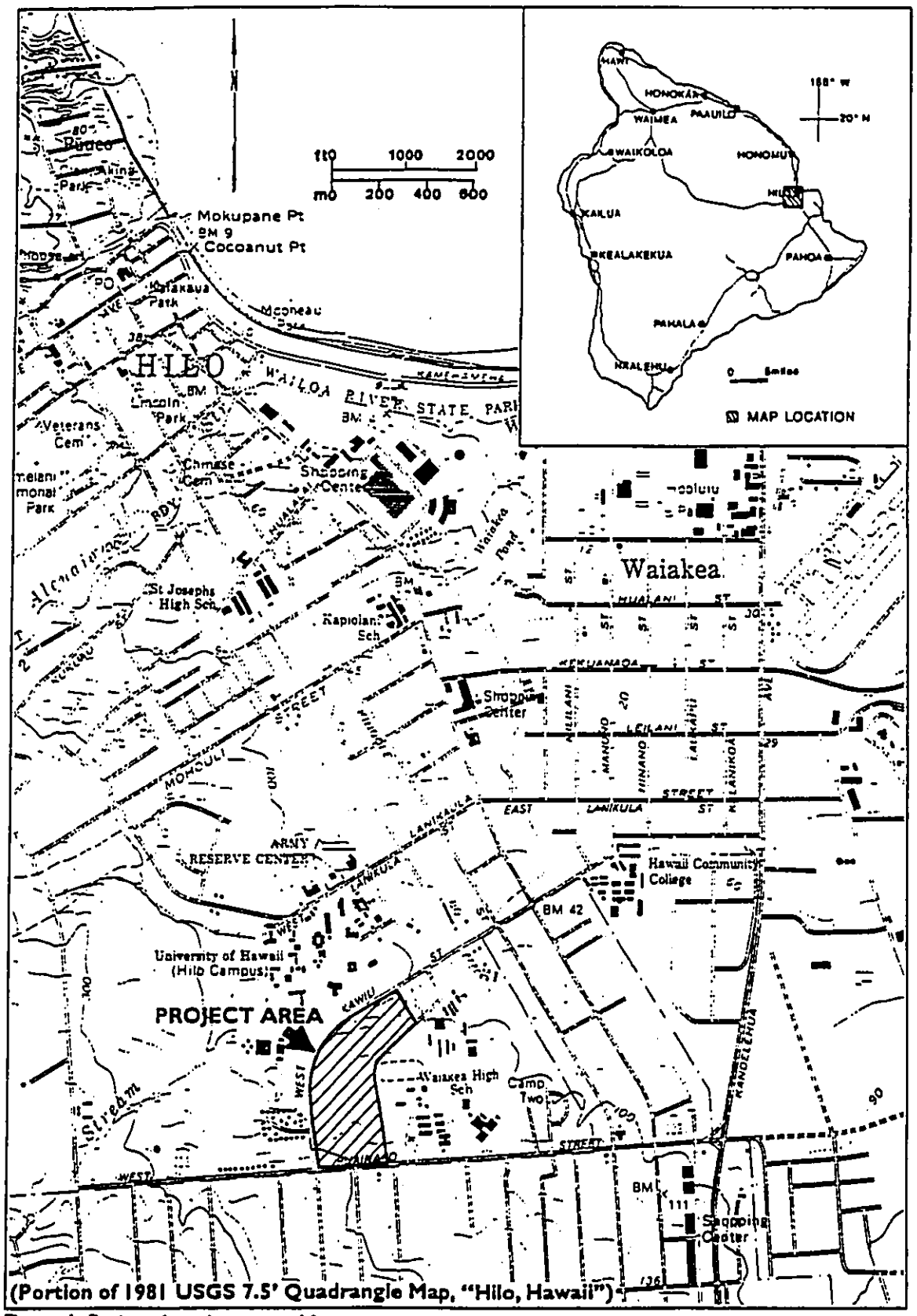

Figure 1. Project Area Location Map

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the recovered cultural material was of recent origin. Like the previous study, all the sites in their study area were reported as being historic in origin and associated with sugar plantation activities (Borthwick et al. 1993).

Maly et al. (1994) conducted an inventory survey of a 4.5-acre parcel located near the current study area. Four sites, SIHP Site 19431–19434, with 51 features were identified in that project area. All of the features were constructed of basalt cobbles, and included mounds, walls, and an enclosure. These investigators concluded, as a result of subsurface testing, that the features were associated with Historic Period cultivation; however, further work was recommended because a possible prehistoric layer was encountered below one of the features. The subsequent data recovery fieldwork was performed by Spear (1995). Excavation was conducted at the four sites with the conclusion that all were associated with sugarcane cultivation and more recent activities. No prehistoric deposits were identified.

All four of these recent studies (Borthwick et al. 1993, Hunt and McDermott 1993, Maly et al. 1994, and Spear 1995) documented similar archaeological features associated with late nineteenth and early twentieth century agriculture in the immediate vicinity of the current project area. In none of these studies was prehistoric material encountered save for a few isolated volcanic glass flakes, which have been interpreted by Hunt and McDermott (1993) as subtle evidence for the general use of the area during prehistoric times.

The earlier studies were of a general nature, related to either the city or district of Hilo as a whole. In 1907, T.G. Thrum reported on *heiau* (ceremonial sites) of the Hilo region, as he had researched them in the late 1800s. In 1906–1907, J.F.G. Stokes conducted a survey of *heiau* on the island of Hawai'i, and reported on sites within the Hilo region (Stokes and Dye 1991). Between 1930–1932, A.E. Hudson conducted archaeological and historical literature research for the eastern portion of Hawai'i Island (Hudson 1932). Hudson's work included the most detailed descriptions of various sites within the Hilo area, until a subsequent archaeological and historical literature study was conducted by McEldowney (1979).

Hudson's 1932 manuscript notes that, "There was an important village and trading center around Hilo bay" (Hudson 1932:20). The following excerpts from Hudson's manuscript present background of the general Waiākea setting earlier this century:

> There are known to have been rather dense populations in Waipio, Laupahoehoe, Hilo and Kalapana where the chief cluster of heiaus were located. House sites are usually found in close proximity to those temples located elsewhere away from the chief centers of habitation . . . Most of the heiaus were built close to the sea. The majority are within a hundred yards of the beach. Very few are more than 2 miles inland and these were probably of a specialized class, such as the bird catchers' heiau traditionally located in Piihonua above Hilo . . . (ibid.:38)

> No archaeological remains are to be found in the city of Hilo itself except a few stones which are said to have been taken from heiaus [Hudson's Site 37, the heiau of Maka-o-kū and pu'uhonua (refuge) of Moku-ola] . . . Lyman estimates that in 1846 there were three or four thousand inhabitants in this region between Hilo and Keaau . . . (ibid.:226–227).

Hudson identifies one of the inland *heiau* as being in Waiākea, along the old Hilo–'Ōla'a trail (not far from the route of modern-day Kilauea Avenue), he comments:

> There was a heiau named Kapaieie near Honokawailani in Waiakea. Bloxam who passed the site on his way from Hilo to the volcano say that its center was marked by a single coconut tree. At the time of his visit nothing remained but ruined walls choked with weeds. He was told that the priests would lie in wait for passersby and dispatch them with clubs. Thrum [1907:40] states that the site was famed in the Hilo-Puna wars but its size and class are unknown. No remains of any kind could be found and no Hawaiians with whom I talked had ever heard of it (ibid.:240).

Kelly et al. (1981) prepared a chronological history of Hilo Bay and vicinity, and though not specifically an archaeological study, the documentation provides valuable information for understanding land use practices of the general area. Subsequent studies, though not conducted in the immediate project area, have pointed out the extensive impact of historic period development on Hawaiian sites around the general area of Hilo town and vicinity. Most of these studies (e.g., Borthwick et al. 1993; Goodfellow and Fager 1992; Hunt and McDermott 1993; Jensen 1991; and Kelly and Athens 1982) note that there is little, if any remnant of Hawaiian archaeological sites in and around Hilo Bay. They also point out that the landscape in outlying areas has been substantially modified by sugar cultivation and pasturing animals (during the 1860s–1940s), and increasing housing development associated with a growing population (from the 1950s through the present).

HISTORICAL CONTEXT

The two main references consulted concerning the history of the sugar industry on Hawai'i Island are Kelly et al. (1981) and Wilcox (1996). A third reference, Maly (1996), is useful in that it provides a history specific to the Waiākea Mill Company lands. These studies contain references to many primary sources detailing industry and governmental statistics related to sugar production and export, as well as land tenure and cultivation techniques and strategies. The Maly (1996) report also contains oral interviews with individuals familiar with the current project area as it existed during the early part of this century.

The first commercial sugar ventures on Hawai'i Island were established in the early 1800s; however, large-scale sugarcane cultivation was not begun until the 1860s. And it was not until 1879 that cultivation and production was started in the vicinity of Hilo. Between 1898–1979 most of the Big Island-produced sugar was shipped to the U.S. mainland from Hilo Harbor. One of the first and more prominent Hilo-based companies was the Waiākea Mill Company. Established in 1879 the company started with about 350 acres of cultivated lands. In 1888 the company acquired a 30-year lease to operate a plantation and mill in Waiākea Ahupua'a. When the lease ran out in 1918 the acreage under cultivation had increased to nearly 7,000; but without a lease the *ahupua'a* fell under the homesteading laws, which required the government to lease the land to individual growers. Waiākea Mill Company was expected to grind the crop for the independent growers under a contract that gave the company 40% of the proceeds from the sale of the refined sugar. Contractual and legal problems combined with a declining sugar market and the devastating *tsunami* of 1946 led the Waiākea Mill Company to cease operation in 1947. During the 68 years of its operation, the Waiākea Mill Company was a major force in shaping the economic and social growth of Hilo, and certainly left its mark on both the cultural and physical landscapes of the area.

As depicted on a 1922 map (*Figure 2*), the company lands were divided into house lots, cane lots, and fields. The productive areas were interconnected with a plantation railroad system. The narrow gauge railway was laid out in a dendritic pattern with all lines ultimately feeding into a main line that terminated at the mill site and barge berth at the inland end of the Waiākea Fishpond. Refined sugar was placed on barges that carried the product via the Wailoa Stream to Hilo Bay, where it was loaded onto cargo vessels bound for the U.S. mainland. The current project location appears to have been an area under cultivation by the Waiākea Mill Company, comprising portions of Lots 7 and 14 and Fields F.12.1 and F.12.B (*Figure 2*). This map also indicates that a branch line and a spur line of the plantation railway system bisected the current project area.

A map dated 1930 (*Figure 3*) shows some change from the earlier map and provides a bit more detail. Fields F.12.1 and F.12.B were converted to Lots 11, 12, 13, and 17 within the current project area. Historical records indicate that the Waiākea Mill Company retained these lots for cultivation. Records also indicate that Fairview Dairy acquired a lease to Lot 11 after Waiākea Mill Company closed its operation. The dairy used the land for cattle grazing until 1959, when the lease was transferred to William Kama'u who also grazed cattle and pastured horses on the parcel (Maly 1996).

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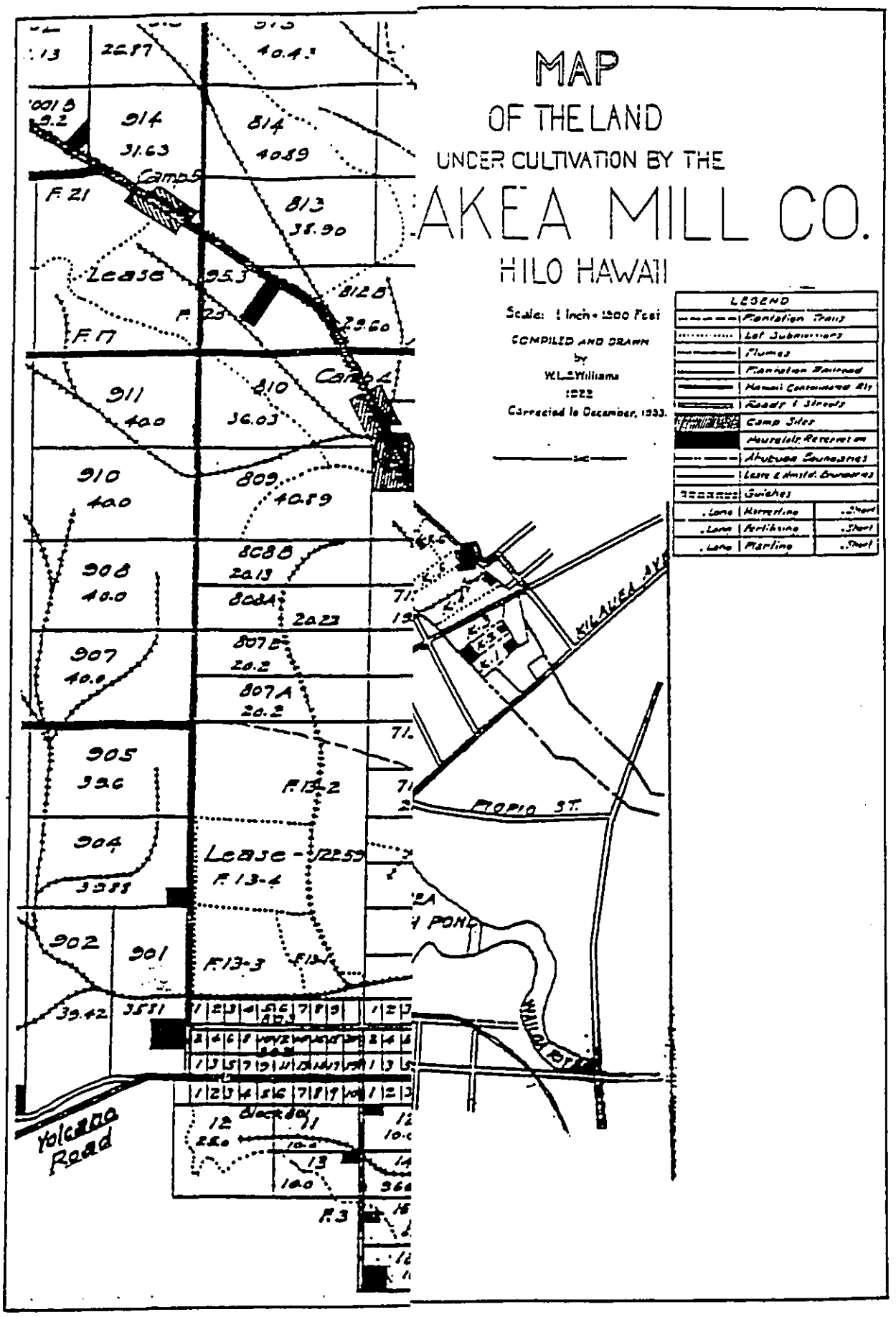

Figure 2. 1922 Waiākea Mill Company Map

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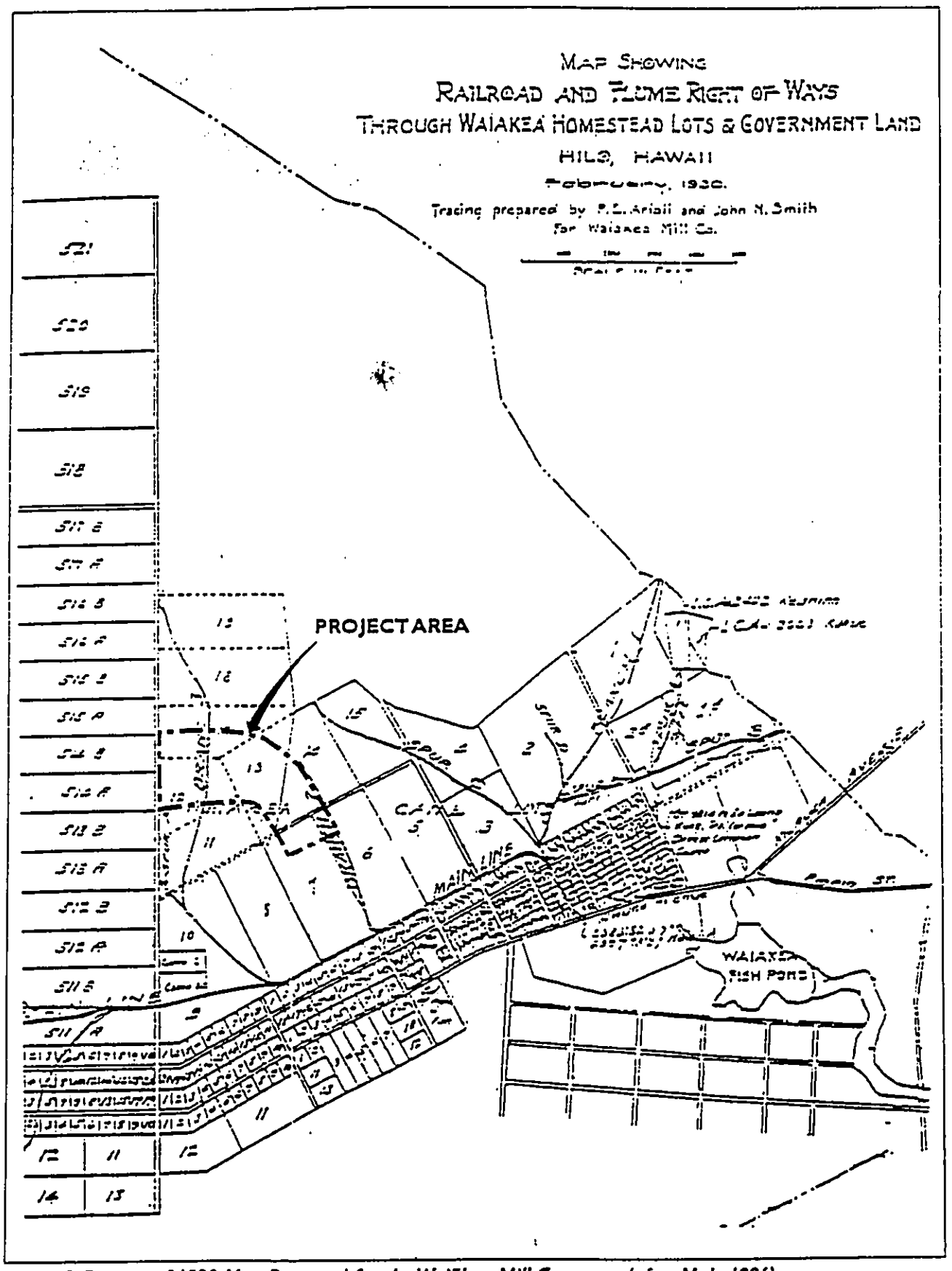

Figure 3. Portion of 1930 Map Prepared for the Waiākea Mill Company (after Maly 1996)

FIELDWORK

The fieldwork for the current project was conducted August 24–28, 1998 under the direct supervision of Robert B. Rechtman, Ph.D. Project Supervisor Jack D. Henry, B.S., Project Manager Thomas R. Wolforth, M.S., and Field Archaeologist Bert Meigs assisted Dr. Rechtman.

SURFACE

A 100%-coverage pedestrian survey of the project area was conducted utilizing transects that were previously cut by surveyors from Inaba Engineering, Inc., during their accumulation of field data for the preparation of a topographic map of the project area. These transects were spaced at 50-foot intervals (15.2 m). All features identified during the pedestrian survey were flagged and assigned feature designations. Their locations were then plotted on a 100-scale map obtained from Inaba Engineering, Inc.

After completion of the pedestrian survey, the recording of all features was undertaken. Length, width, and height were recorded for the numerous clearing mounds and walls identified during the survey, as were orientation and method of construction. Three enclosures were identified, and these features were cleared of vegetation to determine their extent, then scaled plan maps and feature record forms were completed. Photographs were taken of each of the enclosures, as well as of representative feature types. All of the features are subsumed under one State Inventory of Historic Places (SIHP) site number, SIHP Site 21461.

SUBSURFACE TESTING

Subsurface testing was undertaken at the three enclosures, using the following methods. Shovel probes were placed within the interior of each enclosure to determine where the deepest soil deposits were located. Once this was established a 0.5 x 0.5 meter test unit was excavated, with soil sifted through 1/4" mesh screening. The units were either terminated on bedrock, or below water-infiltrated deposits determined to be culturally sterile.

Record forms were completed for each identified stratum. Upon completion of the excavations, photographs were taken, profile drawings prepared, and a stratigraphic record form was completed. This form utilized standard USDA/Soil Conservation Service categories and Munsell color designations. Following documentation the excavation units were backfilled.

FINDINGS

The field survey resulted in the identification of 117 features (see *Figure 4*) assigned to one site, SIHP Site 21461. The features include seven individual walls, five sets of parallel walls, three enclosures, and 102 mounds. *Table 1* summarizes the characteristics of these features. All of the features are constructed of basalt cobbles and boulders. Historic and/or modern debris was noted throughout the project area, and included sheets of corrugated iron, metal fuel drums, glass bottles, and tin cans. No prehistoric remains were observed.

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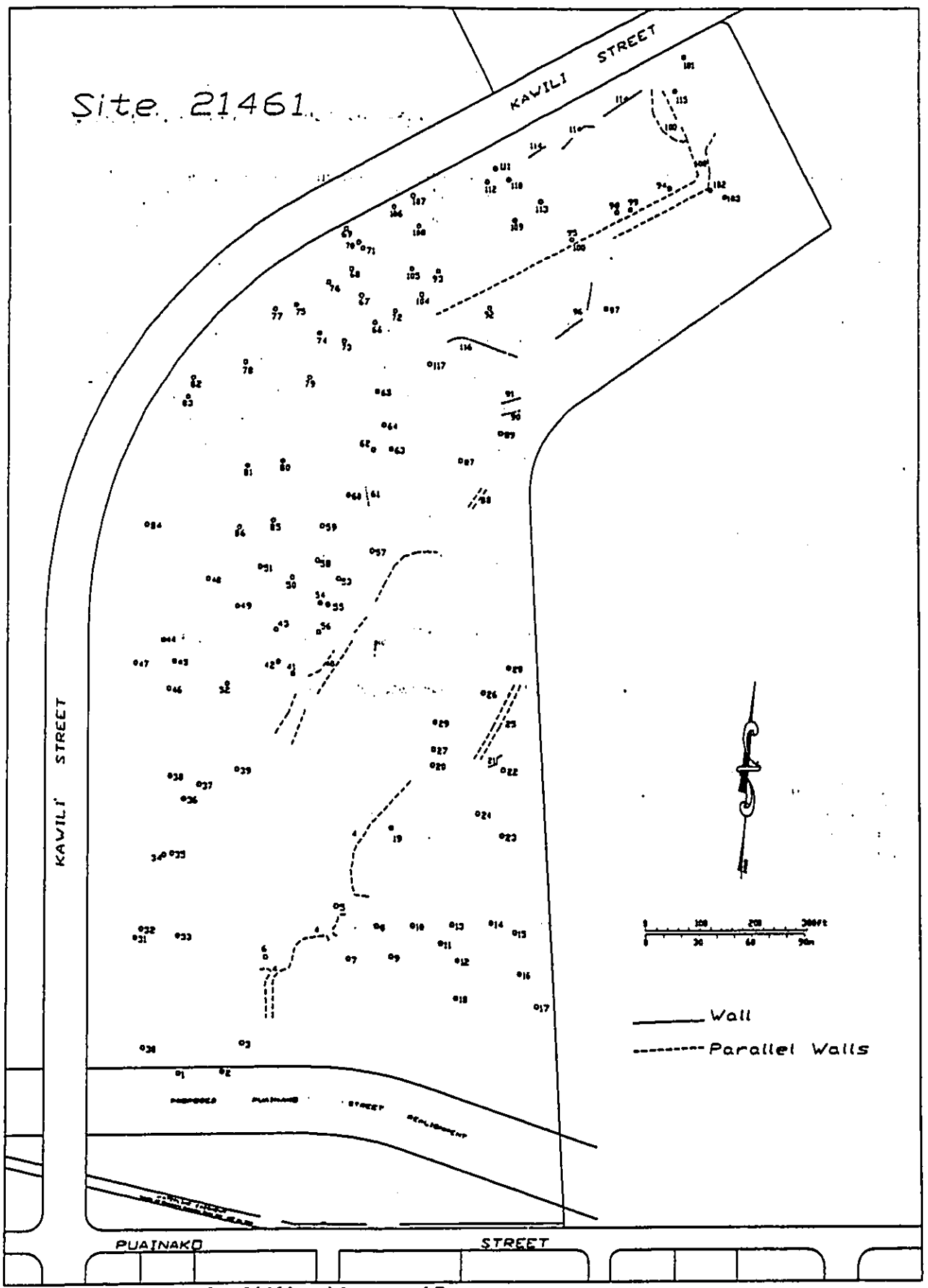

Figure 4. Map Showing Site 21461 and Associated Features

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As discussed in the preceding Background Section, the project area was utilized historically for sugarcane cultivation as part of the Waiākea Mill Company's landholdings. As most of the identified mounds and walls are situated on bedrock outcrops or on the top or bottom edges of slopes, it is likely that they functioned as clearing piles to allow for cultivation in adjacent areas. The parallel walls appear to represent either irrigation channels or mark a right-of-way associated with small gauge railroad lines. The enclosures are clearly of historic origin yet indeterminate function. The identified features are summarized below.

Table 1. Summary of Features

Feature	*Type*	*Shape*	*Length*	*Width*	*Height*	*Orientation*	*Construction*
1	Mound	Amorphous	18.50	11.00	2.1	ENE/WSW	Piled
2	Mound	Linear	16.50	1.00	1.5	N/S	Piled
3	Mound	Amorphous	25.00	15.00	1.7	N/S	Piled
4	Parallel Walls	Linear	75.00	15.00	2.0	NNE/SSW	Piled
5	Mound	Linear	9.50	4.00	0.7	E/W	Stacked
6	Mound	Amorphous	6.00	2.00	1.4	NE/SW	Piled
7	Mound	Oval	20.00	12.00	1.0	NW/SE	Piled
8	Mound	Oval	3.20	1.50	0.6	NE/SW	Piled
9	Mound	Oval	8.50	5.00	1.6	N/S	Piled
10	Mound	Linear	6.20	2.50	1.2	N/S	Piled
11	Mound	Oval	7.20	2.70	1.4	NNE/SSW	Stacked and piled
12	Mound	Linear	11.50	3.00	1.7	E/W	Piled
13	Mound	L-shape	7.50	2.70	1.0	N/S	Piled
14	Mound	Oval	6.20	3.50	1.6	NW/SE	Stacked and piled
15	Mound	Oval	8.20	3.90	1.7	NW/SE	Piled
16	Mound	Amorphous	13.00	10.00	2.5	N/S	Piled
17	Mound	Amorphous	12.00	10.00	1.4	E/W	Piled
18	Mound	Amorphous	12.00	11.00	1.4	N/S	Piled
19	Mound	Oval	6.00	4.00	1.2	NE/SW	Piled
20	Mound	Oval	5.00	4.00	2.0	NE/SW	Piled
21	Wall	S-shaped	17.00	4.00	1.75	NE/SW	Stacked
22	Mound	Rectangular	4.00	3.70	1.7	N/S	Stacked
23	Mound	Oval	11.80	9.00	1.5	NNW/SSE	Piled
24	Mound	Oval	4.20	2.00	1.5	NNE/SSW	Piled
25	Parallel Walls	Linear	65.00	8.00	3.5	NNE/SSW	Stacked
26	Mound	Rectangular	6.00	4.00	1.2	NE/SW	Stacked and piled
27	Mound	Oval	4.20	3.50	1.6	NE/SW	Stacked
28	Mound	Oval	6.50	3.40	1.6	WNW/ESE	Piled
29	Mound	Linear	8.90	3.00	1.6	NNE/SSW	Stacked and piled
30	Mound	Amorphous	8.50	4.50	1.7	NE/SW	Piled
31	Mound	Oval	2.50	1.75	0.6	E/W	Piled
32	Mound	Linear	8.50	2.80	1.4	ENE/WSW	Piled
33	Enclosure	Oval	12.00	7.00	1.7	N/S	Stacked and piled
34	Mound	Linear	12.00	4.00	1.8	N/S	Stacked and piled
35	Mound	Circular	2.50	2.50	1.2	-	Piled
36	Mound	Oval	3.20	2.70	1.75	E/W	Stacked and piled
37	Mound	Linear	7.50	3.50	1.5	WNW/ESE	Stacked and piled
38	Mound	Amorphous	3.00	1.50	0.4	N/S	Piled
39	Mound	Amorphous	8.50	4.50	1.7	N/S	Stacked and piled
40	Parallel Walls with Spring	Linear	132.0	8.0	1.5	NNE/SSW	Stacked and piled
41	Mound	Oval	3.50	2.50	1.5	N/S	Piled
42	Mound	Oval	3.00	1.50	0.9	E/W	Piled
43	Mound	Oval	6.20	5.00	1.8	NNW/SSE	Piled
44	Mound	Oval	7.20	6.10	1.7	N/S	Stacked
45	Mound	Oval	3.50	2.00	1.1	NW/SE	Stacked
46	Mound	Circular	6.50	6.50	1.2	-	Stacked and piled
47	Mound	Oval	12.50	4.50	2.1	N/S	Piled
48	Mound	Oval	7.50	6.50	1.2	E/W	Piled
49	Mound	Linear	5.50	2.60	1.2	NE/SW	Piled
50	Mound	Circular	3.50	3.50	0.6	-	Piled
51	Mound	Rectangular	9.00	6.20	1.45	N/S	Stacked and piled
52	Mound	Oval	6.25	3.50	1.3	N/S	Piled
53	Mound	Oval	7.40	6.20	1.5	E/W	Stacked
54	Mound	Oval	2.50	1.70	0.9	NNW/SSE	Piled
55	Mound	Oval	2.60	1.60	0.9	NNW/SSE	Piled

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Table 1. (cont.)

Feature	*Type*	*Shape*	*Length*	*Width*	*Height*	*Orientation*	*Construction*
56	Mound	Oval	3.10	1.50	1.0	N/S	Piled
57	Mound	Amorphous	13.00	10.00	1.3	N/S	Stacked and piled
58	Mound	Amorphous	4.20	3.10	1.3	E/W	Stacked and piled
59	Mound	Oval	7.50	5.40	1.6	NW/SE	Stacked and piled
60	Mound	Linear	4.70	1.90	1.3	N/S	Piled
61	Wall	Linear	10.00	1.40	0.95	NNW/SSE	Stacked
62	Mound	Oval	7.20	5.20	1.9	N/S	Stacked and piled
63	Mound	Amorphous	8.50	5.50	1.65	ENE/WSW	Piled
64	Mound	Oval	9.70	7.00	1.9	NE/SW	Piled
65	Mound	Oval	8.30	5.90	1.9	E/W	Stacked and piled
66	Mound	Amorphous	9.20	2.50	0.8	E/W	Piled
67	Mound	Amorphous	11.00	4.50	0.7	NW/SE	Piled
68	Mound	Oval	10.50	7.20	2.3	NW/SE	Piled
69	Mound	Oval	6.80	3.10	1.9	NNW/SSE	Stacked and piled
70	Mound	Oval	8.90	5.90	1.8	NNE/SSW	Stacked and piled
71	Mound	Linear	12.20	5.50	2.1	NE/SW	Stacked and piled
72	Mound	Oval	3.70	2.50	0.65	NE/SW	Piled
73	Mound	Linear	4.50	1.90	0.75	E/W	Stacked and piled
74	Mound	Linear	9.20	2.10	0.8	E/W	Piled
75	Mound	Amorphous	3.50	3.00	1.2	NW/SE	Piled
76	Mound	Oval	8.70	4.30	1.7	NW/SE	Piled
77	Mound	Linear	6.30	1.80	0.8	ENE/WSW	Piled
78	Mound	Oval	3.60	1.80	1.3	NE/SW	Stacked
79	Mound	Circular	6.50	6.50	1.85	-	Stacked
80	Enclosure	Oval	12.50	6.70	1.05	E/W	Stacked and piled
81	Mound	Oval	3.50	2.60	1.5	NE/SW	Piled
82	Mound	Oval	7.20	5.50	1.6	E/W	Stacked and piled
83	Mound	Linear	10.50	1.90	1.2	E/W	Piled
84	Mound	Oval	4.10	2.20	1.2	N/S	Piled
85	Enclosure	Oval	18.00	10.00	1.5	E/W	Stacked/Faced and piled
86	Mound	Linear	6.50	2.30	1.4	E/W	Piled
87	Mound	Rectangular	12.50	11.90	2.5	N/S	Stacked and piled
88	Parallel Walls	Linear	19.00	2.30	1.1	NE/SW	Stacked and faced
89	Mound	Amorphous	3.50	2.10	1.35	NW/SE	Piled
90	Wall	Linear	9.00	1.10	1.0	NNE/SSW	Piled
91	Wall	Linear	11.50	1.50	1.2	NNE/SSW	Piled
92	Mound	Circular	3.50	3.50	1.5	-	Stacked and piled
93	Mound	Amorphous	7.20	5.00	1.45	NE/SW	Piled
94	Mound	Circular	5.50	5.50	1.5	-	Piled
95	Mound	Oval	9.50	6.30	2.1	NE/SW	Piled
96	Wall	Linear	40.00	2.70	1.8	NE/SW	Piled
97	Mound	Oval	7.20	4.50	1.1	N/S	Piled
98	Mound	Linear	2.40	1.50	1.9	NE/SW	Stacked and piled
99	Mound	Amorphous	2.40	2.00	0.8	NW/SE	Stacked
100	Parallel Walls	Linear	207.5	9.5	1.8	NE/SW	Stacked/Faced and piled
101	Mound	Oval	5.50	2.10	0.7	NNW/SSE	Stacked
102	Mound	Linear	12.50	0.70	1.3	NE/SW	Stacked
103	Mound	Linear	9.50	1.80	1.0	N/S	Stacked
104	Mound	Oval	6.70	3.20	1.4	NNW/SSE	Stacked
105	Mound	Oval	5.50	4.00	1.7	NW/SE	Stacked and piled
106	Mound	Oval	7.20	6.30	1.85	N/S	Stacked and piled
107	Mound	Oval	5.90	4.80	2.1	E/W	Stacked and piled
108	Mound	Oval	6.20	5.00	1.6	E/W	Piled
109	Mound	Oval	8.40	6.30	1.75	ENE/WSW	Piled
110	Mound	Linear	11.20	3.20	1.2	NW/SE	Piled
111	Mound	Oval	7.50	4.10	1.6	NW/SE	Stacked and piled
112	Mound	Circular	4.00	4.00	2.3	-	Stacked and piled
113	Mound	Oval	6.80	4.10	1.3	NE/SW	Piled
114	Wall	Linear	75.0	1.5	1.2	NE/SW	Stacked/Faced and piled
115	Mound	Rectangular	6.70	4.80	1.95	N/S	Stacked and piled
116	Wall	Linear	26.00	2.50	1.4	WNW/ESE	Piled
117	Mound	Circular	3.50	3.50	0.6	-	Piled

Note: all measurements are in meters.

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WALLS

Seven of the features within the project area are walls. These include Features 21, 61, 90, 91, 96, 114 and 116. The walls range in length from 9.0 to 75.0 meters, in width from 1.1 to 2.5 meters, and in height from 0.95 to 1.8 meters. Of the seven walls, four are constructed of piled cobbles and boulders (Features 90, 91, 96 and 116), and three are built of stacked stones (Features 21, 61 and 114). The walls are typically located on the sides or top edges of slopes, suggesting that they were created in association with sugarcane cultivation, perhaps to delineate field areas or provide protective barriers.

PARALLEL WALLS

Segments of parallel walls were identified in five locations within the project area. These walls appear to border water channels or possible roadways. These include Features 4, 25, 40, 88, and 100, and range in length from 19 to 207.5 meters. All are oriented in a roughly NE/SW or NNE/SSW direction. The parallel walls are spaced at distances ranging from 1.4 to 15.0 meters. The individual walls range in width from 0.6 to 2.5 meters, and in height from 1.5 to 3.5 meters. Feature 4 is constructed of piled cobbles and boulders; however, the rest are primarily stacked stones, with some piling noted.

Two of the features (Features 40 and 88) are interpreted as being associated with irrigation. Feature 40 has a natural spring at its southwest end, with the parallel walls extending to the northeast. Stones have been stacked around the spring, likely to protect this water source (*Figure 5*). Feature 88 consists of two parallel walls spaced only 1.4 meters apart. A shallow channel extends between the two walls (*Figure 6*). No water was present within this channel during the current survey.

The three remaining features are interpreted as possible lined roadways, potentially used as railway beds, and later truck roads, for the transportation of sugarcane (Features 4, 25, and 100). Features 25 and 100 have two parallel walls throughout most of their length. Feature 4, however, has parallel walls only at its southwest end, continuing to the north-northeast with only a single wall on the eastern side. The walls within these features are spaced at greater intervals than those at the two irrigation features, ranging from 8.0 to 15.0 meters wide. The height of the individual walls is also greater, measuring from 1.8 to 3.5 meters above ground surface. Additionally, the area between the walls is level and free of stones. These areas loosely correspond to the Waiākea Mill Company railways depicted on *Figure 3*.

ENCLOSURES

Three enclosures were recorded (Features 33, 80, and 85). Subsurface testing was undertaken at each enclosure. Descriptions of these features and a summary of the testing are presented below.

Feature 33

Feature 33 is a roughly oval-shaped mound with an enclosed soil area within the interior. The mound is 12 meters long (N/S) by 7 meters wide and is 0.9 to 1.7 meters above the surrounding ground surface (*Figure 7*). The enclosed area measures 2.5 meters long (E/W) by 2.1 meters wide. The feature is constructed of stacked and piled cobbles and boulders, with sloping walls.

There is a possibly pavement located adjacent to the soil area to the south, measuring roughly 1.6 meters long by 0.6 meters wide. It is crudely paved with basalt cobbles. A stone-filled depression is located on top of the mound, southeast of the soil area, measuring approximately 1.2 meters long, 0.5 meters wide, and 0.5 meters in depth. This feature is morphologically similar to features described by Hunt and McDermott (1993), and Erkelens and Athens (1994).

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Figure 5. Photograph of Feature 40 Spring

Figure 6. Photograph of Feature 88 Lined Channel

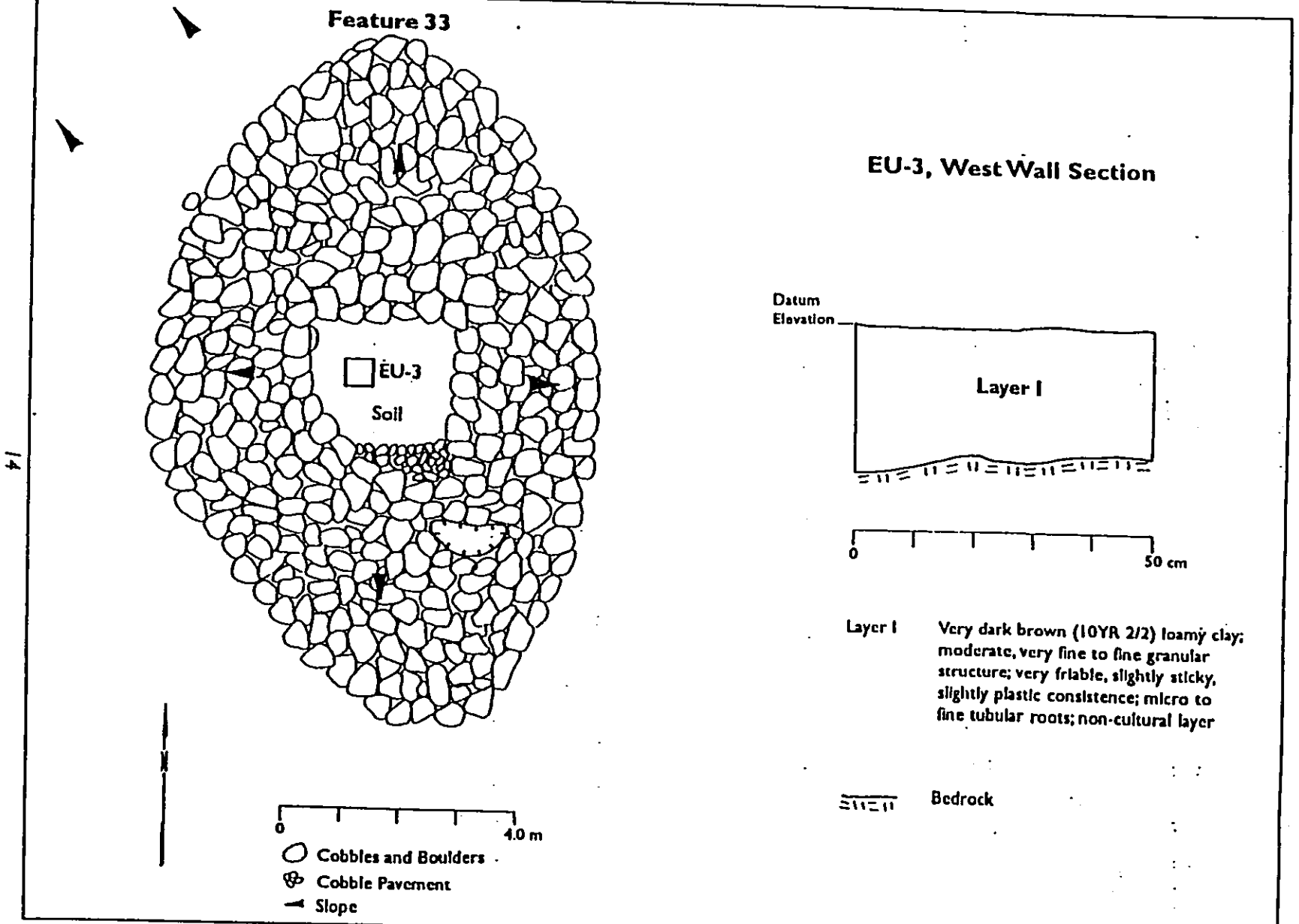

Figure 7. Plan Map of Feature 33 and West Wall Section of EU-3

RECEIVED AS FOLLOWS

A 0.5 x 0.5 meter test unit was excavated within the interior soil area (EU-3). The unit revealed a single soil layer over bedrock. This layer consisted of 23–25 centimeters of very dark brown, culturally sterile loamy clay. *Figure 7* shows the stratigraphy within this unit and *Figure 8* presents a post-excavation photograph.

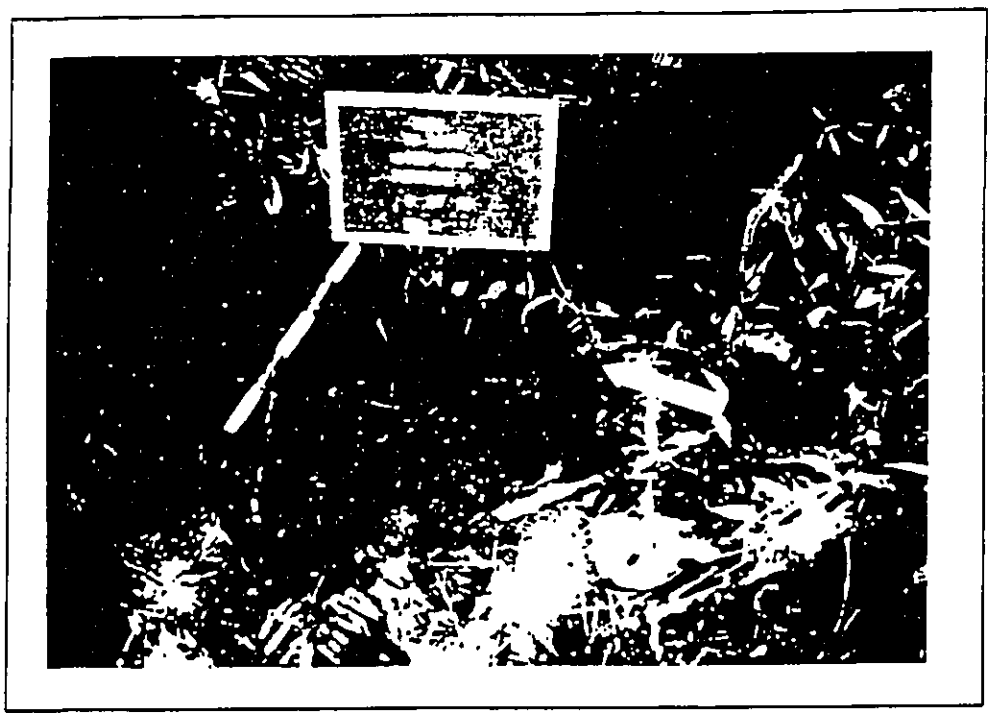

Figure 8. Photograph of EU-3, Post-Excavation

Feature 80

Feature 80 is a loosely constructed, oval-shaped enclosure 12.5 meters long (E/W) by 6.7 meters wide (*Figure 9*). The interior of the enclosure is 5.6 meters long (E/W) and from 1.2 to 2.5 meters wide. The walls of the enclosure are constructed of stacked and piled cobbles and boulders, and range in width from 1.5 to 3.1 meters, and in height from 0.7 to 1.05 meters. There are two entrances into the interior, one at the western end and one along the northern wall. These entrances are roughly one meter wide.

The floor of the interior is uneven and slopes down toward the center. Soil is present in this area, and a 0.5 x 0.5 meter excavation unit (EU-2) was placed south of the northern wall entrance. The excavation yielded two soil layers. Layer I consisted of 17 to 22 centimeters of a very dark brown loam clay that contained a single fragment of metal. This was underlain by 26–31 centimeters of a brown to dark brown, culturally sterile loamy clay (Layer II). The ground was very saturated, and water was encountered at about 35 centimeters below the surface. The excavation of the unit was terminated beneath the water level, within Layer II. *Figure 9* depicts the stratigraphy within this unit, and *Figure 10* is a photograph of the unit following excavation.

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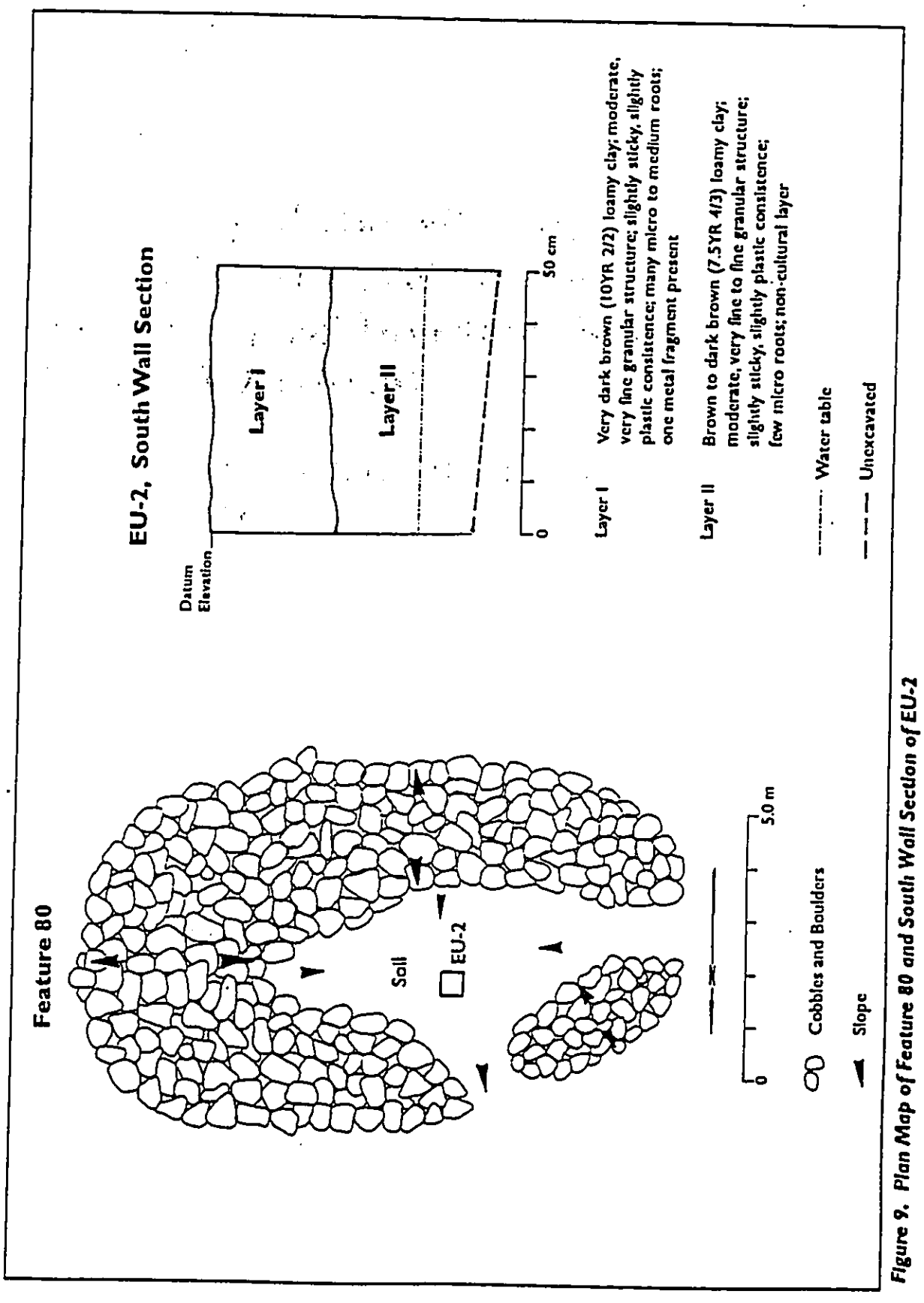

Figure 9. Plan Map of Feature 80 and South Wall Section of EU-2

RECEIVED AS FOLLOWS

Figure 10. Photograph of EU-2, Post-Excavation

Feature 85

Feature 85 is a neatly constructed, oval-shaped enclosure with overall dimensions of 18 meters long (E/W), by 10 meters wide *(Figure 11)*. The interior measures 10.2 meters long (E/W) by 5.6 meters wide. The faced walls are constructed of stacked cobbles and boulders around the base, with piled stones on the top. The walls range in width from 2.4 to 4.1 meters, and in height from 1.3 to 1.5 meters above ground surface. There is a 2.9-meter wide entrance into the feature in the center of the northern wall.

Soil was present within the enclosure. One 0.5 x 0.5 meter excavation unit (EU-1) was placed within the feature, south of the western side of the entrance. Two soil layers were present. The surface layer consisted of 12 to 15 centimeters of very dark brown culturally sterile loamy clay (Layer I). Layer II consisted of 2 to 23 centimeters of dark brown culturally sterile loamy clay. This unit also was very saturated, and water was encountered at 22 centimeters below the surface. A layer of rocks, most likely bedrock (water within the unit obfuscated this identification), was encountered at 37 centimeters depth. *Figure 11* presents the unit stratigraphy, and *Figure 12* is a post-excavation photograph.

The three enclosures described above were tested in order to determine if they were habitation features associated with either historic or prehistoric occupation. The absence of cultural material in the excavations indicates that these features were not associated with habitation. The function of these features is unclear; however, the extensive use of the area for sugarcane cultivation coupled with the absence of traditional Hawaiian cultural material suggests these features were constructed during the recent Historic Period.

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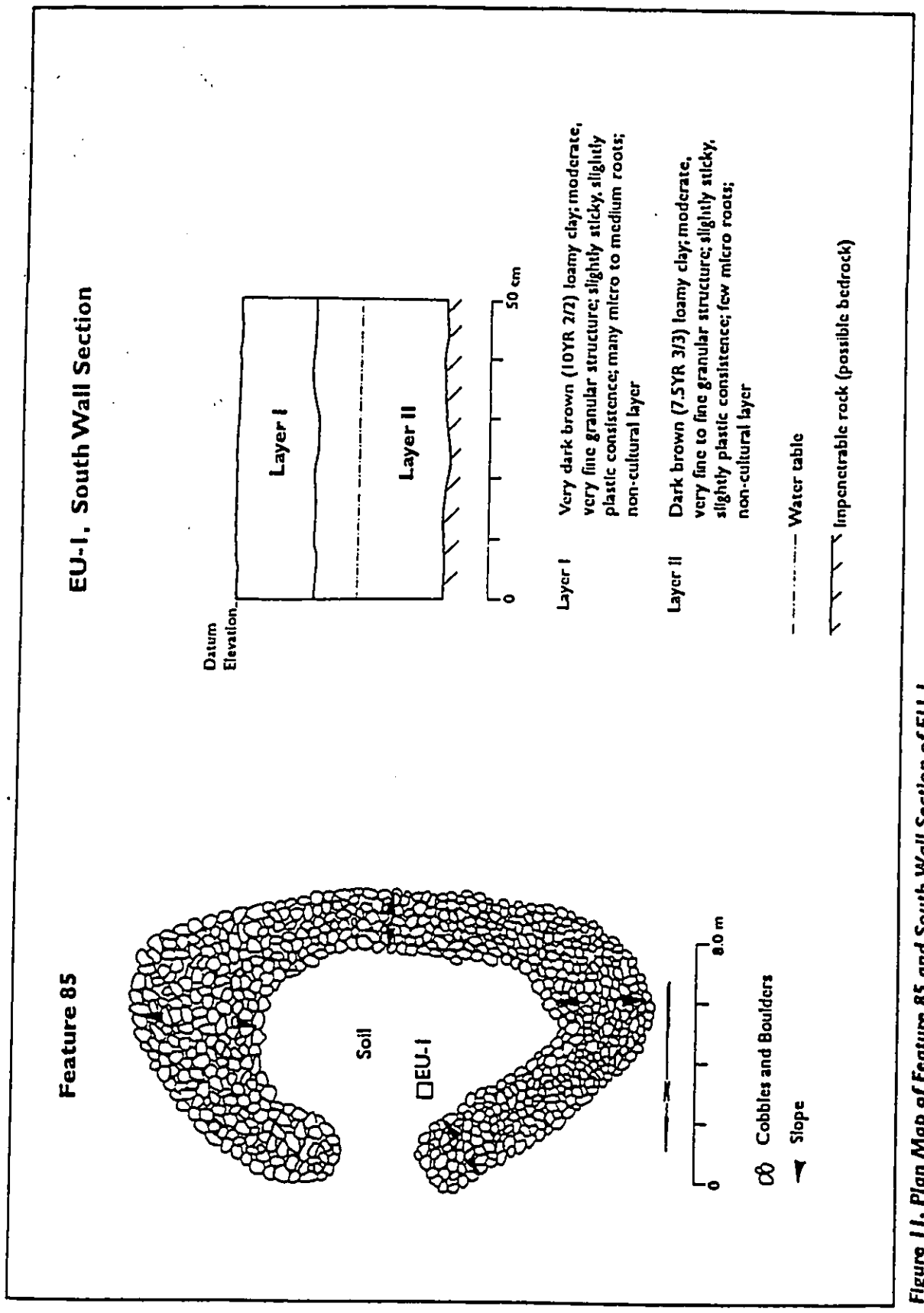

Figure 11. Plan Map of Feature 85 and South Wall Section of EU-1

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Figure 12. Photograph of EU-1, Post-Excavation

MOUNDS

The majority of the features identified during the current study consisted of mounds (n=102 or 87%). These mounds vary considerably in shape, size and method of construction. Oval-shaped mounds are the most common (n=49) followed by linear mounds (n=21). The 32 remaining mounds are circular (n=8), rectangular (n=5), L-shaped (n=1), and amorphous (n=18).

The mounds range in length from 2.4 to 25 meters (averaging 7.4 meters), in width from 0.7 to 15 meters (averaging 4.3 meters), and in height from 0.4 to 2.5 meters (averaging 1.4 meters). The surface area of the mounds varies from 3.6 to 375 meters^2 (averaging 38.9 meters^2). The majority of the mounds have surface areas of less than 30 m^2 (n=57 or 55%), and 28 yielded areas greater than 30 meters^2 and less than 50 meters^2. The 17 remaining mounds are over 50 meters^2.

The majority of the mounds are built of piled cobbles and boulders (n=60 or 59%). These mounds have sloping sides with convex surfaces. Thirteen of the 102 mounds are constructed of stacked cobbles and boulders, with near-vertical sides and irregular surfaces. The 29 remaining mounds have stacked, near-vertical bases, with piled boulders and cobbles on top, forming convex surfaces. Many of these mounds have large banyan trees growing out of them.

The 102 mounds within the project area are interpreted as historic agricultural clearing mounds associated with the cultivation of sugarcane. A secondary function associated with these features may have been as loading platforms. *Figures 13 and 14* illustrate examples of the mounds identified during the current of study.

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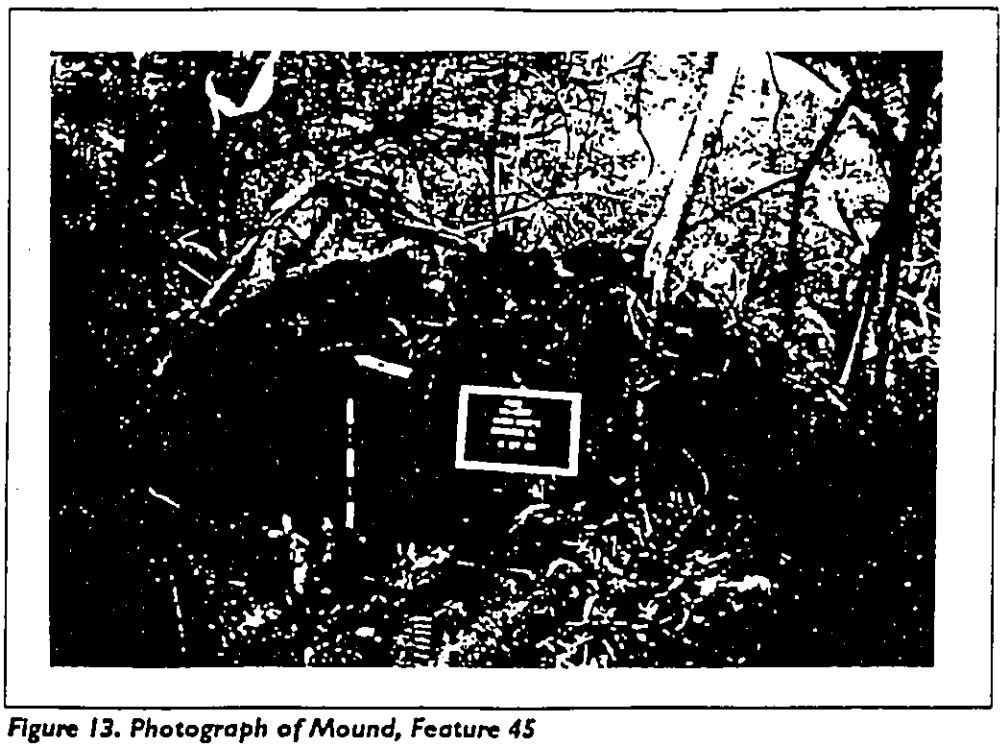

Figure 13. Photograph of Mound, Feature 45

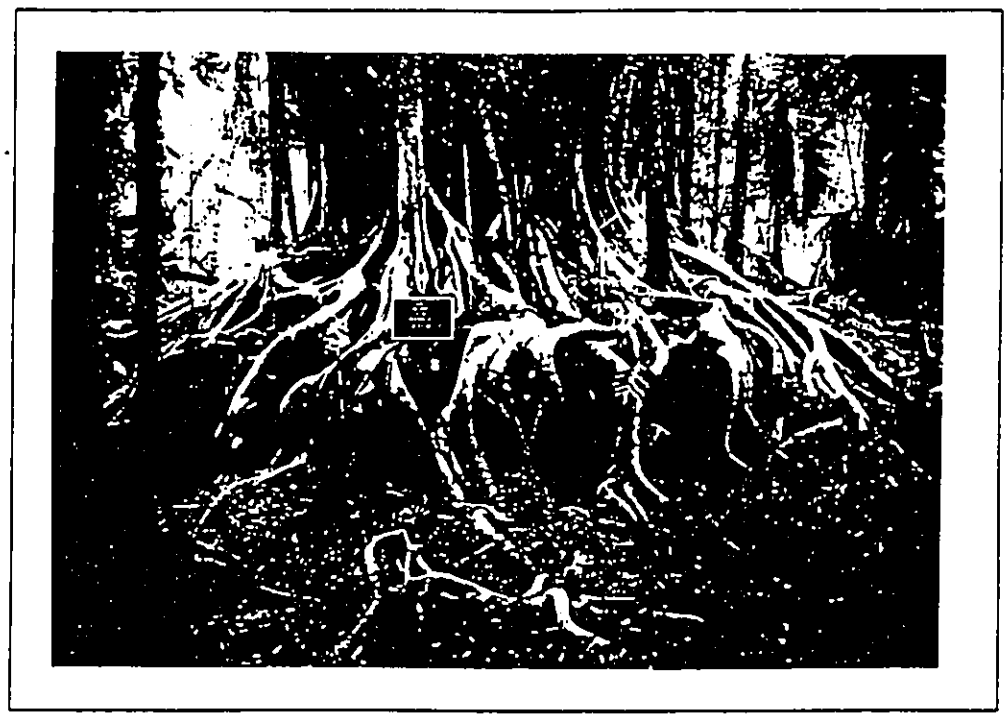

Figure 14. Photograph of Mound, Feature 46

COMPARATIVE DISCUSSION

The features described in the current report are similar in size and construction to those described in several nearby areas (Borthwick et al. 1993, Hunt and McDermott 1993, Maly et al. 1994, Spear 1995) and in other Hawai'i Island archaeological studies (Erkelens and Athens 1994). It seems logical then, to assume that all of these features share a similar temporal origin and function. In all cases these features are described as dating from the Historic Period and are interpreted as being associated with sugarcane cultivation.

Erkelens and Athens (1994) obtained oral information from Kohala informants suggesting that the stone mounds (including the more formal looking faced mounds) were the result of clearing fields for sugarcane cultivation. To test this information they excavated four such mounds and concluded that the features served a dual function, as clearing mound and as loading platforms. This latter function is important for the current project as many of the mounds are immediately adjacent to the cleared and lined right-of-ways interpreted as railway beds and later truck haul roads. Oral-historical information contained in Maly (1996) also supports this interpretation and adds yet another function, that of viewing platform. Interviewee Kenneth Bell (born in 1915) recalled that the field managers "used to ride their horses all through the fields, and in some places, they would ride up the ramps on these platforms to survey the fields. From on top of the platforms sitting on their horses, they could see all over fields." (Maly 1996:58). Mr. Bell was emphatic in his interview with Maly that the neatly built stone platforms and mounds were associated with sugarcane cultivation.

SIGNIFICANCE EVALUATION AND RECOMMENDATIONS

The resources encountered during the field phase of the current project are assessed for their significance based on criteria established and promoted by the DLNR-SHPD and contained in draft Hawai'i Administrative Rules 13§13-275, dated 1996. These significance evaluations should be considered as preliminary until DLNR-SHPD provides concurrence. For resources to be considered significant they must possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criteria:

(1) Criterion "a". Be associated with events that have made an important contribution to the broad patterns of our history;

(2) Criterion "b". Be associated with the lives of persons important in our past;

(3) Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

(4) Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history;

(5) Criterion "e". Have an important traditional cultural value to the native Hawaiian people or to another ethnic group of the state due to associations with traditional cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts—these associations being important to the group's history and cultural identity.

SIHP Site 21461, as a suite of features retains sufficient integrity to be assessed for significance using the above criteria. Given the historic context of the late nineteenth and early twentieth century sugar industry in Hawai'i in general, and the specific social and economic impact that the industry had in Hilo, Site 21461 as representative of that temporal and thematic period is evaluated as significant under Criterion d. The site has yielded information important for research questions concerning field use and organization as well as the relationship between sugarcane cultivation and transportation of harvested product. However, it is recommended that no further archaeological work be conducted as this site has been adequately documented during the current study to mitigate any adverse impacts that might occur as a result of the proposed development. It is also recommended that in the unlikely event prehistoric deposits or human burials are inadvertently discovered during construction activities, such activities be suspended in the immediate area of the discovery and DLNR-SHPD notified about the discovery.

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Final Environmental Impact Statement

China-U.S. Center

APPENDIX 3

Traffic Impact Assessment

TRAFFIC IMPACT ANALYSIS REPORT

CHINA - U.S. CENTER AT UH-HILO

IN HILO, HAWAI'I

Prepared For

SSFM INTERNATIONAL, INC.

HONOLULU, HAWAII

Prepared By

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April 10, 2002

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1. INTRODUCTION

Phillip Rowell and Associates has been retained by SSFM International, Inc. to prepare a Traffic Impact Analysis Report (TIAR) for a proposed China - U.S. Center on the UH-Hilo Campus in Hilo, Hawai'i.

The following report has been prepared to describe the traffic characteristics of the project and likely impacts to the adjacent roadway network. This introductory chapter discusses the location of the project, the proposed development, and the study methodology.

Project Description

A detailed description of the project is provided as Appendix A. The phasing used in the traffic analysis will be discussed in Chapter 4 of this report.

Project Location and Study Area

The location of the proposed project is shown on Figure 1. The project is located in the northeast quadrant of the intersection of Kiwili Street at Pualnako Street in the Waiakea area of Hilo on the Island of Hawaii. Main access to the will be via a new driveway along the east side of Kawili Street between Pualnako Street and the main entrance to the UH-Hilo campus.

The study area is defined by the intersections analyzed for the TIAR. The intersections analyzed were defined by HDOT and County of Hawaii Department of Public Works. The study intersections are shown in Figure 2.

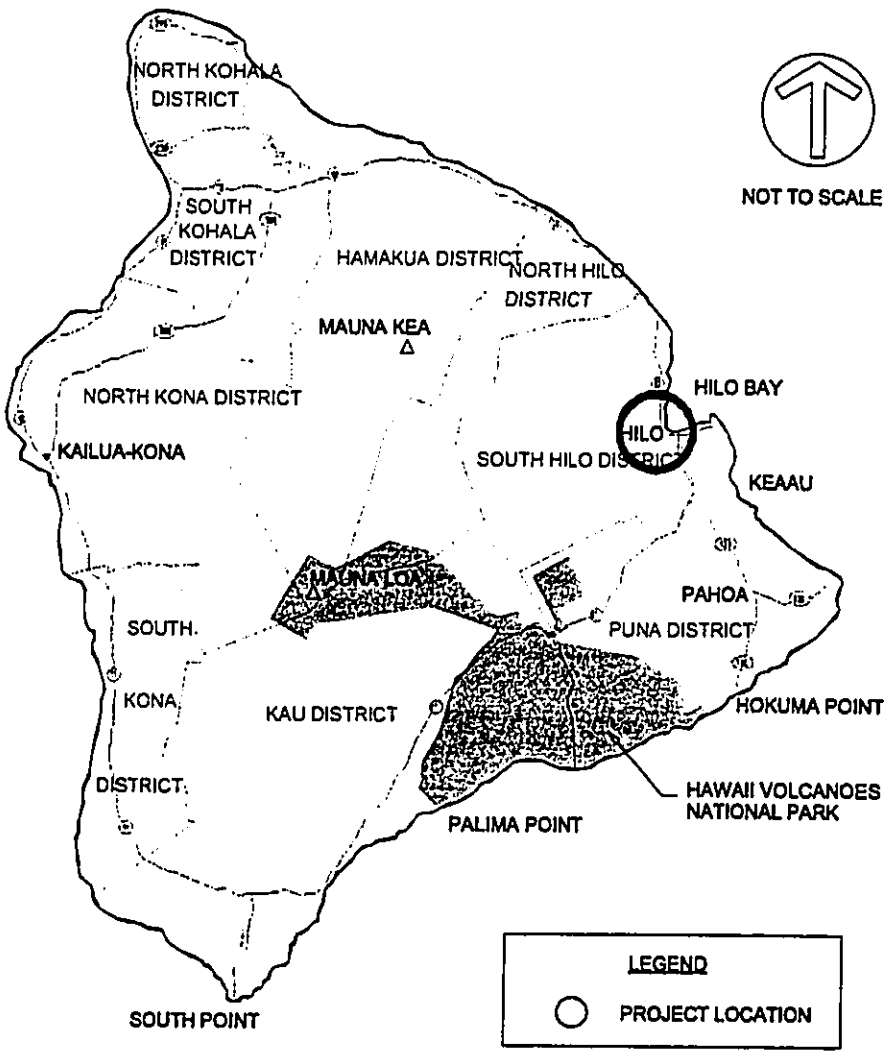

Figure 1

PROJECT LOCATION

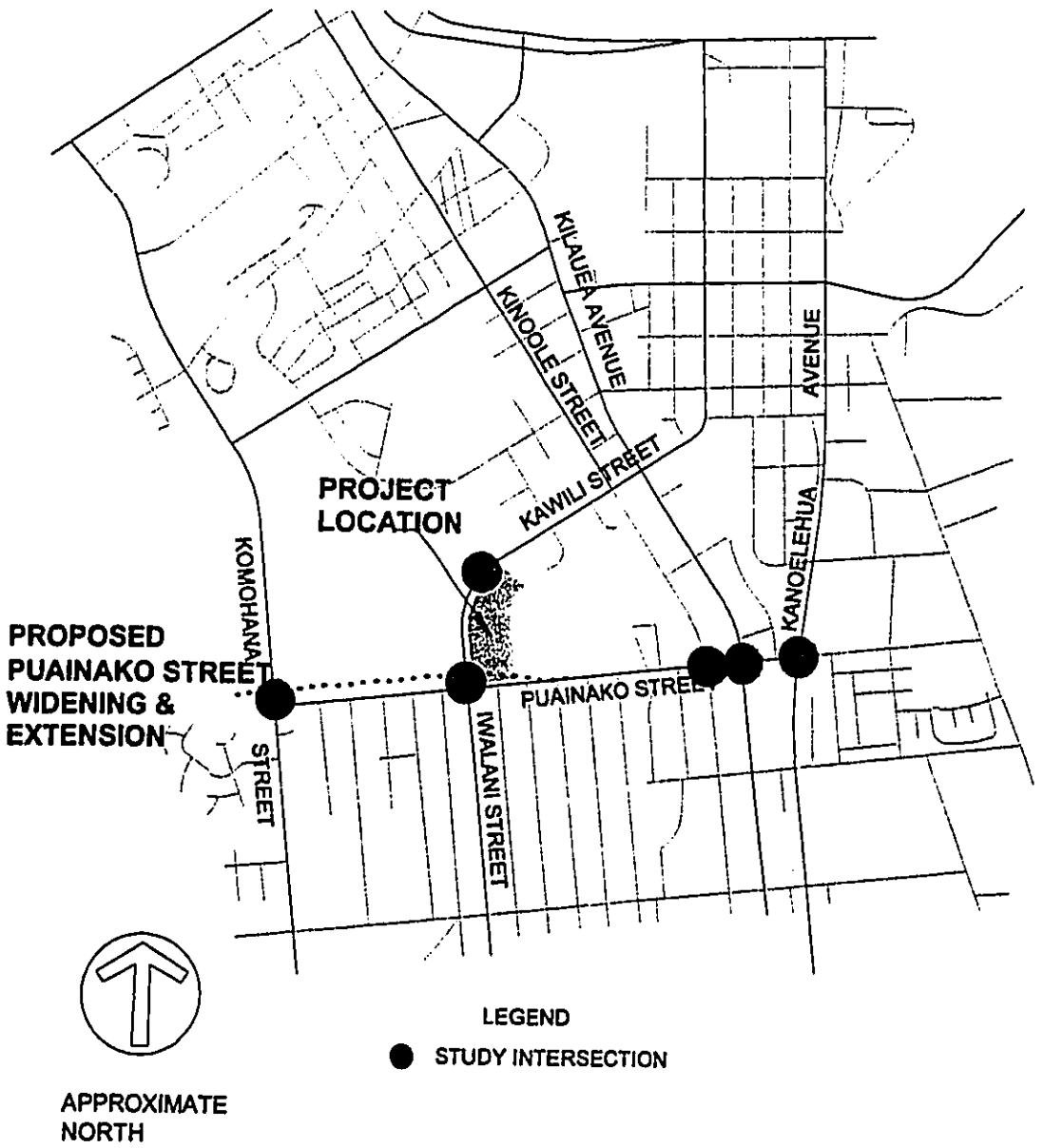

Figure 2

PROJECT LOCATION AND STUDY AREA

Scope of Work and Order of Presentation

In order to conduct this traffic study, a number of tasks were performed. These tasks are discussed briefly in the following paragraphs.

1. Define Study Area and Issues

Meetings were held with HDOT and County of Hawaii to identify areas of concern and issues that the TIAR should address. The results of these meetings were:

a. The intersections to be analyzed which defined the study area.

b. Anticipated street and roadway improvements that are being planned for the study area.

c. Other development or redevelopment projects in the area that should be considered in estimating future background traffic conditions.

The study area and the study intersections are identified in Chapter 1.

2. Analyze Existing Traffic Conditions

Existing traffic volumes at the study intersections were determined from traffic counts performed in February and March, 2001 specifically for this study. Intersection configurations and traffic signal information was also collected in the field at the time of the traffic counts.

Using the data collected, existing traffic operating conditions in the vicinity of the project were determined. The methodology described in the 2000 *Highway Capacity Manual* (HCM) was used to determine the levels-of-service (LOS) at the study intersections.

Existing traffic conditions, the LOS concept and the results of the LOS analysis of existing conditions are presented in Chapter 2.

3. Determine 2010 Background Traffic Conditions

The year 2010 was used as the design year. Future background traffic conditions are defined as "future traffic conditions without the proposed project." Background traffic projections were developed using traffic projections provided in the *Hawaii Long Range Land Transportation Plan*[1], the *University of Hawaii at Hilo Long Range Development Plan*[2] and the TIAR for University Park[3]. The traffic projections from these reports were superimposed on the traffic volumes determined from the field surveys.

---

[1] Frederic R. Harris, Inc., *Hawaii Long Range Transportation Plan*, May 1998

[2] PBR Hawaii, *University of Hawaii at Hilo Long Range Development Plan*, March 1996

[3] Pacific Planning & Engineering, Inc., *Traffic Impact Analysis Report for University Park, University of Hawaii at Hilo*, April 1997

A detailed description of the process used to estimate 2010 background traffic volumes and the resulting traffic projections are presented in Chapter 3.

3. Determine Traffic Characteristics of Proposed Project

The next step in the traffic analysis was to estimate the peak-hour traffic that would be generated by each component of the proposed project. The procedures outlined in the *Trip Generation Handbook*[4] were used. Standard trip generation rates or equations were used where applicable. These trips were distributed based on existing travel patterns observed during the traffic surveys and data provided in the *Island of Hawaii Long Range Highway Plan.*

The trip generation analysis is presented in Chapter 4.

4. Estimate 2010 Background Plus Project Traffic Projections

The project generated traffic was then superimposed on 2010 background without project traffic volumes at the study intersections. The background plus project traffic projections are also shown in Chapter 4

5. Determine Traffic Impacts of Proposed Project

The HCM methodology was used again to conduct a LOS analysis for 2010 background plus project conditions. The results of this analysis was compared to 2010 background without project conditions to determine the impacts of this project. This analysis is presented in Chapter 5.

6. Analyze Results and Formulate Mitigation Measures

Following analysis of the traffic impacts, improvements to mitigate the impacts of the project were identified and evaluated. In addition to identifying potential mitigation measures, a plan for access to and egress from the project site was formulated. A level-of-service analysis of proposed access and egress locations was then performed to insure that adequate capacity to and from the site will be provided. The conclusions of these analyses are presented in Chapter 5.

[4] Institute of Transportation Engineers, Trip Generation Handbook, Washington, D.C., October 1998

2. ANALYSIS OF EXISTING CONDITIONS

This chapter presents the existing traffic conditions on the roadways adjacent to the proposed project. The level-of-service concept and the results of the level-of-service analysis for existing conditions are also presented. The purpose of this analysis is to establish the base conditions for the determination of the impacts of the project which are described in a subsequent chapter.

Description of Existing Streets and Intersection Controls

The roadway network and the right-of-way controls at the intersections studied are shown in Figure 3. A brief description of the roadways follows:

Pualnako Street

Pualnako Street is an east-west, two-lane State highway along the south side of the project site. Major intersections are signalized. The 2000 Average Daily Traffic (ADT) was approximately 35,000 vehicles per day (vpd) west of Kanoelehua Avenue. The ADT decreased to approximately 10,000 vpd west of Kinoole Street. East of Kawili Street, in the vicinity of the project, the ADT is approximately 7,200 vpd, based on 2001 traffic counts. Between Kawili Street and Komohana Street, the ADT is approximately 5,500 vpd.

Kawili Street

Kawili Street is a north-south, two-lane, two-way county roadway along the west boundary to the project site. There are separate left turn storage lanes at the major intersections. Based of 2001 traffic counts, the ADT is approximately 10,000 vpd adjacent to the project (north of Pualnako Street).

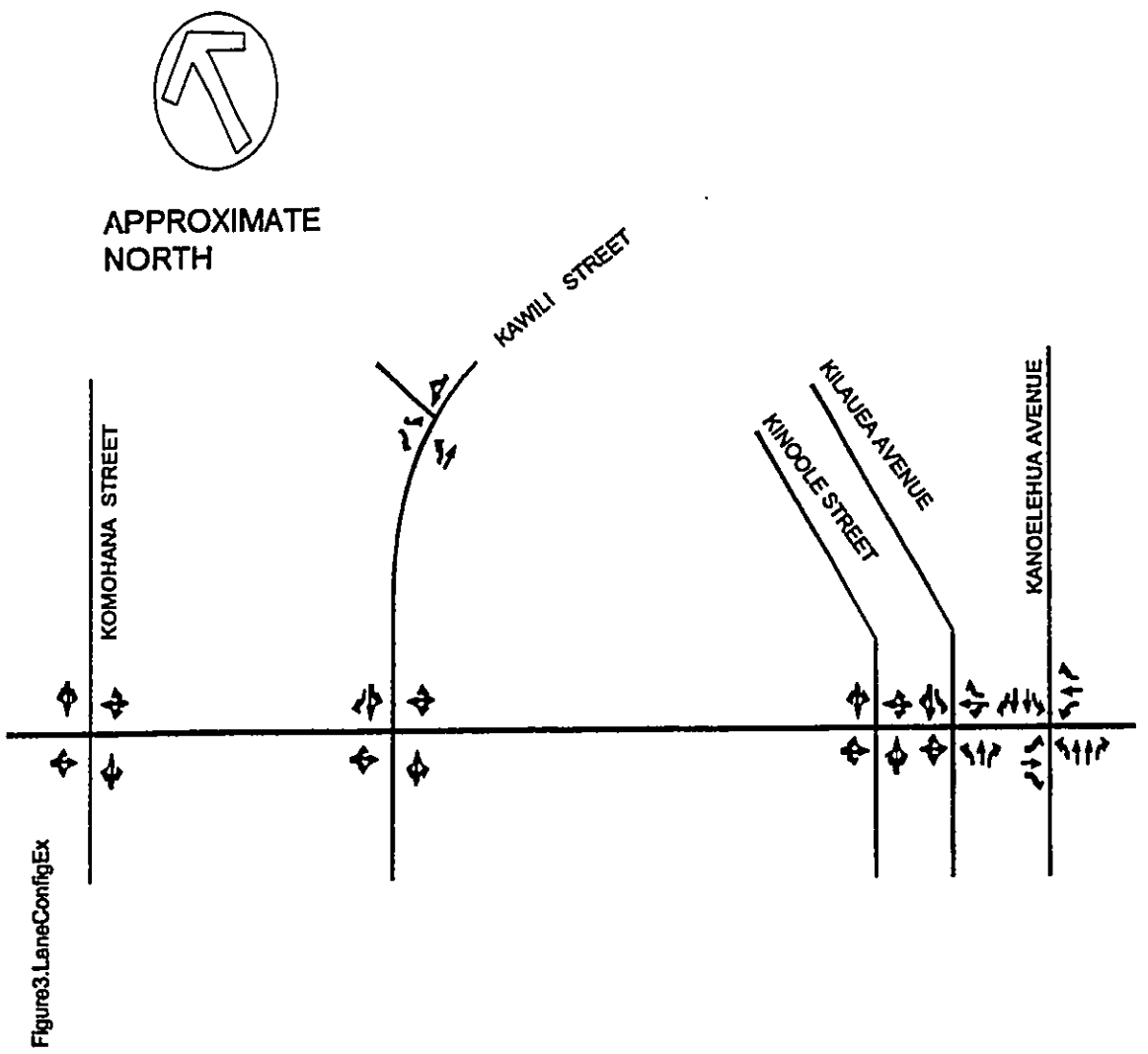

Figure 3

EXISTING ROADWAY NETWORK

A summary of existing roadway characteristics is presented as Table 1.

Table 1 Roadway Traffic Volume Characteristics[1]

Roadway and Location	Puainako Street West of Kanoelehua Avenue		Puainako Street West of Kinoole Avenue	
Direction	EB	WB	NB	SB
24- Hour Traffic Volume	15,094	20,238	4,963	5,716
	35,332		10,679	
AM Peak Hour	7:15 AM to 8:15 AM		7:00 AM to 8:00 AM	
Volume By Direction	1,878	724	546	531
D (%)	72	28	51	49
Total Both Directions	2,602		1,077	
K Factor (%)	7.4		10.0	
PM Peak Hour	4:15 PM to 5:15 PM		4:00 PM to 5:00 PM	
Volume By Direction	864	2,117	392	469
D (%)	29	71	46	54
Total Both Directions	2,981		861	
K Factor (%)	8.4		8.1	

Notes: (1) Hawaii Department of Transportation, Traffic Survey Data, 2000

Existing Peak Hour Traffic Volumes

Morning and afternoon peak hour traffic volumes were obtained from traffic counts conducted for this study in February and March, 2001. The counts are summarized in Figure 3. The peak hour traffic volumes include trucks, buses and motorcycles. Volumes do not include bicycles or mopeds.

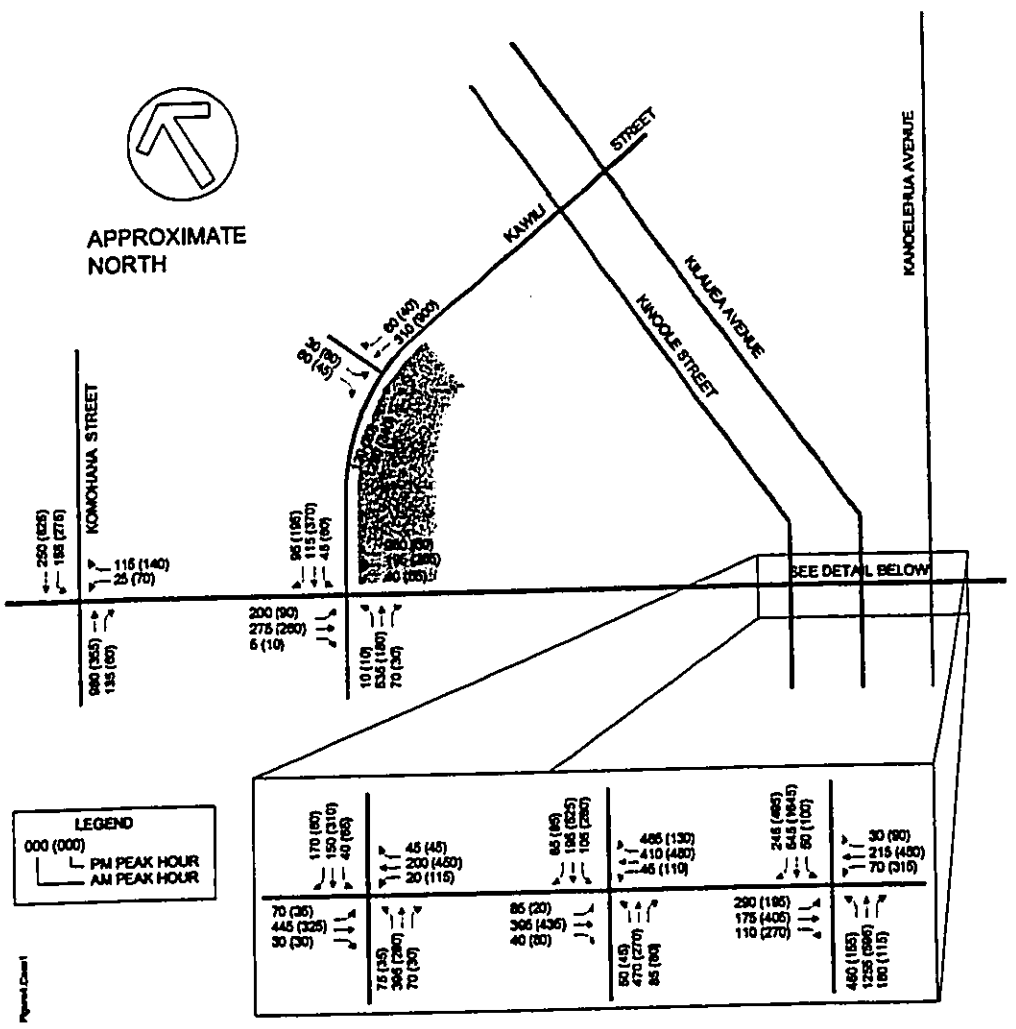

Figure 4

EXISTING PEAK HOUR VOLUMES

Level-of-Service Concept

Signalized Intersections

The operations method described in the *2000 Highway Capacity Manual* (HCM) was used to analyze the operating efficiency of the signalized intersections adjacent to the study site. This method involves the calculation of a volume-to-capacity (V/C) ratio which is related to a level-of-service.

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 2. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions. Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.

Table 2 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

Unsignalized Intersections

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 3 summarizes the definitions for level-of-service and the corresponding delay.

Table 3 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little of no delay	>10
B	Short traffic delays	101 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

Existing Level-of-Service Analysis

The signalized and unsignalized intersections were analyzed using the operations method described in the Highway Capacity Manual. Results of these analyses are shown in Table 4. The calculated levels-of-service were confirmed by field observations.

Table 4 Levels-of-Service for Existing Conditions

Intersection and Movement	AM Peak Hour V/C[1]	AM Peak Hour Delay[2]	AM Peak Hour LOS[3]	PM Peak Hour V/C	PM Peak Hour Delay	PM Peak Hour LOS
1. Puainako Street at Komohana Street						
Southbound Left & Thru	0.24	12.5	A	0.24	9.1	A
Westbound Left & Right	0.70	56.0	C	0.95	93.0	E
2. Puainako Street at Kawili Street						
Eastbound Left, Thru & Right	0.74	22.0	C	0.46	13.7	A
Westbound Left & Thru	0.28	11.3	A	0.39	12.6	A
Westbound Right	0.32	11.8	A	0.06	9.3	A
Northbound Left, Thru & Right	0.97	54.9	E	0.35	21.5	A
Southbound Left & Thru	0.38	22.6	A	0.72	30.4	C
Southbound Right	0.38	19.3	A	0.36	21.7	A
3. Puainako Street at Kinoole Street						
Eastbound Left, Thru & Right	0.68	20.5	B	0.43	12.6	A
Westbound Left, Thru & Right	0.32	13.8	A	0.74	20.0	C
Northbound Left	0.24	18.3	A	0.17	20.8	A
Northbound Thru & Right	0.64	24.7	B	0.48	24.3	A
Southbound Left	0.21	18.8	A	0.65	35.4	B
Southbound Thru & Right	0.44	20.4	A	0.56	26.0	A
4. Puainako Street at Kilauea Street						
Eastbound Left, Thru & Right	0.62	15.0	B	0.53	11.9	B
Westbound Left & Thru	0.50	12.4	A	0.70	16.1	C
Westbound Right	0.48	12.4	A	0.09	7.4	A
Northbound Left & Thru	0.53	25.5	B	0.47	26.5	A
Northbound Right	0.15	20.9	A	0.15	22.6	A
Southbound Left, Thru & Right	0.52	26.1	B	1.25	151.7	F
5. Puainako Street at Kanoelehua Avenue						
Eastbound Left	0.79	68.6	C	0.56	58.6	B
Eastbound Thru	0.29	36.8	A	0.68	47.6	B
Eastbound Right	0.19	35.0	A	0.46	40.9	A
Westbound Left	0.81	121.0	D	1.61	362.1	F
Westbound Thru	0.73	71.8	C	1.04	107.7	F
Westbound Right	0.10	52.9	A	0.21	45.4	A
Northbound Left	0.77	50.5	C	0.79	89.2	C
Northbound Thru	0.73	29.9	C	0.42	30.3	A
Northbound Right	0.51	59.9	B	0.19	32.4	A
Southbound Left	0.93	170.6	E	1.03	164.8	F
Southbound Left & Thru	0.88	70.5	D	1.23	153.4	F
6. Kawili Street at UH-Hilo Entrance						
Northbound Left	0.10	8.3	A	0.02	8.7	A
Eastbound Left	0.37	72.3	F	0.12	19.3	A
Eastbound Right	0.08	10.3	B	0.11	12.7	A

NOTES:
(1) V/C denotes ratio of volume to capacity.
(2) Delay is in seconds per vehicle.
(3) LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. Level-of-service is based on the volume-to-capacity ratio. See Table 2 on page 10.

3. 2010 BACKGROUND TRAFFIC CONDITIONS

The purpose of this chapter is to discuss the assumptions and data used to estimate 2010 background traffic conditions. Background traffic conditions are defined as the traffic conditions resulting from background growth and related projects. Background traffic volumes do not include traffic generated by the proposed project.

Background traffic volumes are the result of background growth, which cannot be attributed to a specific project, and related projects in the vicinity of the proposed project. Related projects include development and redevelopment projects as well as roadway improvement projects. The basis for this information is traffic studies for these projects.

For this study, future background traffic in the study area was estimated from traffic projection data provided in the following reports:

1. *Hawaii Long Range Land Transportation Plan*, Frederic R. Harris, Inc., May 1998.
2. *University of Hawaii Long Range Development Plan*, PBR Hawaii, March 1996,
3. *Traffic Impact Analysis Report for the Proposed Pualnako Street Extension*, The Traffic Management Consultant, February 14, 1997,
4. *University of Hawaii at Hilo, Multi-Purpose Sports and Recreational Complex Feasibility Study*, Group 70 International, Inc., August 2000, and
5. *Traffic Impact Assessment Report fo University Park, University of Hawaii at Hilo*, Pacific Planning and Engineering, Inc. April 1997.

Design Year

The year 2010 was selected as the design year for this traffic impact analysis. The design year is not necessarily the year of completion for the project. It represents a time period when the project has been completed and is fully occupied. It also represents a date for which background traffic conditions are defined.

Background Roadway Scenarios

The widening and realignment of Puainako Street has a significant impact of traffic flows in and adjacent to the study area. This project will impact the related projects as well as the study project.

At the time this report was prepared, the exact timing of the Puainako Street project was not clearly defined. It was also not clear during which phase, or phases, of the China - U.S. Center project would be completed before and after the Puainako Street project. Therefore, it could not be assumed that the Puainako Street project would be completed before the China - U.S. Center project as the background condition. To insure that the traffic impacts of the China - U.S. Center are identified whether the Puainako Street project is in place or not, it was necessary to analyze a "No Build" scenario as well as a "Build" scenario.

The "No Build" scenario is the existing street and roadway network adjacent to the proposed project. Improvements associated with specific related projects were included.

The "Build" scenario is conditions anticipated with the widening and realignment of Puainako Street as defined in the TIAR for the Puainako Street Extension project.

Background traffic projections were developed for the "No Build" and the "Build" scenario. Included are improvements at the intersection of Puainako Street at Kanoelehua Avenue that were under construction at the time this study was prepared and the signalization of the intersection of Puainako Street at Komohana Avenue.

Background Traffic Growth

Background traffic volumes were estimated from data provided in the Island of *Hawaii Long Range Land Transportation Plan* and the TIAR for the Puainako Street Extension. Both documents estimated 2020 traffic projections for Puainako Street, Kanoelehua Avenue and Komohana Street. The later document analyzed a "No Build" scenario and a "Build" scenario in order to assess the impact of the project. The traffic volumes in these documents were adjusted to represent 2010 conditions as follows:

1. For the "No-Build" scenario, it was assumed that the growth between existing traffic volumes and 2020 traffic volumes is a straight line. Therefore, 2010 traffic volumes were estimated by interpolating between 2001 and 2010. Each traffic movement at the study intersections was interpolated separately.

2. For the "Build" scenario, the 2020 traffic projections provided in the TIAR for the Puainako Street Extension were adjusted for 2010 conditions. The 2020 traffic projections were discounted 2% per year for 10 years, or 20%, to account for the growth between 2010 and 2020. The net traffic volumes were used as 2010 background traffic volumes.

Related Projects

Related projects are projects that are either under construction or likely to be completed before the design year that will impact traffic conditions at the study intersections. The following projects were identified as related projects:

1. The Multi-Purpose Sport and Recreational Complex
2. University Park

The traffic projections for these projects were obtained from the traffic study for the respective project.

2010 Background Traffic Volumes

Estimated 2010 background traffic volumes were calculated for the existing roadway network (No Build) and the 2010 network, which includes the widening and extension of Pualnako Street. The resulting 2010 background morning and afternoon peak hour traffic projections without the Pualnako Street widening and extension are shown in Figures 5 and 6, respectively. The 2010 background peak hour traffic projections with the Pualnako Street widening and extension are shown in Figures 7 and 8.

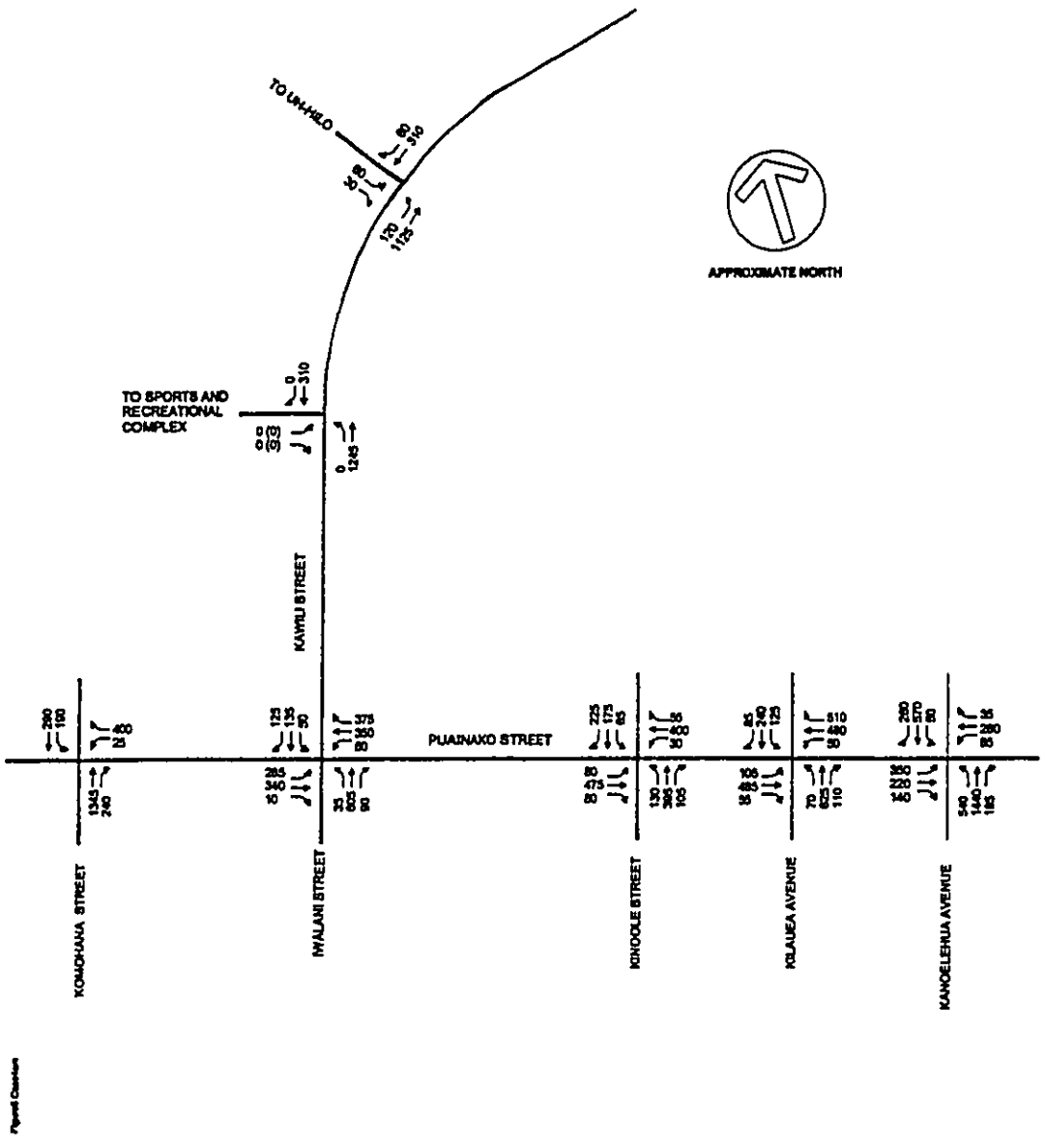

Figure 5

2010 BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES WITHOUT PUAINAKO STREET EXTENSION

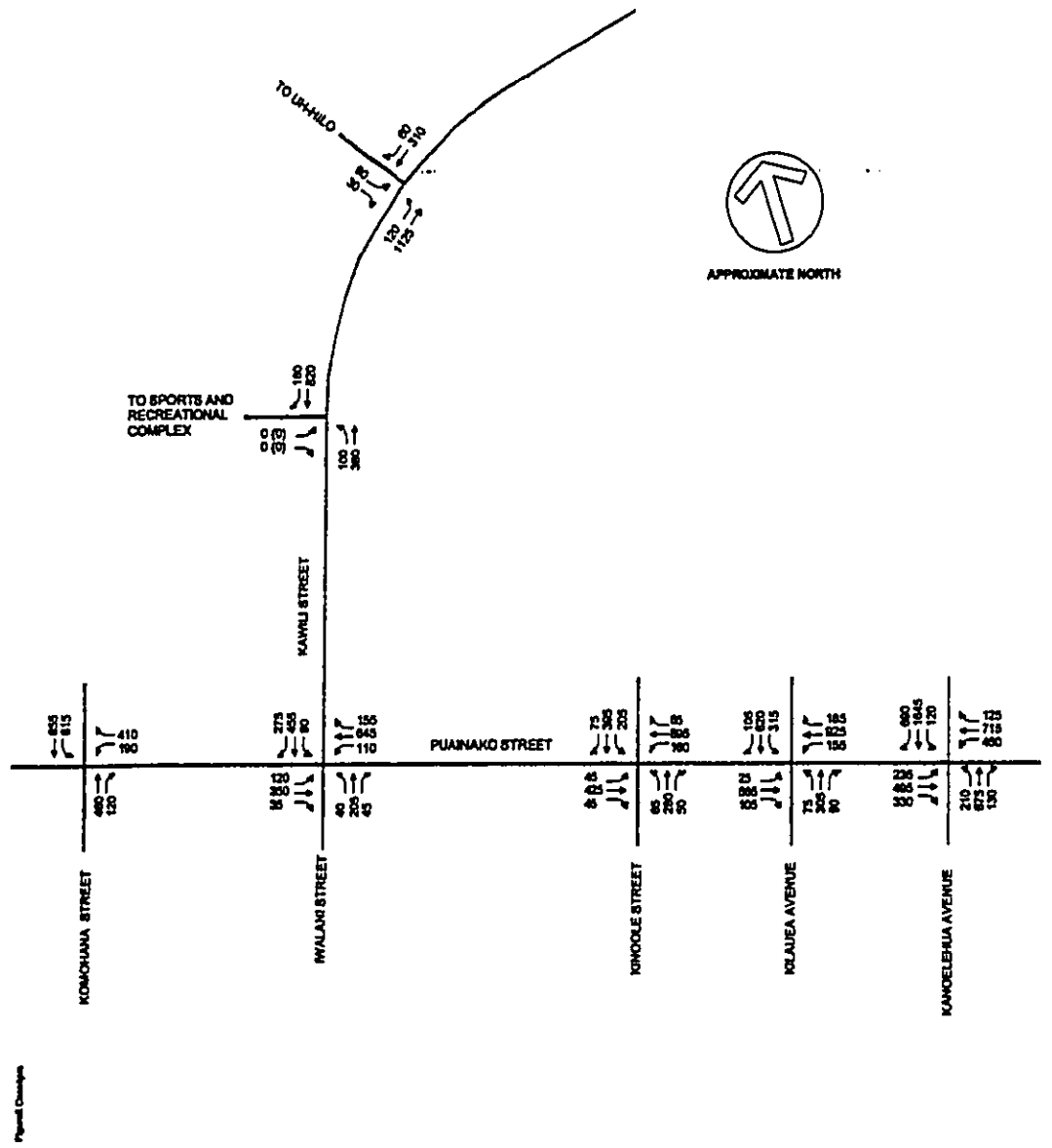

Figure 6

2010 BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES WITHOUT PUAINAKO STREET EXTENSION

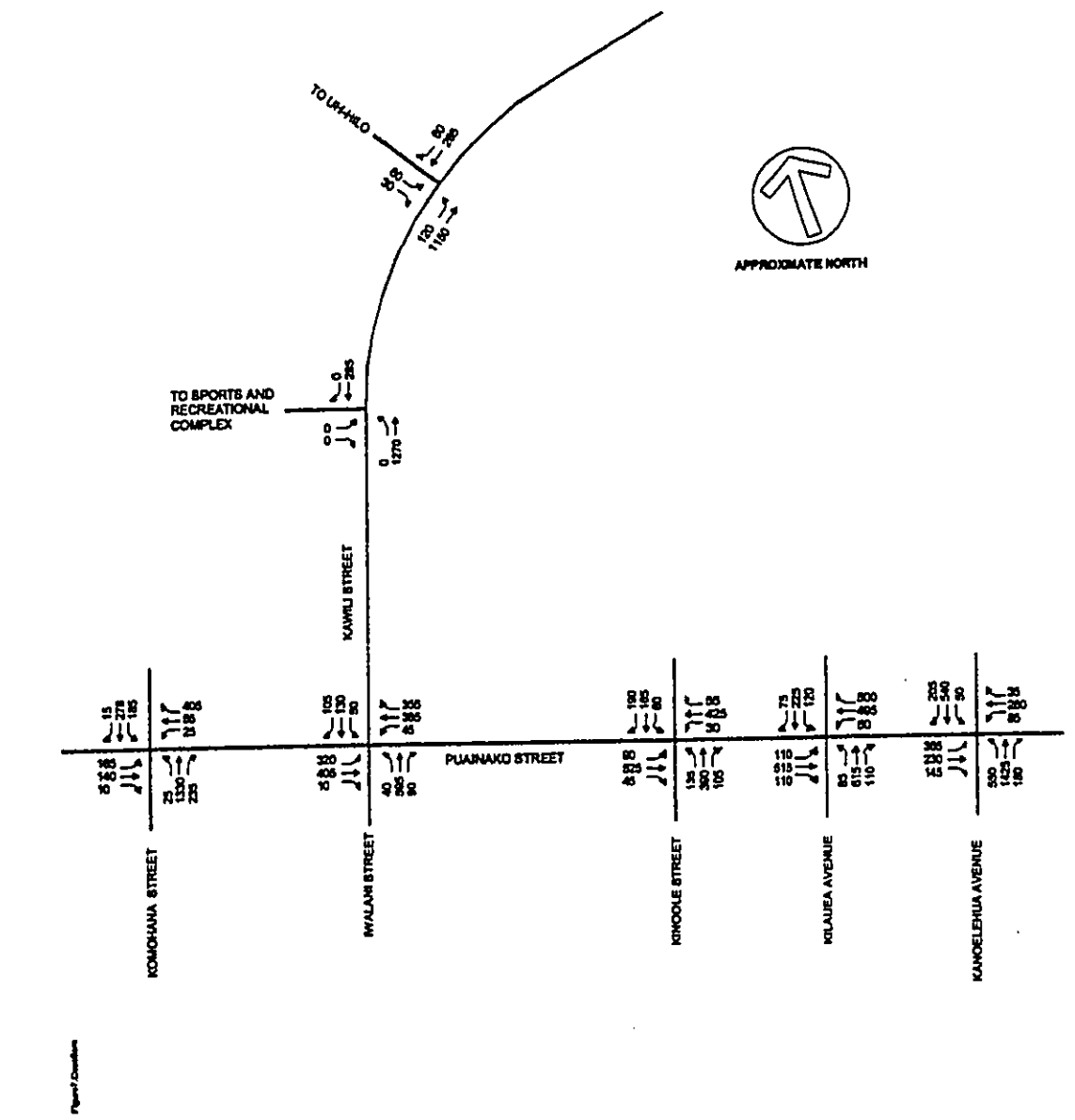

Figure 7

2010 BACKGROUND AM PEAK HOUR TRAFFIC VOLUMES WITH PUAINAKO STREET EXTENSION

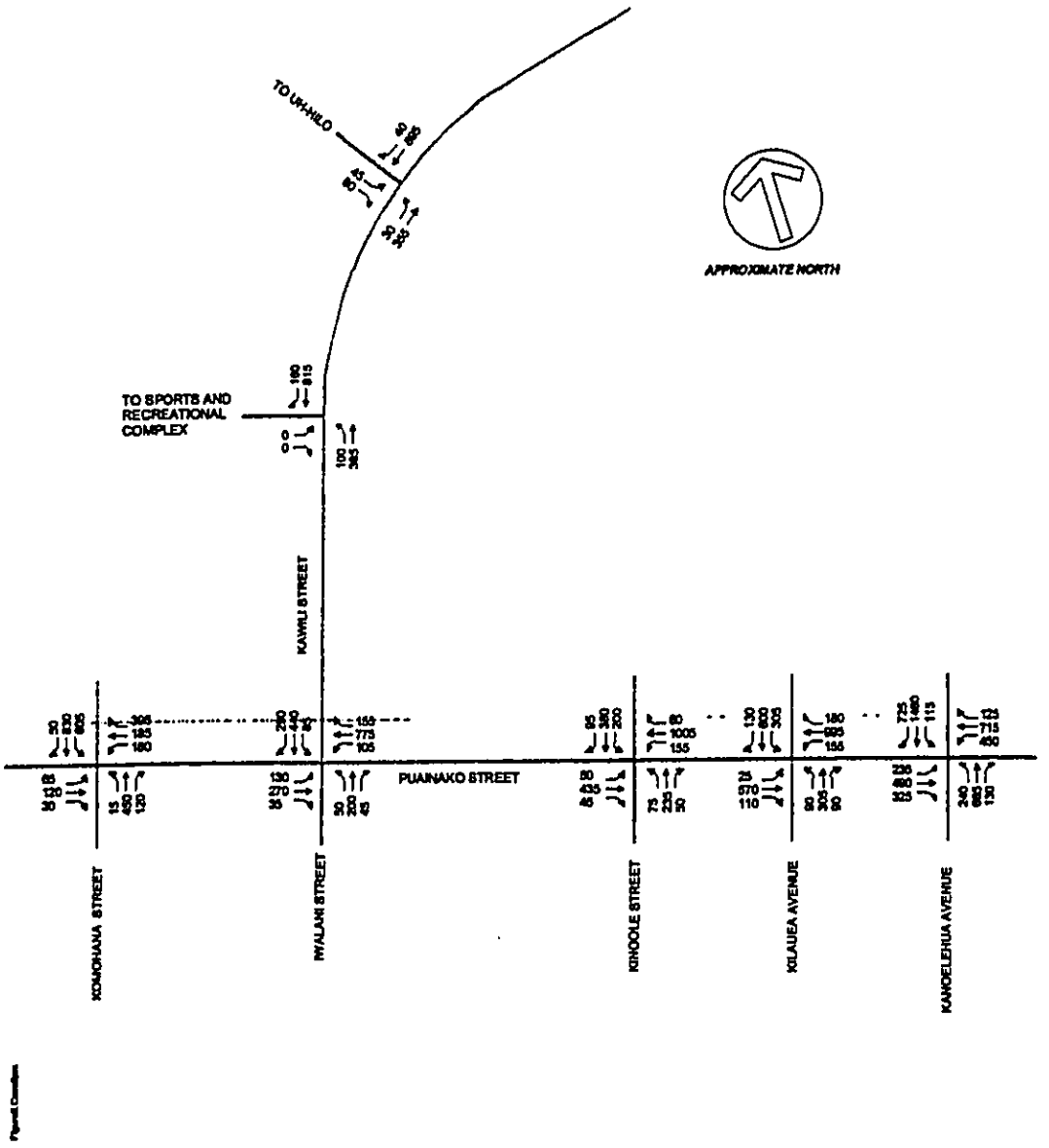

Figure 8

2010 BACKGROUND PM PEAK HOUR TRAFFIC VOLUMES WITH PUAINAKO STREET EXTENSION

4. PROJECT-RELATED TRAFFIC CONDITIONS

This chapter discusses the methodology used to identify the traffic-related impacts of the proposed project. Generally, the process involves the determination of the peak-hour trips that would be generated by the proposed project, distribution and assignment of these trips on the approach and departure routes, and finally, determination of the levels-of-service at affected intersections subsequent to implementation of the project.

Where applicable, the methodology recommended in the *Trip Generation Handbook*[5] was used. This method uses trip generation rates or equations to estimate the number of trips that a proposed project will generate. For other parts of the project, this standard methodology could not be used because of unique traffic characteristics of that portion of the project and the interaction of the proposed project with the remainder of the UHH campus.

The proposed project will be developed in three phases. A separate trip generation analysis was performed for each phase so that the impact of each phase can be identified and mitigated if needed. Each phases is discussed separately. In addition, the trip generation process for each component of the project is discussed separately in the following sections.

[5] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., October 1998

Phase 1 - 2001 Through 2008

Phase 1 consist of the Shopping and Entertainment Plaza and the International Hostel. The tentative schedule is for Phase 1 to be developed from 2001 through 2008.

Shopping and Entertainments Plaza

For the shopping and entertainment portion, trip generation equations developed for shopping center were used since the proposed project corresponds to the definition of shopping center as defined by the Institute of Transportation Engineers:

> *A shopping center is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. A shopping center's composition is related to its market area in terms of size, location, and type of store. A shopping center also provides on-site parking facilities sufficient to serve its own parking demands.* [6]

Trips associated with the shopping and entertainment plaza will consist of pass-by trips and non-pass-by trips. Pass-by trips are defined as follows:

> *Pass-by trips are made as intermediate stops on the way from an origin to a primary trip destination without a route diversion. Pass-by trips are attracted from traffic passing the site on a adjacent street or roadway that offers direct access to the generator.*[7]

Pass-by trips for shopping centers are estimated using the equation provided on page 43 of the *Trip Generation Handbook*:

$$Ln(T) = -0.291\ Ln(X) + 5.001$$

where T = Average Pass-By Percentage, and
X = 1,000 Square Feet Gross Leasable Area

Using this equation and an estimated floor area of 130,000 square feet, 36% of the trips into and out of the Shopping and Entertainment Plaza will be pass-by trips.

The equation shown is for the afternoon peak hour. No equation is provided in the *Trip Generation Handbook* for the morning peak hour. Since, the shopping and entertainment plaza will consist of businesses oriented toward the student and faculty population of UHH and will be in operation during the morning peak period, the morning and afternoon peak hour pass-by diversion rates will be similar. Therefore, the afternoon percentage of pass-by trips was also used to estimate the number of pass-by trips during the morning peak hour.

The calculation of the trips generated by the shopping and entertainment plaza is shown in Table 5. Note that the inbound and outbound pass-by trips must be equal to maintain the same number of vehicles on the adjacent roadway.

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[6] Institute of Transportation Engineers, *Trip Generation*, 1997, Washington, D.C., p. 1334.

[7] *Trip Generation Handbook*, p. 27

Table 5 Trip Generation Calculation for Shopping and Entertainment Plaza

Period		Equation	Percent	Trips	Pass-By Trips Percent	Pass-By Trips Trips	New Trips
AM Peak Hour	Total	Ln(T)=0.596Ln(A)+2.329		187	36%	67	120
	Inbound		61%	114		34	80
	Outbound		39%	73		34	39
PM Peak Hour	Total	Ln(T)=0.660Ln(A)+3.403		747	36%	269	478
	Inbound		48%	359		135	224
	Outbound		52%	388		135	253

International Hostel

The International Hostel consist of residential halls, visitor suites and family lodging units.

Residential Halls ,

The residential halls are planned as two to four bedroom "apartments." Capacity for 600 students will be provided. *Trip Generation* provides data on the number of trips per unit for various categories of apartments. The number of apartments was estimated using a ratio of four students per unit. Using this ratio, 150 units were used to estimate the trips generated.

Trip generation rates for mid-rise apartments mostly closely corresponds to the description of the proposed residential halls and, therefore, were used. Mid-rise apartments are defined as:

> *Mid-rise apartments are apartments (rental dwelling units) in rental buildings that have between three and ten levels (floors).*[8]

Based on traffic studies for developments adjacent to college/university campuses, the number of vehicles per unit would be lower than for a typical apartment because students typically have lower incomes and locate in the vicinity of the campus because they do not own a vehicle. Students located within walking distance of a campus also tend to walk because it is easier than driving and then having to parking on the campus. Since all these factors apply to the residential halls for this project, a discount of 25% appears reasonable. However, no discount was applied in order to be conservative. This was in response to comments received from HDOT.

The trip generation calculations for the residential halls based on the above assumptions are shown in Table 6.

[8] *Trip Generation*, p. 353

Table 6 Trip Generation Calculations for Residential Halls

Time Period	Direction	Trips per Unit and In/Out Ratio [1]	Units	Total Peak Hour Trips
AM Peak Hour	Total Trips per Unit	0.35	150	53
	% Inbound	29%		15
	% Outbound	71%		38
PM Peak Hour	Total Trips per Unit	0.44	150	66
	% Inbound	59%		39
	% Outbound	41%		27

Note:
(1) Institute of Transportation Engineers, *Trip Generation*, 1997, p 356 - 357

Visitor Suites

The visitor suites are described as temporary housing for visitors to UHH. There will be approximately 50 visitor suites. Trip characteristics would correspond to those of a typical "all suite hotel." Therefore, the number of trips generated was estimated using trip generation rates for all suites hotels (land use code 311). All suites hotels are defined as follows:

> *All suites hotels are places of lodging that provide sleeping accommodations, a small restaurant and lounge, and a small amount of meeting spaces. Each suite includes a sitting room and separate bedroom; often, limited kitchen facilities are provided within the suite. These hotels are located primarily in suburban areas.*[9]

These calculations are shown in Table 7.

Table 7 Trip Generation Calculations for Visitor Suites

Time Period	Direction	Trips per Unit and In/Out Ratio	Units	Total Peak Hour Trips
AM Peak Hour	Total Trips per Unit	0.40	50	20
	% Inbound	55%		11
	% Outbound	45%		9
PM Peak Hour	Total Trips per Unit	0.40	50	20
	% Inbound	45%		9
	% Outbound	55%		11

Note:
(1) Institute of Transportation Engineers, *Trip Generation*, 1997, p 540 - 541

Family Lodging Units

[9] *Trip Generation*, p. 530

The family lodging units are described as long-term housing for student families, faculty, or UHH-related personnel. Approximately 20 units will be provided. Trip rates for apartments were used the estimate the number of trips that these units will generate. The calculations are shown in Table 8.

Table 8 Trip Generation Calculations for Family Lodging Units

Time Period	Direction	Trips per Unit and In/Out Ratio	Units	Total Peak Hour Trips
AM Peak Hour	Total Trips per Unit	0.56	20	11
	% Inbound	28%		3
	% Outbound	72%		8
PM Peak Hour	Total Trips per Unit	0.67	20	13
	% Inbound	61%		8
	% Outbound	39%		5

Notes:
(1) Institute of Transportation Engineers, *Trip Generation*, 1997, p 303 - 304

Mixed Use Interaction and Summary of Phase 1

Because Phase 1 will be a mixed use development consisting of retail and residential uses, interaction will occur between the use. This means that vehicular trips are discounted to account for pedestrian and multi-purpose trips. Typically, this discount rages from 5 to 15 percent. For this project, non-retail trips were discounted 15%.

The trips generated by each component is summarized in Table 9 along with the discount calculations for mixed use.

Table 9 Trip Generation Summary for Phase 1

		Trip Generated						
Time Period	Direction	Shopping Plaza	Residential Halls	Visitor Suites	Family Lodging	Subtotal	Discount	Total Net Trips
AM Peak Hour	Total	120	53	20	11	204	13	191
	Inbound	80	15	11	3	109	4	105
	Outbound	40	38	9	8	95	9	86
PM Peak Hour	Total	477	66	20	13	576	14	562
	Inbound	224	39	9	8	280	8	272
	Outbound	253	27	11	5	296	6	290

Phase 2 - 2004 Through 2006

The second phase of the project consist of the China-U.S. Cultural Center. The building will be approximately 34,000 square feet in size and will provide meeting rooms, offices, exhibit hall, library and a conference room that will seat approximately 250 persons. The building will be three stories tall.

Because this is a unique facility, there are no trip generation data to refer to for equations or trip generation rates. Therefore, the peak hour trips that this phase of the project will generate were estimated using the following assumptions in order to establish a worse-case scenario:

1. The conference room will be occupied at the capacity of 250 persons. Visitors for the conference will arrive during the morning peak hour and depart during the afternoon peak hour. The conference room, with a capacity of 250 persons, will be full.

2. During the morning peak hour, the directional split of traffic will be 88% inbound and 12% outbound. During the afternoon peak hour, the split will be 17% inbound and 83% outbound. These directional splits are the same as those for a general office building (land use code 710).[10]

3. The average vehicle occupancy will be between 1.25 persons per vehicle, or 0.80 trips per seat. This factor was based on discussions with HDOT. It was agreed that this is a conservative estimate of vehicle occupancy.

4. The conceptual plans indicate 14 offices and a reception area. The implies that there is capacity for 15 persons to work in the Center. Trips associated with these employees were estimated using trip generation rates for general office buildings and are in addition to the trips associated with the conference room.

The trip generation calculations for Phase 2 are shown in Table 10.

Table 10 Trip Generation Calculations for Phase 2

Time Period	Direction	Conference Center			Employees			Total Trips
		Trips per Unit and In/Out Ratio	Seats	Trips	Trips per Unit and In/Out Ratio	Employees	Trips	
AM Peak Hour	Trips per Unit	0.80	250	200	0.48	15	7	207
	% Inbound	88%		176	88%		6	182
	% Outbound	12%		24	12%		1	25
PM Peak Hour	Trips per Unit	0.80	250	200	0.46	15	7	207
	% Inbound	17%		34	17%		1	35
	% Outbound	83%		166	83%		6	172

[10] *Trip Generation*, pp. 1053-1054

Phase 3- 2006 Through 2008

University Inn

Phase 3 consists of the University Inn, which is a 100-unit hotel. Some of the units may be converted to time-share unit at a later date. Time-share units have a slightly lower trip generation rate than hotels. However, the trip generation rates for hotels (land use code 310) were used for this analysis. The trip generation calculations are shown in Table 11.

Table 11 Trip Generation Calculations for University Inn

Time Period	Direction	Trips per Unit and In/Out Ratio	Units	Total Peak Hour Trips
AM Peak Hour	Total Trips per Unit	0.64	100	64
	% Inbound	55%		35
	% Outbound	45%		29
PM Peak Hour	Total Trips per Unit	0.74	100	74
	% Inbound	57%		42
	% Outbound	43%		32

Notes:
(1) Institute of Transportation Engineers, *Trip Generation*, 1997, p 506 - 507

In addition to the University Inn, a health spa and dining center are planned. For purposes of this study, it was assumed that the spa would be oriented to hotel visitors and campus residents and employees. Therefore, the trips associated with these two uses would be included in the previous calculations.

Summary - Phases 1, 2 and 3

The total trips generated by Phases 1, 2 and 3 are summarized in Table 12. Typically, the total number of project generated trips by a multi-use development is discounted to account for multi-purpose trips and walk-ins from adjacent areas, such as the UHH campus and adjacent housing. This discount ranges from 5% to 15%. For this study, this discount was not applied to the total project. It was assumed that the discount was included in the calculations for Phase 1.

Table 12 Trip Generation Summary

		AM Peak Hour			PM Peak Hour		
	Phase & Description	Total	In	Out	Total	In	Out
1	Commercial Center & Housing	191	105	86	562	272	290
2	Cultural Center	207	182	25	207	35	172
3	University Inn	64	35	29	74	42	32
	Totals	462	322	140	843	349	494

Project Trip Assignment

The total peak hour traffic volumes were assigned to the various traffic movements at the study intersections and driveways into and out of the project. The driveways providing access to and egress from the project have been designated 'A' through 'D' as follows:

Drive A	Drive A is along Kawili Street directly across from the UH-Hilo entrance. All traffic movements are allowed. This is the main entrance to the Conference Center and University Inn.
Drive B	Drive B is along Kawili Street approximately mid-way between Pualnako Street and the UH-Hilo Entrance (Drive A). All traffic movements are allowed. This is the main entrance to the commercial center. This driveway is across Kawili Street from the approximate entrance to the Multi-Purpose Sports and Recreational Complex. These driveways should be aligned to form a four-legged intersection. This driveway should also be linked with Drive A so that traffic to and from the commercial center can use either driveway.
Drive C	Drive C is midway between Pualnako Street and Drive B. Traffic movements are restricted to right turns in and right turns out only.
Drive D	Drive D is a service driveway along the east boundary of the project. No traffic is assigned to this driveway because use will be restricted to service vehicles during off-peak hours only.

The locations of these driveways and the project traffic assignments without and with the Pualnako Street Extension and Widening project are shown as Figures 9 and 10, respectively. Shown are the traffic assignments include traffic generated by all three phases of the project.

2010 Background Plus Project Peak Hour Traffic Volumes

2010 background plus project peak hour traffic volumes were estimated by adding project related traffic assignments shown in Figures 9 through 10 to the 2010 background peak hour traffic projections discussed in Chapter 3. The resulting 2010 peak hour traffic volumes ***without*** the Pualnako Street Extension project and ***with*** the Pualnako Street Extension project are shown in Figures 11 through 14.

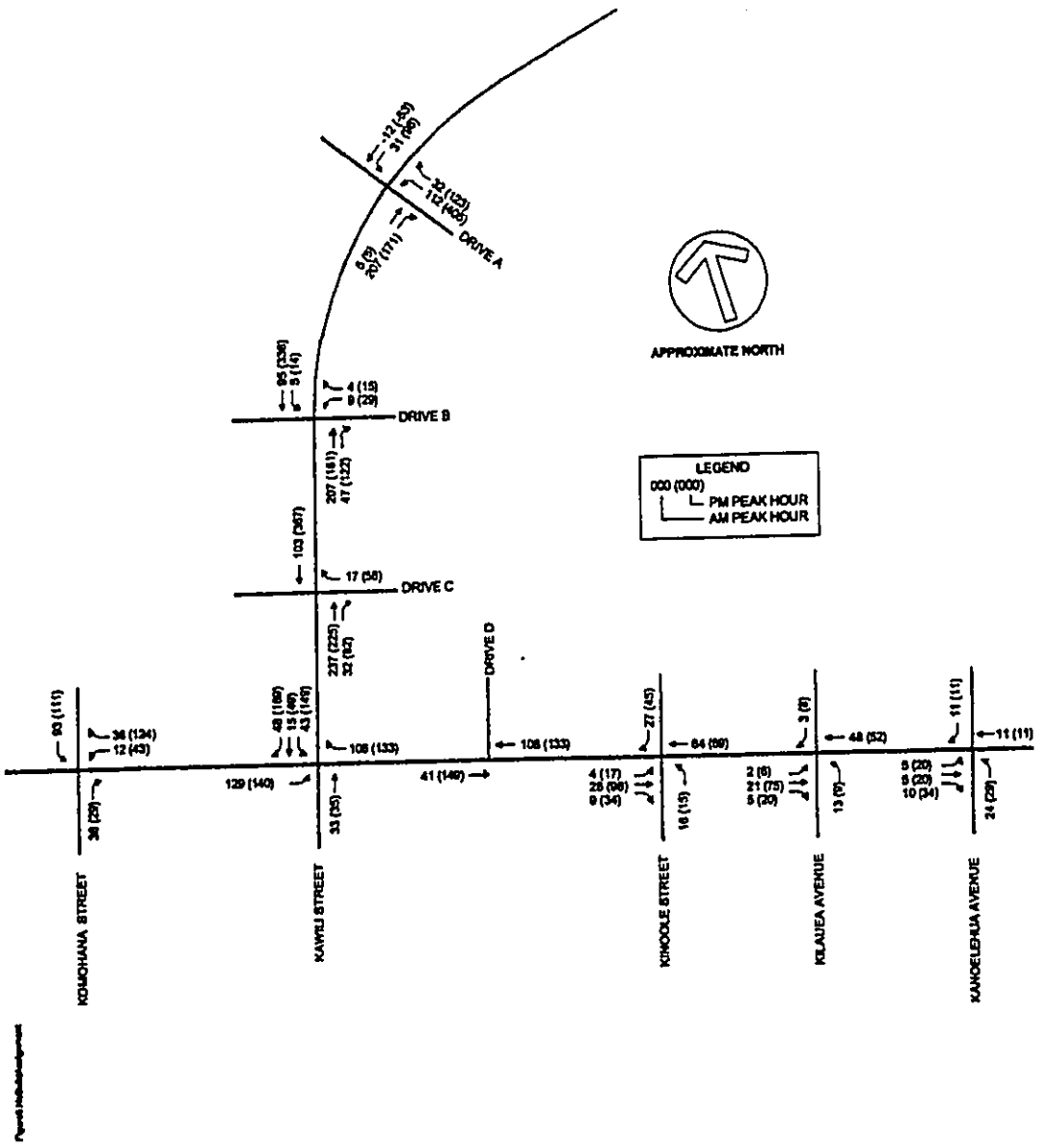

Figure 9

PROJECT TRIP ASSIGNMENTS WITHOUT PUAINAKO STREET EXTENSION

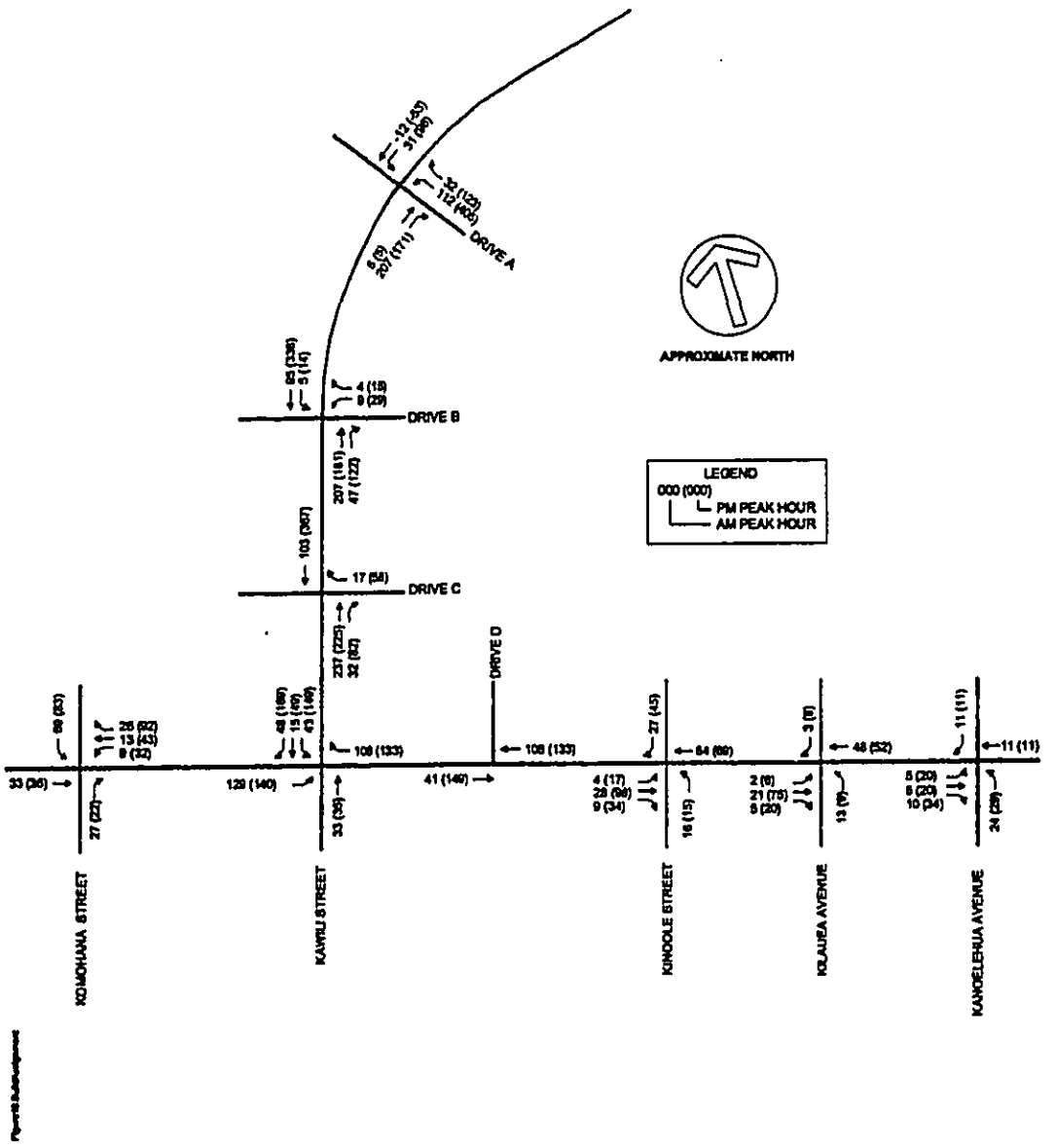

Figure 10

PROJECT TRIP ASSIGNMENTS WITH PUAINAKO STREET EXTENSION

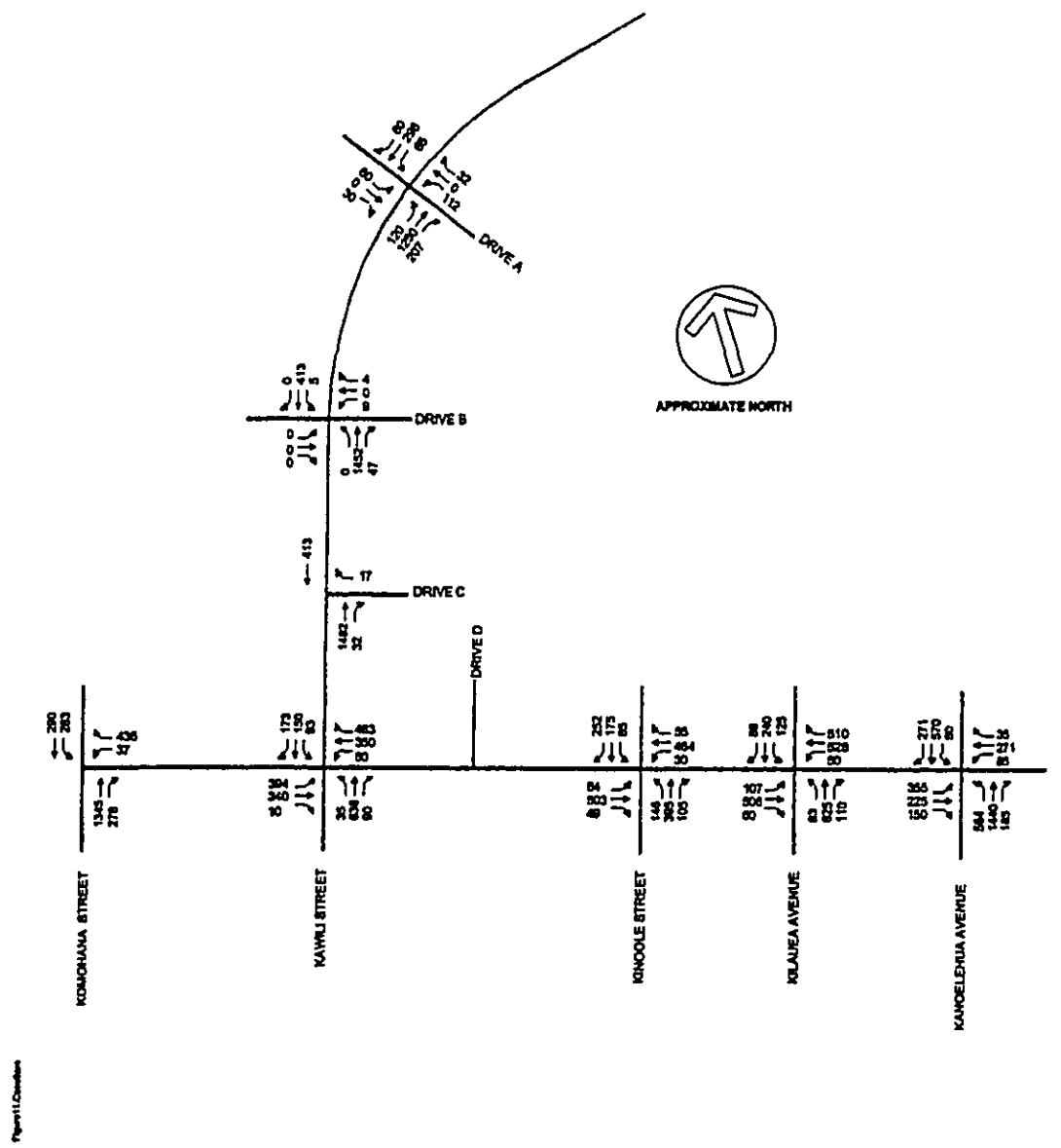

Figure 11

2010 CUMULATIVE AM PEAK HOUR TRAFFIC VOLUMES
WITHOUT PUAINAKO STREET PROJECT

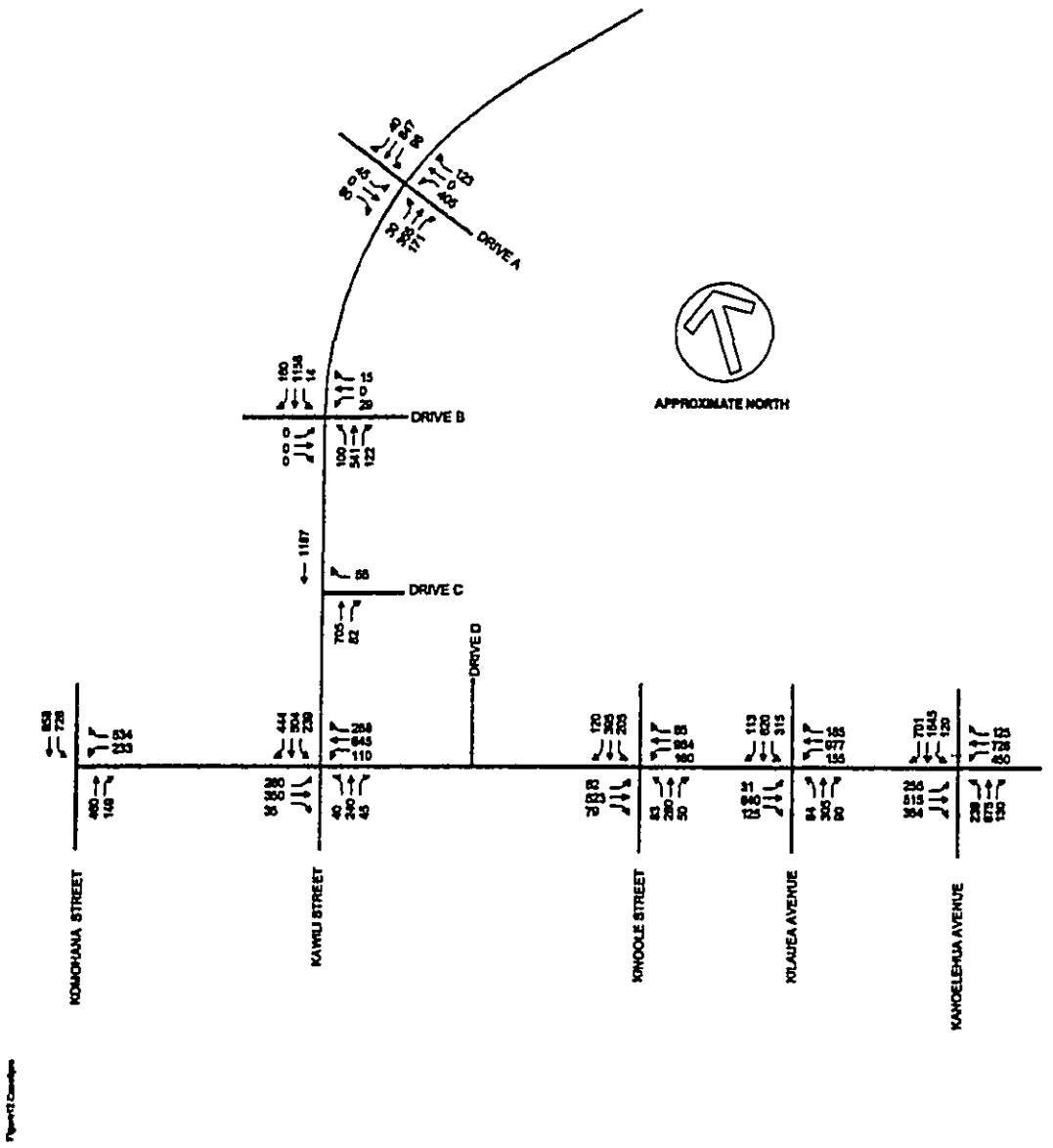

Figure 12

2010 CUMULATIVE PM PEAK HOUR TRAFFIC VOLUMES
WITHOUT PUAINAKO STREET PROJECT

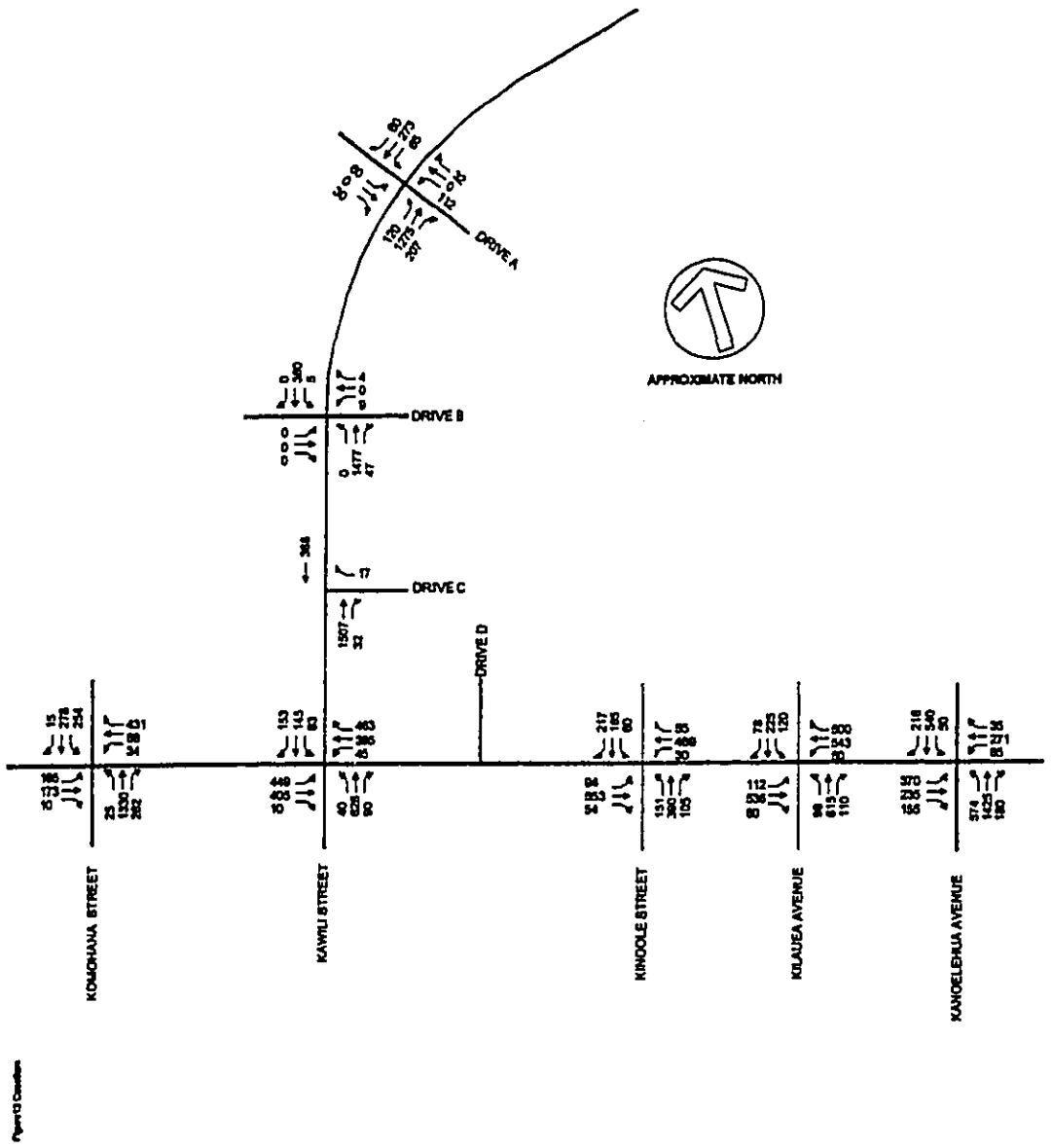

Figure 13

2010 CUMULATIVE AM PEAK HOUR TRAFFIC VOLUMES
WITH PUAINAKO STREET PROJECT

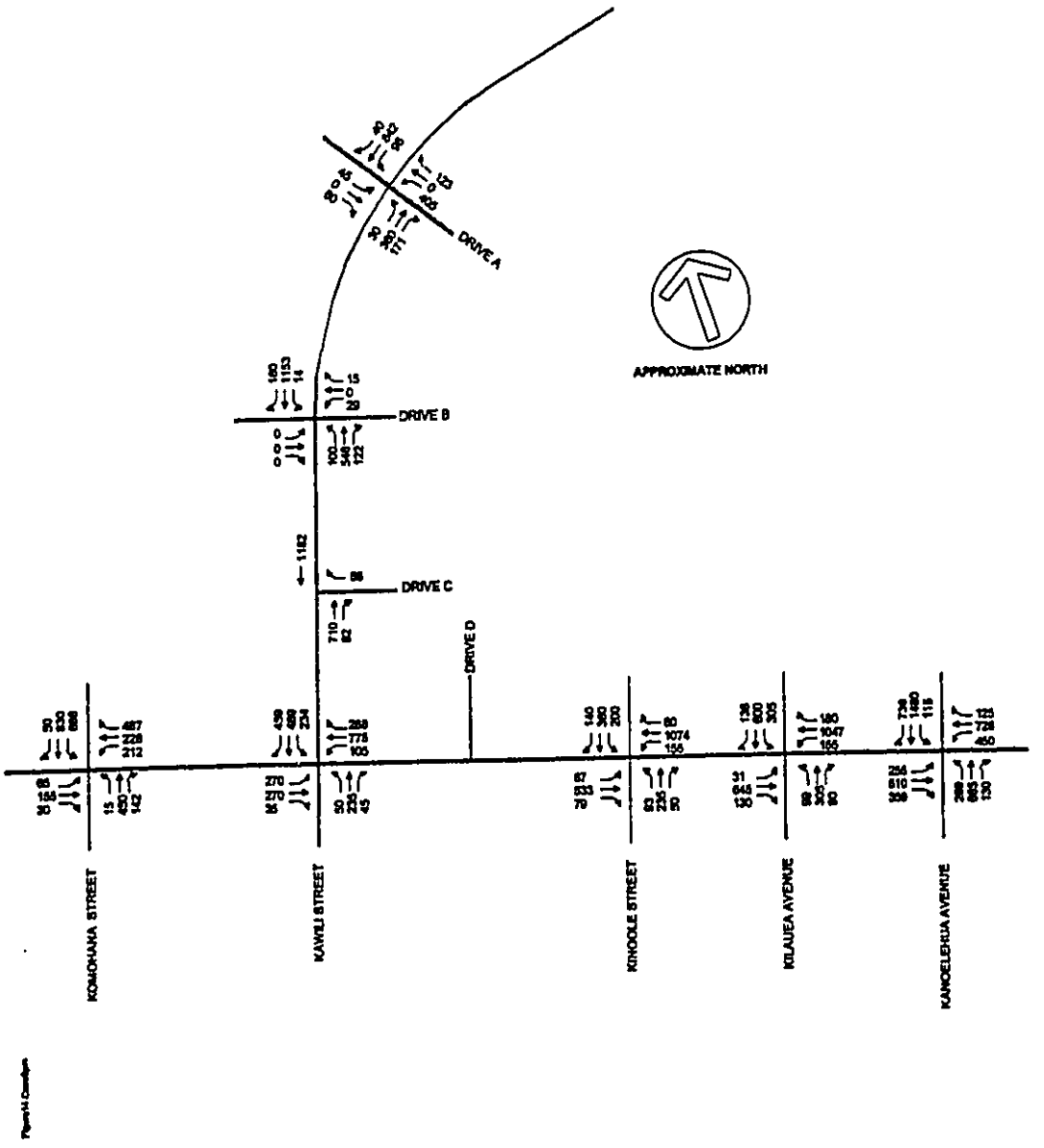

Figure 14

2010 CUMULATIVE PM PEAK HOUR TRAFFIC VOLUMES WITH PUAINAKO STREET PROJECT

5. CONCLUSIONS AND RECOMMENDATIONS

This chapter presents the conclusions of the impact analysis. Also presented is the criteria for determining if the impact is significant or not, the results of a traffic signal warrant analysis for the intersection of Kawili Street at Drive A and any mitigation measures necessary and feasible are identified.

Definition of Significant Impacts

Since there is no local criteria defining a significant traffic impact, criteria for identifying a significant traffic impact used by Los Angeles Department of Transportation was used for this study. The following criteria is used to define a significant impact for a signalized intersection:

Table 13 Definition of a Significant Traffic Impact[1]

Final V/C Ratio	Project Related Increase in V/C
0.700-0.800	equal to or greater than 0.040
0.800 - 0.900	equal to or greater than 0.020
> 0.900	equal to or greater than 0.010

NOTES:
(1) Los Angeles Department of Transportation, *Traffic Study Policies and Procedures*, 1993, page 10

There are no similar criteria for unsignalized intersections. The *Traffic Study Policies and Procedures* suggest that (1) unsignalized intersections be analyzed assuming signalized conditions so that intersections are evaluated using comparable criteria and (2) the volume-to-capacity ratio for the overall intersection, rather than each traffic movement, be used to evaluate the intersection.

In calculating the volume-to-capacity ratio for the overall intersection, deficient traffic movements may be overlooked because poor and good levels-of-service may balance, resulting in an acceptable level-of-service. Therefore, the criteria shown in Table 13 is used to define a significant impact for each traffic movement as well as the overall intersection.

Lastly, it should be noted that the criteria shown in Table 13 were developed before the latest revision to the Highway Capacity Manual, which now defines level-of-service based on delay rather than volume-to-capacity ratio.

Traffic Signal Warrant Analysis

A traffic signal warrant analysis was performed for the intersection of Kawili Street at Drive A and the UH-Hilo entrance to determine if a traffic signal is warranted for future conditions with the project. This also determines the methodology (signalized or unsignalized) for the level-of-service analysis The traffic signal warrant analysis was performed using the warrants and procedures described in the *Manual of Uniform Traffic Control Devices* (MUTCD) published by the U.S. Department of Transportation, Federal Highway Administration and Caltrans[11].

There are eleven warrants described in the MUTCD. These warrants and the results of the warrant analysis is shown in Table 14.

If the traffic conditions satisfy any of the warrants, then a traffic signal should be considered. The MUTCD clearly states that satisfaction of a warrant is not necessarily justification for a traffic signal. Conversely, a signal may be warranted even though no warrants may be satisfied. Other considerations may require signals to address safety and geometric issues. Delay, congestion, confusion or other evidence of the need of right-of-way assignment must also be shown.

The assumptions used in the analysis are:

1. The analysis was performed for 2010 conditions, with the Pualnako Street widening and extension.

2. Kawili Street is two lanes wide in each direction.

The conclusion of the traffic signal warrant analysis is that with the traffic from the proposed project, a traffic signal is warranted at the intersection of Kawili Street at Drive A. This conclusion is based on the afternoon peak hour traffic volumes generated by Phase 1 (the commercial center).

[11] Caltrans, Traffic Manual, pages 9-1 through 9-13.

Table 14 Traffic Signal Warrant Analysis

No.	Warrant	Kawili Street at Drive A		
		Satisfied		
		Yes	No	Comment
1	Minimum Vehicular Volume	Probable		
2	Interruption of Continuous Traffic	Probable		
3	Minimum Pedestrian Volume	Probable		
4	School Crossing	✔		
5	Progressive Movement	✔		
6	Accident Experience			(1)
7	Systems Warrant	✔		
8	Combination of Warrants	Probable		
9	Four Hour Volume	Probable		
10	Peak Hour Delay		✔	
11	Peak Hour Volume	✔		

Notes:
(1) Historical accident data is not available.

Impact Analysis

The impact analysis was performed for the study intersections using the following assumptions:

1. The intersection lane configurations for the study intersections are based on those shown in the *Traffic Impact Analysis Report for the Proposed Pualnako Street Extension.* The intersection configurations for the build and no-build alternative are shown in Figures 15 and 16, respectively.

2. Traffic signal timing is optimized for background plus project conditions.

Each study intersection is discussed separately in the following paragraphs. The impacts of the project without the widening and extension of Pualnako Street are shown to illustrate the need of the Pualnako Street project without and with the China - U.S. Center project. Mitigation measures have not been identified for this "No-Build" scenario. Mitigation measures have been identified for impacts of the project with the Pualnako Street project where needed and feasible.

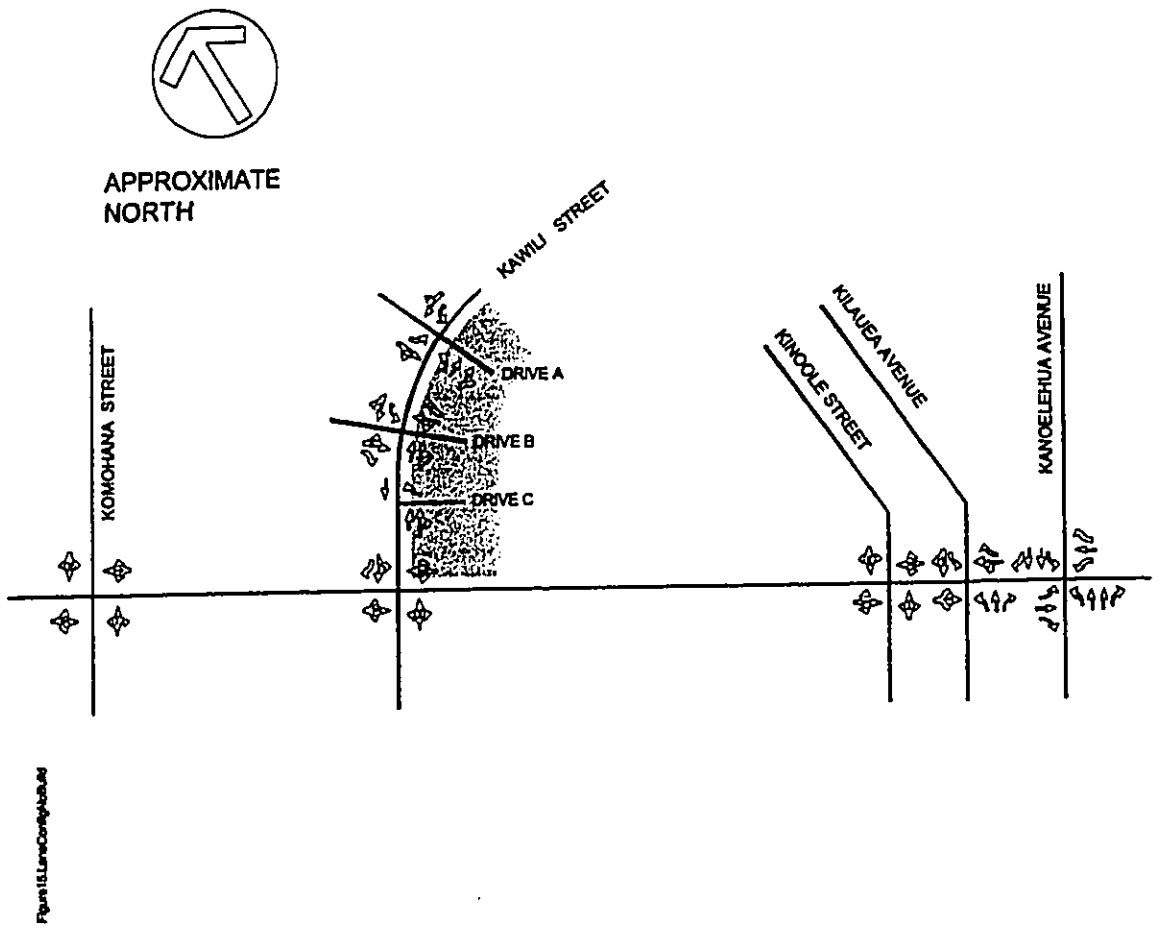

Figure15 LaneConfigNoBuild

Figure 15

LANE CONFIGURATIONS WITHOUT PUAINAKO STREET EXTENSION PROJECT

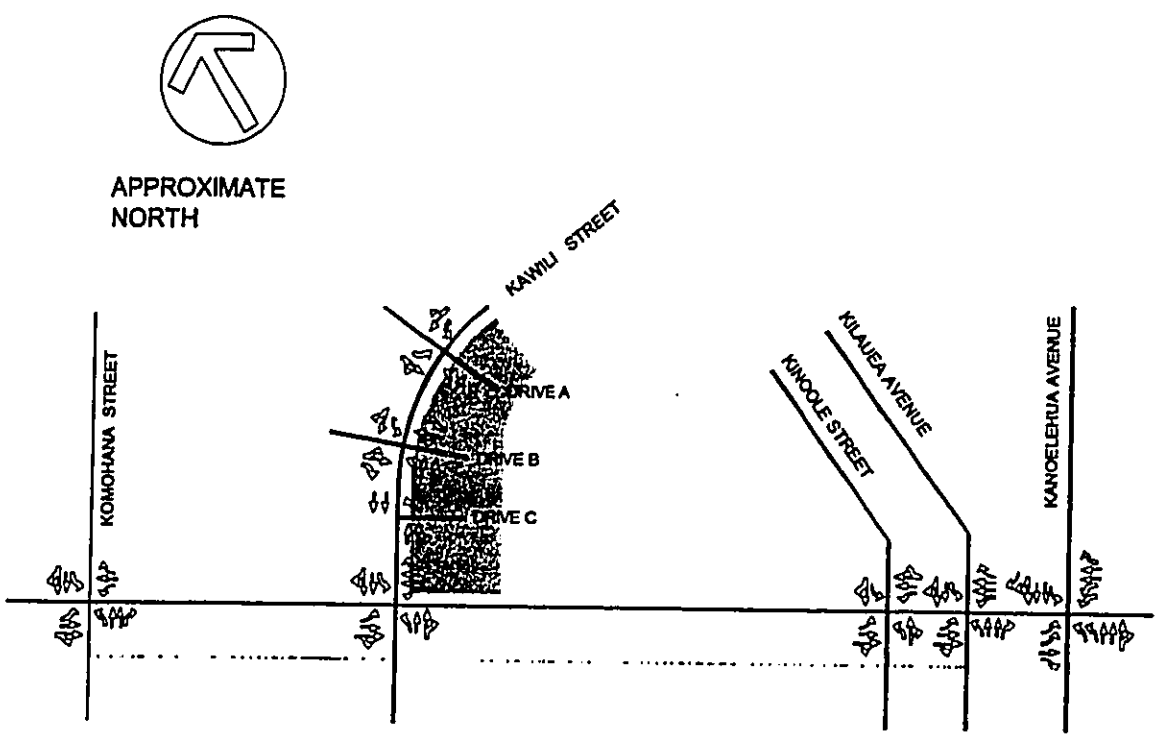

Figure 16

LANE CONFIGURATIONS WITH PUAINAKO STREET EXTENSION PROJECT

1 - Pualnako Street at Komohana Street

The results of the LOS analysis for the intersection of Pualnako Street at Komohana Street is shown in Table 15.

Without Pualnako Street Widening and Extension

Without the Pualnako Street Extension project, the intersection will operate at an unacceptable level-of-service without and with the China - U.S. Center project. This intersection was analyzed using the methodology for signalized conditions since a traffic signal is planned to be constructed in the near future. The delay to northbound and westbound traffic is so long that the overall intersection level-of-service is unacceptable.

With Pualnako Street Widening and Extension

With the Pualnako Street Extension project, the overall intersection will operate at LOS B without and C with the proposed project. Traffic from the project under study will have a significant impact on the southbound left turn from Komohana Street to Pualnako Street during the afternoon peak hour.

To mitigate these impacts, it is recommended that a second southbound left turn lane be provided. With this improvement, the LOS of the southbound left turn will improve from D to B for background plus project conditions. The overall intersection LOS will be B and all movements will operate at LOS C or better.

It should be noted that the study project, the China-U.S. Center, adds approximately 70 vehicles to southbound left turn during the afternoon peak hour, whereas the proposed Multi-Purpose Sports and Recreational Complex adds 200 vehicles per hour to this movement during the peak hour.[12] This is the traffic volume that decreased the level-of-service to justify the second left turn lane. Therefore, this second left turn lane is required to mitigate the impacts of the Multi-Purpose Sports and Recreational Complex rather than the China-U.S. Center. This traffic is would occur only when there is an event at the complex and not every afternoon.

[12] M&E Pacific, Inc., *Preliminary Traffic Assessment for a Proposed Multi-Purpose Sports and Recreational Complex at the University of Hawaii at Hilo*, December 17, 1999, page2 10 through 14.

Table 15 Level-of-Service Analysis for Pualnako Street at Komohana Street

Intersection and Movement	Background Without Project			Background With Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*1.34*	*185.9*	*F*	*1.44*	*210.3*	*F*	*0.100*	*24.4*
Westbound Left & Right	1.105	122.6	F	1.296	194.8	F	0.191	72.2
Northbound Thru & Right	1.494	243.2	F	1.512	251.5	F	0.018	8.3
Southbound Left	0.876	71.3	E	1.303	202.1	F	0.427	130.8
Southbound Thru	0.268	7.8	A	0.268	7.8	A	0.000	0.0
PM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*1.25*	*194.0*	*F*	*1.45*	*343.5*	*F*	*0.200*	*149.5*
Westbound Left & Right	2.618	783.0	F	3.611	N.A.	F	0.993	N.A.
Northbound Thru & Right	0.696	22.9	C	0.736	24.4	C	0.040	1.5
Southbound Left	1.098	95.3	F	1.297	175.0	F	0.199	79.7
Southbound Thru	1.046	66.2	E	1.046	66.2	E	0.000	0.0
AM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.82*	*15.7*	*B*	*0.88*	*16.5*	*B*	*0.060*	*0.8*
Eastbound Left	0.560	27.4	C	0.560	27.4	C	0.000	0.0
Eastbound Thru & Right	0.206	20.0	B	0.250	20.3	C	0.044	0.3
Westbound Left	0.130	25.9	C	0.177	26.6	C	0.047	0.7
Westbound Thru	0.284	28.4	C	0.353	29.8	C	0.069	1.4
Westbound Right	0.383	18.0	B	0.437	18.8	B	0.054	0.8
Northbound Left	0.052	7.9	A	0.052	7.9	A	0.000	0.0
Northbound Thru	0.806	16.6	B	0.806	16.6	B	0.000	0.0
Northbound Right	0.160	8.6	A	0.196	8.8	A	0.036	0.2
Southbound Left	0.482	13.1	B	0.660	19.5	B	0.178	6.4
Southbound Thru & Right	0.135	3.7	A	0.135	3.7	A	0.000	0.0
PM Peak Hour, With Pualnako Street Widening and Extension (signalized)	*0.80*	*19.7*	*B*	*0.88*	*21.9*	*C*	*0.080*	*2.2*
Eastbound Left	0.184	21.9	C	0.186	21.9	A	0.002	0.0
Eastbound Thru & Right	0.313	28.8	C	0.385	29.6	A	0.072	0.8
Westbound Left	0.380	18.3	B	0.464	19.6	A	0.084	1.3
Westbound Thru	0.406	24.1	C	0.499	25.8	B	0.093	1.7
Westbound Right	0.149	4.6	A	0.243	5.2	A	0.094	0.6
Northbound Left	0.125	26.4	C	0.125	26.4	A	0.000	0.0
Northbound Thru	0.750	35.3	D	0.750	35.3	C	0.000	0.0
Northbound Right	0.164	25.9	C	0.245	27.0	A	0.081	1.1
Southbound Left	0.804	20.3	C	0.914	29.7	D	0.110	9.4
Southbound Thru & Right	0.499	11.1	B	0.499	11.1	A	0.000	0.0

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity. V/C ratio is not calculated for unsignalized intersections.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.

2 - Pualnako Street at Kawili Street

The results of the LOS analysis for the intersection of Pualnako Street at Kawili Street is summarized in Table 16.

Without Pualnako Street Widening and Extension

Without the Pualnako Street Extension project, the LOS will be F, which is unacceptable, without and with the China-U.S. Center project during morning and afternoon peak hours.

With Pualnako Street Widening and Extension

The westbound through will operate at LOS D without and with the project during both peak periods. The volume-to-capacity ratio is 0.711 during the morning and 1.011 during the afternoon. The proposed project adds no traffic to this movement and the volume-to-capacity ratio does not change as a result of adding the project traffic. This means that the proposed project does not impact this traffic movement. Therefore, no mitigation is required.

The project has a significant impact on the eastbound left turn because on the additional project generated left turns. The volume-to-capacity ratio is 0.734 during the morning peak hour and 0.739 during the afternoon peak hour, indicating that the there is sufficient capacity. However, the volume-to-capacity ratio increases by 0.210 during the morning and 0.384 during the afternoon. Therefore, the project has a significant impact on the movement and mitigation is required. It is recommended that a second eastbound to northbound left turn lane be provided.

The project also has a significant impact on the southbound movements during the afternoon peak hour as a result of project generated traffic. To mitigate this impact, it is recommended that a separate southbound to westbound right turn lane be provided. This will allow more green time to the southbound left turn and through movement. These changes result in a lower volume-to-capacity ratio therefore mitigating the impact of the proposed project.

The results of the proposed mitigation measures are summarized in Table 17. As shown the eastbound left turn will operate at LOS C and the southbound movements will operate at LOS C or better.

Table 16 Level-of-Service Analysis for Puainako Street at Kawili Street

Intersection and Movement	Background Without Project			Background With Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour, Without Puainako Street Widening and Extension (Signalized)	*1.20*	*81.1*	*F*	*1.45*	*133.1*	*F*	*0.250*	*52.0*
Eastbound Left, Thru & Right	1.182	117.1	F	1.540	270.8	F	0.358	153.7
Westbound Left & Thru	0.467	12.5	B	0.474	12.6	B	0.007	0.1
Westbound Right	0.451	12.3	B	0.581	14.5	B	0.130	2.2
Northbound Left, Thru & Right	1.238	147.8	F	1.297	172.4	F	0.059	24.6
Southbound Left & Thru	0.541	27.6	C	1.063	101.9	F	0.522	74.3
Southbound Right	0.240	20.5	C	0.332	21.8	C	0.092	1.3
PM Peak Hour, Without Puainako Street Widening and Extension (Signalized)	*1.03*	*46.0*	*D*	*1.98*	*224.0*	*F*	*0.950*	*178.0*
Eastbound Left, Thru & Right	1.056	74.8	E	2.115	531.6	F	1.059	456.8
Westbound Left & Thru	0.940	37.2	D	0.963	41.9	D	0.023	4.7
Westbound Right	0.192	10.4	B	0.357	12.2	B	0.165	1.8
Northbound Left, Thru & Right	0.719	33.4	C	1.074	98.3	F	0.355	64.9
Southbound Left & Thru	0.981	59.4	E	1.788	391.1	F	0.807	331.7
Southbound Right	0.501	24.4	C	0.807	35.9	D	0.306	11.5
AM Peak Hour, With Puainako Street Widening and Extension (Signalized)	*0.61*	*25.0*	*C*	*0.73*	*26.1*	*C*	*0.120*	*1.1*
Eastbound Left	0.524	20.1	C	0.734	26.1	C	0.210	6.0
Eastbound Thru & Right	0.413	20.8	C	0.413	20.8	C	0.000	0.0
Westbound Left	0.117	22.0	C	0.117	22.0	C	0.000	0.0
Westbound Thru	0.711	35.1	D	0.711	35.1	D	0.000	0.0
Westbound Right	0.231	7.8	A	0.359	9.0	A	0.128	1.2
Northbound Left	0.249	33.1	C	0.249	33.1	C	0.000	0.0
Northbound Thru & Right	0.758	29.2	C	0.795	30.7	C	0.037	1.5
Southbound Left	0.316	34.6	C	0.582	44.0	D	0.266	9.4
Southbound Thru & Right	0.203	20.4	C	0.283	21.1	C	0.080	0.7
PM Peak Hour, With Puainako Street Widening and Extension (Signalized)	*0.60*	*42.1*	*C*	*0.87*	*45.6*	*D*	*0.270*	*3.5*
Eastbound Left	0.355	31.5	C	0.739	43.5	D	0.384	12.0
Eastbound Thru & Right	0.397	30.1	C	0.397	30.1	C	0.000	0.0
Westbound Left	0.288	30.4	C	0.288	30.4	C	0.000	0.0
Westbound Thru	1.011	67.5	D	1.011	67.5	D	0.000	0.0
Westbound Right	0.084	14.2	B	0.165	15.1	B	0.081	0.9
Northbound Left	0.173	32.1	C	0.173	32.1	C	0.000	0.0
Northbound Thru & Right	0.241	24.5	C	0.278	24.9	C	0.037	0.4
Southbound Left	0.290	33.8	C	0.802	53.6	E	0.512	19.8
Southbound Thru & Right	0.635	30.4	C	0.892	42.2	D	0.257	11.8

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on the volume-to-capacity ratio. See Table 2 on page 10.

Table 17 Level-of-Service Analysis for Pualnako Street at Kawill Street with Mitigation Measures

Intersection and Movement	Without Mitigation V/C[1]	With Mitigation V/C
AM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.73*	*0.59*
Eastbound Left	0.73	0.88
Eastbound Thru & Right	0.41	0.41
Westbound Left	0.12	0.12
Westbound Thru	0.71	0.71
Westbound Right	0.36	0.36
Northbound Left	0.25	0.25
Northbound Thru & Right	0.80	0.80
Southbound Left	0.58	0.58
Southbound Thru	0.28	0.16
Southbound Right		0.23
PM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.87*	*0.72*
Eastbound Left	0.74	0.38
Eastbound Thru & Right	0.40	0.40
Westbound Left	0.29	0.29
Westbound Thru	1.01	1.01
Westbound Right	0.16	0.15
Northbound Left	0.17	0.15
Northbound Thru & Right	0.28	0.31
Southbound Left	0.80	0.68
Southbound Thru	0.89	0.58
Southbound Right		0.77

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.

3 - *Pualnako Street at Kinoole Street*

The results of the LOS analysis for the intersection of Pualnako Street at Kinoole Street is summarized in Table 18.

Without Pualnako Street Widening and Extension

Without the Pualnako Street Extension project, this intersection will operate at LOS C during the morning peak hour and F during the afternoon peak hour, without and with the project. The volume-to-capacity ratios during the afternoon peak hour are high and the increases in the volume-to-capacity ratios are significant for the eastbound, westbound and northbound left turns.

With Pualnako Street Widening and Extension

With the Pualnako Street Extension project, the intersection will operate at LOS B during the morning peak hour without and with the project. The northbound through and right will operate at LOS E without and with the project. The project adds no traffic to this movement. Therefore, the project generated traffic has no impact.

During the afternoon peak hour, the LOS will be D without and with the project. The volume-to-capacity ratio of the westbound through and right turn will increase from 0.834 to 0.888, which is significant. It is recommended that a westbound right turn only lane be added. This will improve the overall intersection LOS and reduce the volume-to-capacity ratio to 0.490, which is lower than the volume-to-capacity ratio for background conditions without the project.

Table 18 Level-of-Service Analysis for Pualnako Street at Kinoole Street

Intersection and Movement	Background Without Project			Background With Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*0.79*	*19.7*	*B*	*0.80*	*21.0*	*C*	*0.010*	*1.3*
Eastbound Left, Thru & Right	0.808	20.4	C	0.822	21.3	C	0.014	0.9
Westbound Left, Thru & Right	0.582	13.1	B	0.655	14.6	B	0.073	1.5
Northbound Left	0.578	24.3	C	0.720	34.0	C	0.142	9.7
Northbound Thru & Right	0.761	23.9	C	0.761	23.9	C	0.000	0.0
Southbound Left	0.480	24.8	C	0.480	24.8	C	0.000	0.0
Southbound Thru & Right	0.614	19.3	B	0.661	20.5	C	0.047	1.2
PM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*1.21*	*107.2*	*F*	*1.33*	*131.6*	*F*	*0.120*	*24.4*
Eastbound Left, Thru & Right	0.624	16.3	B	0.835	21.7	C	0.211	5.4
Westbound Left, Thru & Right	1.421	215.5	F	1.568	276.7	F	0.147	61.2
Northbound Left	0.493	33.5	C	0.661	46.5	D	0.168	13.0
Northbound Thru & Right	0.519	25.1	C	0.548	21.5	C	0.027	-3.6
Southbound Left	0.894	61.4	E	0.942	66.6	E	0.048	5.2
Southbound Thru & Right	0.723	31.1	C	0.848	34.1	C	0.125	3.0
AM Peak Hour, With Pualnako Street Widening and Extension	*0.65*	*30.8*	*C*	*0.67*	*31.8*	*C*	*0.020*	*1.0*
Eastbound Left	0.503	46.7	D	0.525	48.0	D	0.022	1.3
Eastbound Thru & Right	0.563	28.3	C	0.605	29.4	C	0.042	1.1
Westbound Left	0.166	38.3	D	0.167	38.6	D	0.001	0.3
Westbound Thru & Right	0.475	26.8	C	0.542	28.2	C	0.067	1.4
Northbound Left	0.633	49.5	D	0.680	51.6	D	0.047	2.1
Northbound Thru & Right	0.763	32.0	C	0.767	32.6	C	0.004	0.6
Southbound Left	0.283	38.5	D	0.283	38.5	D	0.000	0.0
Southbound Thru & Right	0.526	24.5	C	0.578	26.1	C	0.052	1.6
PM Peak Hour, With Pualnako Street Widening and Extension	*0.85*	*37.6*	*D*	*0.90*	*40.4*	*D*	*0.050*	*2.8*
Eastbound Left	0.259	38.4	D	0.343	40.1	D	0.084	1.7
Eastbound Thru & Right	0.373	18.9	B	0.481	21.4	C	0.108	1.5
Westbound Left	0.796	63.5	E	0.796	63.5	E	0.000	0.0
Westbound Thru & Right	**0.834**	**30.3**	**C**	**0.888**	**33.8**	**C**	**0.054**	**3.5**
Northbound Left	0.371	40.3	D	0.460	42.7	D	0.089	2.4
Northbound Thru & Right	0.554	30.2	C	0.554	30.2	C	0.000	0.0
Southbound Left	0.991	96.7	F	0.991	96.7	F	0.000	0.0
Southbound Thru & Right	0.829	42.5	D	0.931	54.9	D	0.102	12.4

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on volume-to-capacity ratio. See Table 2 on page 10.

4 - Pualnako Street at Kilauea Avenue

The results of the LOS analysis for the intersection of Pualnako Street at Kilauea Street is summarized in Table 19.

Without Pualnako Street Widening and Extension

Without the Pualnako Street Extension project, the afternoon volume-to-capacity ratios are unacceptable without, or with the project, during the afternoon peak hour. The westbound and southbound movements are both overcapacity.

With Pualnako Street Widening and Extension

With the Pualnako Street Extension project, all movements will operate at LOS B or better during the morning peak hour, therefore the project's impact during the morning peak hour is insignificant. During the afternoon peak hour, the impact on the westbound through movement is significant. The volume-to-capacity ratio changes from 0.862 to 0.906, or 0.044, which is significant. A variety of traffic signal timing changes were analyzed for mitigation. However, since there is already a separate right turn storage lane and the traffic signal timing changes did not improve the volume-to-capacity ratio significantly, the conclusion is that the project's traffic impacts are not mitigable at this location.

Table 19 Level-of-Service Analysis for Pualnako Street at Kilauea Street

Intersection and Movement	Background Without Project			Background With Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*0.81*	*18.4*	*B*	*0.87*	*20.6*	*C*	*0.060*	*2.2*
Eastbound Left, Thru & Right	0.819	18.6	B	0.890	24.6	C	0.071	6.0
Westbound Left & Thru	0.588	10.6	B	0.639	11.5	B	0.051	0.9
Westbound Right	0.544	10.0	B	0.544	10.0	B	0.000	0.0
Northbound Left & Thru	0.782	24.7	C	0.834	27.5	C	0.052	2.8
Northbound Right	0.213	15.8	B	0.213	15.8	B	0.000	0.0
Southbound Left, Thru & Right	0.768	27.0	C	0.780	27.7	C	0.012	0.7
PM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*1.41*	*145.0*	*F*	*1.49*	*161.2*	*F*	*0.080*	*16.2*
Eastbound Left, Thru & Right	0.726	14.2	B	0.842	19.5	B	0.116	5.3
Westbound Left & Thru	1.338	173.4	F	1.446	221.0	F	0.108	47.6
Westbound Right	0.154	6.4	A	0.154	6.4	A	0.000	0.0
Northbound Left & Thru	0.667	26.0	C	0.705	27.5	C	0.038	1.5
Northbound Right	0.174	17.9	B	0.174	17.9	B	0.000	0.0
Southbound Left, Thru & Right	1.542	274.4	F	1.565	284.5	F	0.023	10.1
AM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.58*	*20.3*	*C*	*0.57*	*20.3*	*C*	*-0.010*	*0.0*
Eastbound Left	0.408	26.6	C	0.415	26.8	C	0.007	0.2
Eastbound Thru & Right	0.589	19.0	B	0.589	18.5	B	0.000	-0.5
Westbound Left	0.187	23.1	C	0.187	23.1	C	0.000	0.0
Westbound Thru	0.463	17.3	B	0.507	17.8	B	0.044	0.5
Westbound Right	0.329	2.6	A	0.329	2.6	A	0.000	0.0
Northbound Left	0.294	23.9	C	0.341	24.6	C	0.047	0.7
Northbound Thru	0.828	31.5	C	0.828	31.5	C	0.000	0.0
Northbound Right	0.182	19.8	B	0.182	19.8	B	0.000	0.0
Southbound Left	0.416	26.0	C	0.416	26.0	C	0.000	0.0
Southbound Thru & Right	0.382	21.1	C	0.386	21.1	C	0.004	0.0
PM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.87*	*38.3*	*D*	*0.89*	*39.6*	*D*	*0.020*	*1.3*
Eastbound Left	0.119	35.8	D	0.145	36.2	D	0.026	0.4
Eastbound Thru & Right	0.563	25.4	C	0.648	27.1	C	0.085	1.7
Westbound Left	0.732	56.1	E	0.732	56.1	E	0.000	0.0
Westbound Thru	0.862	34.9	C	0.906	38.6	D	0.044	3.7
Westbound Right	0.045	1.3	A	0.045	1.3	A	0.000	0.0
Northbound Left	0.280	32.8	C	0.308	33.3	C	0.028	0.5
Northbound Thru	0.375	29.3	C	0.375	29.3	C	0.000	0.0
Northbound Right	0.109	26.7	C	0.109	26.7	C	0.000	0.0
Southbound Left	0.950	72.3	E	0.950	72.3	E	0.000	0.0
Southbound Thru & Right	0.878	44.6	D	0.889	45.7	D	0.011	1.1

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on volume-to-capacity ratio. See Table 2 on page 10.

5 - Pualnako Street at Kanoelehua Street

The results of the LOS analysis for Pualnako Street at Kanoelehua Street is summarized in Table 20.

Without Pualnako Street Widening and Extension

Without the Pualnako Street Extension project, the LOS's are unacceptable. No improvements were identified that would mitigate the project's traffic impacts.

With Pualnako Street Widening and Extension

During the morning peak hour, the project does not have a significant impact on any traffic movements. All movements except the eastbound left turn will operate at LOS C or better. The eastbound left turn will operate at LOS D without and with the project. The overall intersection will operate at LOS C without and with the project.

During the afternoon peak hour, the intersection will operate at LOS E without and with the project. The project has a significant impact on the eastbound through movement, the westbound through movement and the southbound through and right movements. The impacts on the eastbound and westbound through movements cannot be mitigated as the construction of additional through lanes does not appear to be feasible.

The impact to the southbound through movement can be mitigated with a separate right turn lane. This will improve the volume-to-capacity ratio from 1.171 (LOS F) to 0.682 (LOS B) for the through movement and 0.072 (LOS A) for the right turn movement. This improvement may nor be feasible because of limited right-of-way.

The traffic signal timing was optimized for the background plus project conditions with no improvement in the volume-to-capacity ratio.

Table 19 Level-of-Service Analysis for Puainako Street at Kanoelehua Street

Intersection and Movement	Background Without Project			Background With Project			Changes	
	V/C[2]	Delay[3]	LOS[4]	V/C	Delay	LOS	V/C	Delay
AM Peak Hour, Without Puainako Street Widening and Extension	*0.92*	*58.3*	*E*	*0.95*	*60.4*	*E*	*0.030*	*2.1*
Eastbound Left	0.956	90.5	F	0.968	93.2	F	0.012	2.7
Eastbound Thru	0.377	38.0	D	0.386	38.2	D	0.009	0.2
Eastbound Right	0.253	35.7	D	0.273	36.1	D	0.020	0.4
Westbound Left	0.895	130.9	F	0.895	130.9	F	0.000	0.0
Westbound Thru	0.876	84.6	F	0.912	90.6	F	0.036	5.8
Westbound Right	0.121	51.6	D	0.121	51.6	D	0.000	0.0
Northbound Left	0.930	67.0	E	0.972	75.3	E	0.042	8.3
Northbound Thru	0.843	34.2	C	0.843	34.2	C	0.000	0.0
Northbound Right	0.569	59.3	E	0.569	59.3	E	0.000	0.0
Southbound Left	0.903	159.1	F	0.903	159.1	F	0.000	0.0
Southbound Thru & Right	0.888	66.0	E	0.900	69.3	E	0.012	1.3
PM Peak Hour, Without Puainako Street Widening and Extension	*1.25*	*198.7*	*F*	*1.29*	*203.1*	*F*	*0.040*	*4.4*
Eastbound Left	0.702	65.5	E	0.761	69.4	E	0.059	3.9
Eastbound Thru	0.906	68.2	E	0.942	74.2	E	0.036	6.0
Eastbound Right	0.634	49.1	D	0.705	52.5	D	0.071	3.4
Westbound Left	2.304	666.8	F	2.304	666.8	F	0.000	0.0
Westbound Thru	1.792	422.7	F	1.822	435.7	F	0.030	13.0
Westbound Right	0.334	49.9	D	0.334	49.9	D	0.000	0.0
Northbound Left	1.089	152.9	F	1.243	208.1	F	0.154	55.2
Northbound Thru	0.450	28.1	C	0.450	28.1	C	0.000	0.0
Northbound Right	0.200	29.7	C	0.200	29.7	C	0.000	0.0
Southbound Left	1.267	245.8	F	1.267	245.8	F	0.000	0.0
Southbound Thru & Right	1.260	165.7	F	1.266	168.6	F	0.006	2.9
AM Peak Hour, With Puainako Street Widening and Extension	*0.61*	*24.4*	*C*	*0.61*	*24.5*	*C*	*0.000*	*0.1*
Eastbound Left	0.806	42.8	D	0.815	43.5	D	0.009	0.7
Eastbound Thru	0.477	24.5	C	0.486	24.7	C	0.009	0.2
Eastbound Right	0.157	6.7	A	0.168	6.8	A	0.011	0.1
Westbound Left	0.276	32.3	C	0.276	32.3	C	0.000	0.0
Westbound Thru	0.340	24.0	C	0.354	24.2	C	0.014	0.2
Westbound Right	0.074	21.9	C	0.074	21.9	C	0.000	0.0
Northbound Left	0.550	22.3	C	0.574	22.7	C	0.024	0.4
Northbound Thru	0.763	19.9	B	0.763	19.9	B	0.000	0.0
Northbound Right	0.295	33.7	C	0.295	33.7	C	0.000	0.0
Southbound Left	0.525	26.6	C	0.525	26.6	C	0.000	0.0
Southbound Thru & Right	0.567	31.5	C	0.601	32.6	C	0.034	1.1
PM Peak Hour, With Puainako Street Widening and Extension	*0.98*	*65.3*	*E*	*1.01*	*68.2*	*E*	*0.030*	*2.9*
Eastbound Left	0.495	49.9	D	0.537	50.8	D	0.042	0.9
Eastbound Thru	1.108	117.8	F	1.155	135.0	F	0.047	17.2
Eastbound Right	0.227	20.8	C	0.279	21.5	C	0.052	0.7
Westbound Left	1.101	124.6	F	1.101	124.6	F	0.000	0.0
Westbound Thru	0.925	61.7	E	0.941	64.0	E	0.016	2.3
Westbound Right	0.289	39.2	D	0.289	39.2	D	0.000	0.0
Northbound Left	0.394	43.8	D	0.442	44.6	D	0.048	0.8
Northbound Thru	0.350	19.6	B	0.350	19.6	B	0.000	0.0
Northbound Right	0.901	107.5	F	0.901	107.5	F	0.000	0.0
Southbound Left	0.861	40.3	D	0.861	40.3	D	0.000	0.0
Southbound Thru & Right	1.150	123.3	F	1.171	131.8	F	0.021	8.5

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on volume-to-capacity ratio. See Table 2 on page 10.

6 - Kawili Street at Drive A

The result of the LOS analysis for the intersection of Kawili Street at Drive A into the project are shown in Table 21.

Levels-of-service are not shown for "background without project" conditions because without the proposed project, this intersection would remain an unsignalized, three-legged intersection. For "background with project" conditions, this intersection is a signalized, four-legged intersection.

Without Puainako Street Widening and Extension

Without the Puainako Street Extension project, the westbound left and through movement and the northbound through movements will not operate at acceptable levels-of-service. To provide an acceptable level-of-service, Kawili Street should be widened to provide additional northbound capacity through the subject intersection.

With Puainako Street Widening and Extension

The configuration assumed will provide acceptable levels-of-service during the peak hours with the Puainako Street Extension project. The delays on several approaches result in LOS D. However, the volume-to-capacity ratio is low, indicating that the delay is the result of the traffic signal timing, not a result on insufficient capacity.

Table 21 Level-of-Service Analysis for Kawili Street at Drive A

Intersection and Movement	Background With Project		
	V/C[2]	Delay[3]	LOS[4]
AM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*0.95*	*26.3*	*C*
Eastbound Left & Thru	0.515	47.5	D
Eastbound Right	0.300	40.0	D
Westbound Left & Thru	0.954	102.1	F
Westbound Right	0.273	39.1	D
Northbound Left	0.875	79.6	E
Northbound Thru	0.953	22.2	C
Northbound Right	0.172	2.6	A
Southbound Left	*0.474*	*42.9*	*D*
Southbound Thru & Right	0.280	3.1	A
PM Peak Hour, Without Pualnako Street Widening and Extension (Signalized)	*1.02*	*43.1*	*D*
Eastbound Left & Thru	0.166	17.0	B
Eastbound Right	0.168	16.5	B
Westbound Left & Thru	1.051	79.8	E
Westbound Right	0.248	17.4	B
Northbound Left	0.280	35.2	D
Northbound Thru	0.401	10.9	B
Northbound Right	0.207	9.2	A
Southbound Left	0.907	91.3	F
Southbound Thru & Right	1.010	47.3	D
AM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.59*	*12.0*	*B*
Eastbound Left & Thru	0.372	32.3	C
Eastbound Right	0.163	27.5	C
Westbound Left & Thru	0.200	28.4	C
Westbound Right	0.586	39.0	D
Northbound Left	0.552	35.6	D
Northbound Thru	0.604	7.8	A
Northbound Right	0.203	5.1	A
Southbound Left	0.300	29.0	C
Southbound Thru & Right	0.162	4.7	A
PM Peak Hour, With Pualnako Street Widening and Extension (Signalized)	*0.74*	*21.1*	*C*
Eastbound Left & Thru	0.091	11.3	B
Eastbound Right	0.124	11.5	B
Westbound Left & Thru	0.775	25.7	C
Westbound Right	0.183	12.0	B
Northbound Left	0.208	31.7	C
Northbound Thru	0.292	15.2	B
Northbound Right	0.282	15.8	B
Southbound Left	0.673	50.5	D
Southbound Thru & Right	0.719	21.3	C

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. V/C denotes ratio of volume to capacity.
3. Delay is in seconds per vehicle.
4. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on volume-to-capacity ratio. See Table 2 on page 10.

Left Turn Storage Lane Analysis

The Left turn storage lengths required to accommodate estimated traffic volumes was calculated using guidelines in *A Policy on Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials, 1990 edition. There are separate policies for signalized and unsignalized intersections. Based on this policy, the assumptions used to determine the required lengths of the left turn storage lanes are:

1. For signalized intersections, the length of the left turn storage lane should be based on two times the average number of vehicles arriving during a signal cycle during the peak hour.

2. The average length required per vehicle is 25 feet.

3. The traffic signal cycle length is 90 seconds.

4. For unsignalized intersections and driveways, the length of the left turn storage lane should be based on twice the number of vehicles arriving per minute during the peak hour.

5. The minimum length of a left turn storage lane should be 50 feet, which is sufficient to accommodate two vehicles.

Using the above criteria, the left turn storage lane requirements along Kawili Street adjacent to the project are shown in Table 22. The results indicate that the left turn storage lengths shown on the current striping plans are sufficient for cumulative plus project peak hour traffic volumes.

Table 22 Left Turn Storage Lane Analysis - Background Plus Project Peak Hour

Intersection	Right-of-Way Control	Approach	Design Volume	Min. Queue Length Req'd[1]		Length Recommended
				Vehicles[2]	Feet	
Kawili Street at Drive A	Signalized	NB	120	3	75	150
		SB	96	3	75	150
Kawili Street at Drive B	Unsignalized	NB	100	3	75	150
		SB	14	2	50	100

NOTES:
(1) Reference: *A Policy on Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials, 1990 edition
(2) Minimum is 2 vehicles

Conclusions and Recommendations

The conclusions of the Level-of-Service analysis for 2010 cumulative plus project conditions are:

1. Without the Pualnako Street Extension project, levels-of-service along Pualnako Street will be unacceptable, whether the proposed project is constructed or not. The level-of-service analysis concluded that congestion exists along this corridor under existing conditions and can be expected to worsen in the future.

2. Roadway improvements to mitigate the project's traffic impacts are:

    a. Widen the southbound approach of Komohana Street at Pualnako Street to provide two left turn lanes.

    b. Kawili Street should be two lanes in each direction between Pualnako Street and Drive A to the project.

    c. The intersection of Kawili Street at Drive A should be signalized.

    d. At the intersection of Kawili Street at Pualnako Street, a southbound right turn only lane and a second eastbound left turn lane should be provided.

    e. At the intersection of Pualnako Street at Kinoole Street, a westbound right turn only lane should be added.

    f. At the intersection of Pualnako Street at Kanoelehua Street, the feasibility of a separate southbound right turn lane should be investigated. If feasible, this separate right turn lane should be constructed.

    g. Drive B should be aligned as close as possible with the access road to multipurpose sports and recreational complex as possible to create a four-legged intersection.

A schematic drawing of the adjacent roadway network incorporating the above recommendations is show in Figure 17.

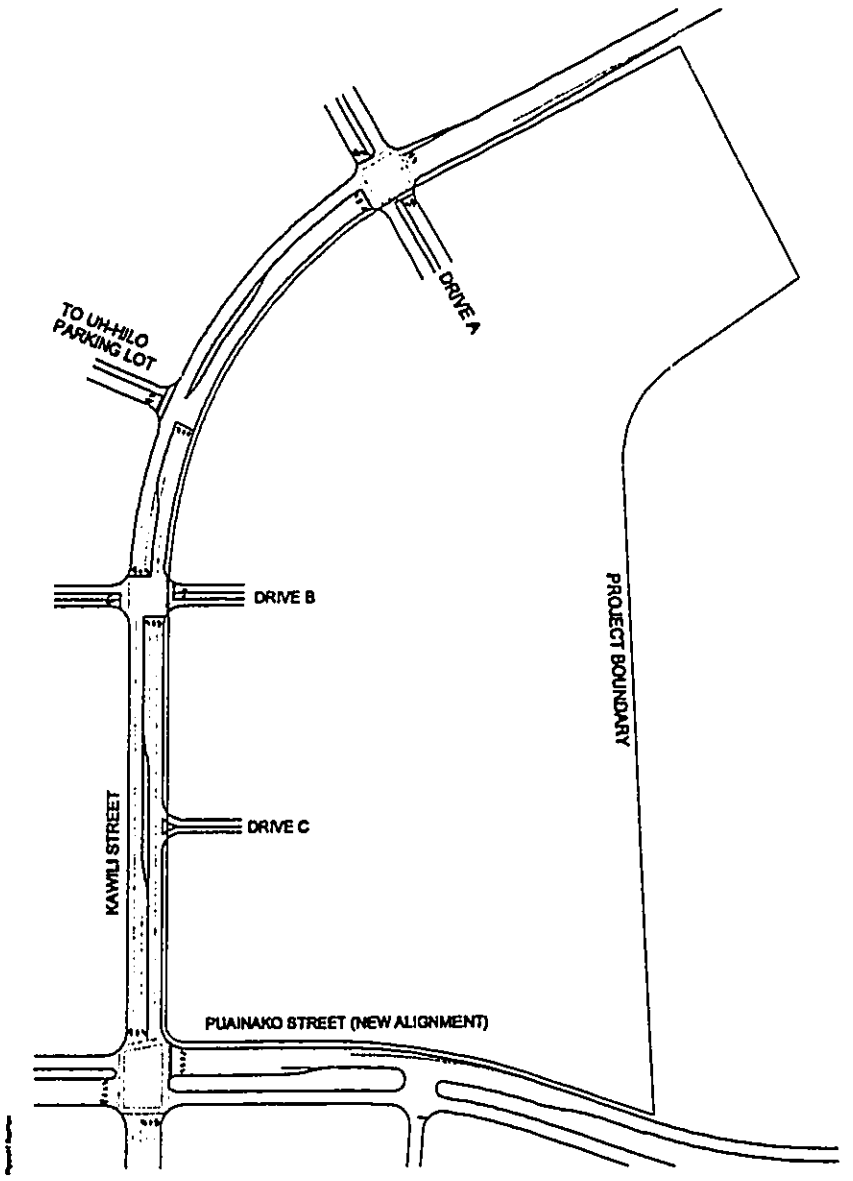

Figure 17

SCHEMATIC OF PROPOSED ROADWAY CONFIGURATIONS

Final Environmental Impact Statement

China-U.S. Center

APPENDIX 4

Engineering Report

ENGINEERING STUDY

for

CHINA – U.S. CENTER
HILO, HAWAII

MARCH 28, 2002

Prepared By:

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TABLE OF CONTENTS

I. CONSTRUCTION ACTIVITIES

A. EXISTING CONDITIONS AND POTENTIAL IMPACTS

The project site is covered with heavy vegetation and soil erosion is minimal. However, the potential for soil erosion will increase during the construction period due to the removal of existing vegetal ground cover. Increased erosion could consequently degrade water quality of downstream receiving water by the sediment transported through surface runoff.

B. MITIGATION MEASURES

Best management practices (BMPs) will be used to minimize soil erosion and sediment transport. The BMPs may include, but not limited to, the following:

- installation of temporary ground cover through hydromulching or placing erosion control matting/geotextile material to stabilize slopes and to reduce exposing time of barren surfaces. Surface flow from an exposed slope shall not be permitted.

- construction of gravel vehicle ingress/egress at entrance to the site to minimize tracking debris offsite. Reduction in the tracking of sediments onto paved roads help to prevent the deposition of sediments into local storm drainage systems and the production of airborne dust. The stabilized construction entrance shall be located at any point where traffic will be entering or leaving a construction site to or from a public right-of-way.

- installation of silt fences, berms, and temporary silt basins to lessen the potential of sediment transportation. These "filter" devices prevent sediment form entering receiving waters. Sediment trapping devices should be used down slope of all disturbed areas and around the base of all material stockpiles.

- installation of temporary grassed interceptor swales to divert off-site runoff away from disturbed areas where the erosion risk is high.

- conformance with the air pollution control standards contained in Hawaii Administrative rules Chapter 11-60, "Air Pollution Control". The Contractor shall keep the project area and surrounding area free from dust nuisance. Different forms of dust control can be employed to reduce dust emission, such as vegetative cover, mulch, spray on adhesives, water sprinkling, topsoiling, and barriers.

Erosion control plans shall be prepared for construction activities during the design phase or be furnished by the future contractor. The plans shall coordinate with construction schedules. A

set of approved plans shall be kept at the construction site all the time. The Contractor shall be responsible for monitoring and maintenance of erosion and sediment control devises.

If storm water will be discharged offsite during construction, a National Pollutant Discharge Elimination System (NPDES) permit shall be obtained before commencement of any earthwork.

II. DRAINAGE

A. EXISTING CONDITION AND POTENTIAL IMPACTS

The project site is currently vacant and covered with brushes and trees. According to the Flood Insurance Rate Map (FIRM, Community – Panel Number 155166 0880 C), the entire project site is designated as Zone X – area determined to be outside the 500-year flood plain. A partial copy of the FIRM map (Figure A1) is included in the Appendix A of this report. The site is naturally drained through surface flow. Storm water runoff from more than half of the site flows eastwards onto the Waiakea Intermediate School site through two existing 24" concrete pipes and overland flow. Runoff from the rest of the project site sheet flows either onto West Kawili Street or into the open area between the project site and Waiakea High School.

Along the site's southern boundary, runoff from half of Puainako Street flows onto the project site. Along the western boundary, runoff sheet flows onto the project site from the southern end portion of West Kawili Street. In addition, an existing 36" concrete pipe under West Kawili Street, which is connected to an earth swale running along the west side of West Kawili Street, also conveys some off-site runoff onto the site.

The proposed development calls for construction of impervious surfaces on the project site, e.g. buildings and parking areas. Therefore, the onsite runoff will increase. The construction has the potential to add burdens on the existing downstream drainage systems, causing flood damages and to increase the volume of sediment carried to receiving waters.

B. MITIGATION MEASURES

Since the area of the project site is less than one hundred acres, the onsite drainage system shall be designed for a minimum 10-year storm recurrence, per the County's design criteria. The systems shall be able to maintain current pre-development runoff rate that is discharging onto the downstream properties. Drywells shall be employed to dispose all increased runoff due to the proposed construction. The locations of drywells shall be determined during the design phase after the site layout is finalized. The site surface shall be landscaped to control onsite erosion and grass areas/swales shall be used to the maximum extent as filters to reduce sediment transportation, thus minimizing the potential impact on storm water quality.

III. POTABLE WATER SUPPLY

A. EXISTING CONDITION AND POTENTIAL IMPACTS

An existing 8-inch water transmission line is located on West Kawili Street. This line is a part of the Hawaii County Department of Water Supply (DWS) Kawailani/Haihai system. The line is fed by the Kawailani Reservoir, with a capacity of 0.5 million gallons (MG), as well as the two Haihai Reservoirs, with capacities of 0.1 MG and 0.5 MG. The system currently serves approximately 3,000 residential lots off Kawailani, Haihai, and Puainako Streets, the southern portion of UH-Hilo campus, and ASH Housing.

According to a report titled "Water Study for the University of Hawaii Hilo Fire Safety Improvements" (DMT Consultant Engineers, October 1997) the existing demands on the system (average daily demand 1.263 MG, maximum daily demand 1.894 MG) already exceeds the total capacity of the three reservoirs (1.10 MG). The existing supply system does not meet the following DWS criteria:

- maximum day consumption with reservoir full at the beginning of a 24-hour period with no source input to the reservoir, and
- fire flow plus maximum daily demand for a 2-hour duration with reservoir ¾ full at start of fire and required residual pressure at critical fire hydrants.

For this report, the water demand is estimated based on land use type and water usage per capita as the design of the facility is still in the preliminary stages. The calculations are based on the following assumptions:

- the proposed 502 dorm rooms (one person per room) will be divided into 251 units, two rooms per unit
- the water consumption by dorm units (300 gallons per day, gpd) and one-person professor suites (200 gpd) are less than 400 gpd as defined in the Standards for the multi-family low rise category
- the Cultural Center is considered as a school type facility since its main function is for conferences
- the Harmony Tower is categorized as a commercial facility in water demand calculation.

A table of the projected daily demands for the proposed development is located in the Appendix B of this report. The average daily water usage for the project site has been calculated as 134,102 gallons per day (gpd). The maximum daily demand and peak hour flow were calculated as 201,153 gpd (one and half times of the average daily demand) and 670,510 gpd (five times of the average daily demand) respectively.

201,150 gpd (one and half times of the average daily demand) and 670,500 gpd (five times of the average daily demand) respectively.

As indicated in the Water Study report by DMT Consultant Engineers, the existing system is not adequate to provide new services for the proposed project. A new water supply system, 1.0-MG reservoir with compatible transmission lines, is currently under construction as the result of the analysis presented in the Water Study. The new reservoir is set at a ground elevation of about 459 feet and spillway elevation of 479 feet to approximately match the Kawailani/Haihai reservoirs. According to the Water Study report, this new system has a reserve of 437,200 gallons maximum daily besides serving entire UH–Hilo (UHH) campus and the University Park. After the new water system comes in service, the water supply (29,000 gpd), to UHH from Haiai/Kawailani system will be freed up. However, this is a very limited amount of water and cannot support the entire project site. Therefore, additional water supply sources have to be explored or constructed for the proposed development.

To bring water to the project site, new transmission and service lines need to be constructed under West Kawili Street. This activity will have impact on local traffic during line installation.

B. MITIGATION MEASURES

Through contact with the Facility Planning and Construction Office of UHH, UHH does not have objections serving the project site from the new water system described above if the County agrees (see attached letter in Appendix of this report, dated April 99, 2001). The Department of Water Supply (DWS) indicated that the County would require the payment of the current rate of the facility charges at the time of development. The total fee would be based on the number of water units required by the development.

UHH pointed out that the new classroom/office building site, which is about two hundred feet away from West Kawili Street, is the closest point on the new water system to the project site. There are two lines coming down from the new 12" line on Nowelo Street, a 12" line for fire protection and a 6" line providing domestic use.

Although the new reservoir has adequate capacity to support the proposed development, it is critical to ensure that the pressures in the system can deliver the demand and meet the County's residual pressure requirements for fire flow and peak hour flow. The County's design criteria states that the follow pressures be maintained:

- 20 psi residual pressure at critical fire hydrants for fire flow plus maximum daily demand, and
- 40 psi residual pressure at critical point for the peak hour flow.

A preliminary pressure analysis was conducted based on the available information on the new water system (see attachments located in the Appendix of this report). For the analysis, it was assumed that the service to the site is from the 12" and 6" lines by the new classroom/office building. Based on the topographic survey map and the site layout, the southeast corner of the site appears to be the critical point. In the pressure calculation, the friction losses through all pipe fittings are not included. The analysis results show that 12" fire line probably is adequate but an 8" line for domestic flow is required if the domestic demand is entirely supplied by the new water system. Detailed pressure analysis should be performed for the entire system during the design phase.

To alleviate the impact on local traffic during the waterline construction, trenches located within the roadways shall be covered with steel plates during non-working hours to keep all traffic lanes open. During working hours, at least one lane shall be kept open at all times. Proper traffic devices/flagmen shall be used to inform the public and to direct the traffic. If necessary, special duty police officers shall be hired to direct the traffic flow. Traffic Control Plans shall be prepared during the design phase. Since part of the lines will be constructed within the County's road, proper permit(s) shall be obtained before starting waterline construction.

IV. WASTEWATER

A. EXISTING CONDITION AND POTENTIAL IMPACTS

An existing 8" sewer trunk line is located along West Kawili Street. This line is the end portion of a County's public sewer system. The sewer system is connected to the County's Hilo Wastewater Treatment Plant located approximately 4 miles away from the project site. Sludge generated at the treatment plant is disposed of at the Hilo Landfill.

The 8" sewer line on West Kawili Street begins at the intersection of Kapiolani Street and West Kawili Street and ends short of the Puainako intersection (see figure of Existing 8" Sewer Line in Appendix). According to the County's Department of Public Works, Wastewater Division, there is no possibility of extending this line. The Capacity of 8" Sewer Table in the Appendix shows the calculated capacity of the 8" sewer line. The Manning equation is used in flow calculations. The roughness coefficient used for calculations in the equation is 0.015. The line size, the pipe slopes, and the pipe lengths are determined using topographic survey done by Inaba Engineering, Inc. This line is currently serving part of the UHH campus, including the following facilities:

- ASH Housing
- Athletic Complex
- Auto Body Shop
- Auto Mechanic Shop

- Diesel Mechanic Shop
- Welding/Sheet Metal Shop
- New Classroom/Office Building
- Administration Building

A table titled "Existing Flows to 8" Sewer" in the Appendix of this report lists the sewer peak flows from each building/complex and connection point to the 8" sewer line. The peak flows are estimated based on capita information, design information, or water usage records. In the calculation, it is assumed that Dry Weather Infiltration/Inflow is 5 gallons per capita day (gpcd) and Wet Weather Infiltration/Inflow is 1250 gallons per day (gpd).

The projected sewer flows for the proposed development is shown in a table titled "Estimated Onsite Sewer Flows" in the Appendix. Due to the lack of detailed design information at this planning stage, the sewer flows are estimated according to average flow per capita. Based on the provided preliminary site layout, the future onsite sewer system could connect to the County system at Sewer Manhole #2 (as labeled in the "Existing 8" Sewer Line" map in the Appendix).

By comparing the line capacity columns with the estimated proposed peak flow columns (Capacity of 8" Sewer Table), it reveals that the existing 8" sewer line is adequate to convey the existing flows plus the projected flow for the proposed development.

The construction of sewer connection to the 8" trunk line in West Kawili Street will bring temporary inconvenience to the local traffic.

B. MITIGATION MEASURES

No off-site improvements are required since the existing 8" sewer line has enough capacity to serve the project site.

During the construction of the sewer connection, at least one lane shall be maintained open to traffic at all times. Proper traffic devices/flagmen shall be used to inform the public and to direct the traffic. If necessary, special duty police officers shall be hired to direct the traffic flow. Traffic Control Plans shall be prepared during the design phase. Since part of the sewer lines will be located within the County's road, proper permit(s) shall be obtained before the sewer line construction begins.

V. SOLID WASTE

A. EXISTING CONDITION AND POTENTIAL IMPACTS

The proposed developments on the site, including residential and commercial, will generate solid waste and require regular refuse pick up service. According to the Department of Public Works, Solid Waste Division, the solid waste from the site will be disposed at the County's landfill on Leilani Street. Currently the County does not provide the refuse collection service in any area. Usually a private company is contracted to provide such service.

B. MITIGATION MEASURES

Recycling will reduce the quantity of waste generated and reduce the demand on the capacity of the landfill. UHH has an active and well-managed recycling program. The program has evolved to provide for the collections of glass, aluminum, white paper. mixed paper, and newspapers. A student-work position is dedicated to bring all recycling materials in recycling bins to solid pick up points. The contractor collects the recyclables at no cost to UHH in exchange for the salvage sales.

Although the proposed project is a private development and will not be part of the University system, the recycling program developed by the University should be emulated by the new facility. Detailed solid management plans will be included in design phase.

VI. ELECTRIC AND COMMUNICATION SYSTEMS

A. EXISTING CONDITION AND POTENTIAL IMPACTS

Electrical power in Hilo is provided by Hawaii Electric Light Company (HELCo). HELCo's Hilo power plant network (including Kanoelehua Power Plant, Puna Power Plant, Wailuku Hudro Power Plant, Hilo Coast Power Plant, and Shipman Power Plant) serves this area. A 12.47 kilo-volt (kV) overhead line runs from a HELCo substation on Komohana Street. The line is running along the west side of West Kawili Street.

The proposed development will increase the demand on the existing HELCo's system. Based on the preliminary site planning and building square footages (assumptions: all buildings will be air-conditioned except the housing units, electrical heater will be used, and certain electronic equipment will be installed per building's functions), the estimated electricity load is about 33,000 kiloWatt-hour (kWhr) per day. Through discussions with HELCo's engineering division, the existing system is adequate to provide the demand. The prime supply to the site will be from

the Komohana substation. HELCo might bring in another 12kV line from Kuailani Street substation for emergency backup in the future.

Verizon Hawaii is currently providing telephone service for this region from a switching board in the Kawailani Street Office. An overhead telephone line runs along the west side of West Kawili Street from a telephone pole located at the corner of West Kawili Street and Puainako Street. The line has the capacity to serve the proposed development.

Cable television service is from Hawaiian Cablevision. Trunk cable lines and feeders are located along West Kawili Street and Puainako Street.

As described above, adequate electricity and communication systems are available to service the proposed development. The service lines will connect to these systems through underground ducts containing utility company's cables and equipment. Since the service lines will be underground, there will not have impact on the appearance of surrounding environment. However, the installation of these lines will cause temporary disruptions to local traffic.

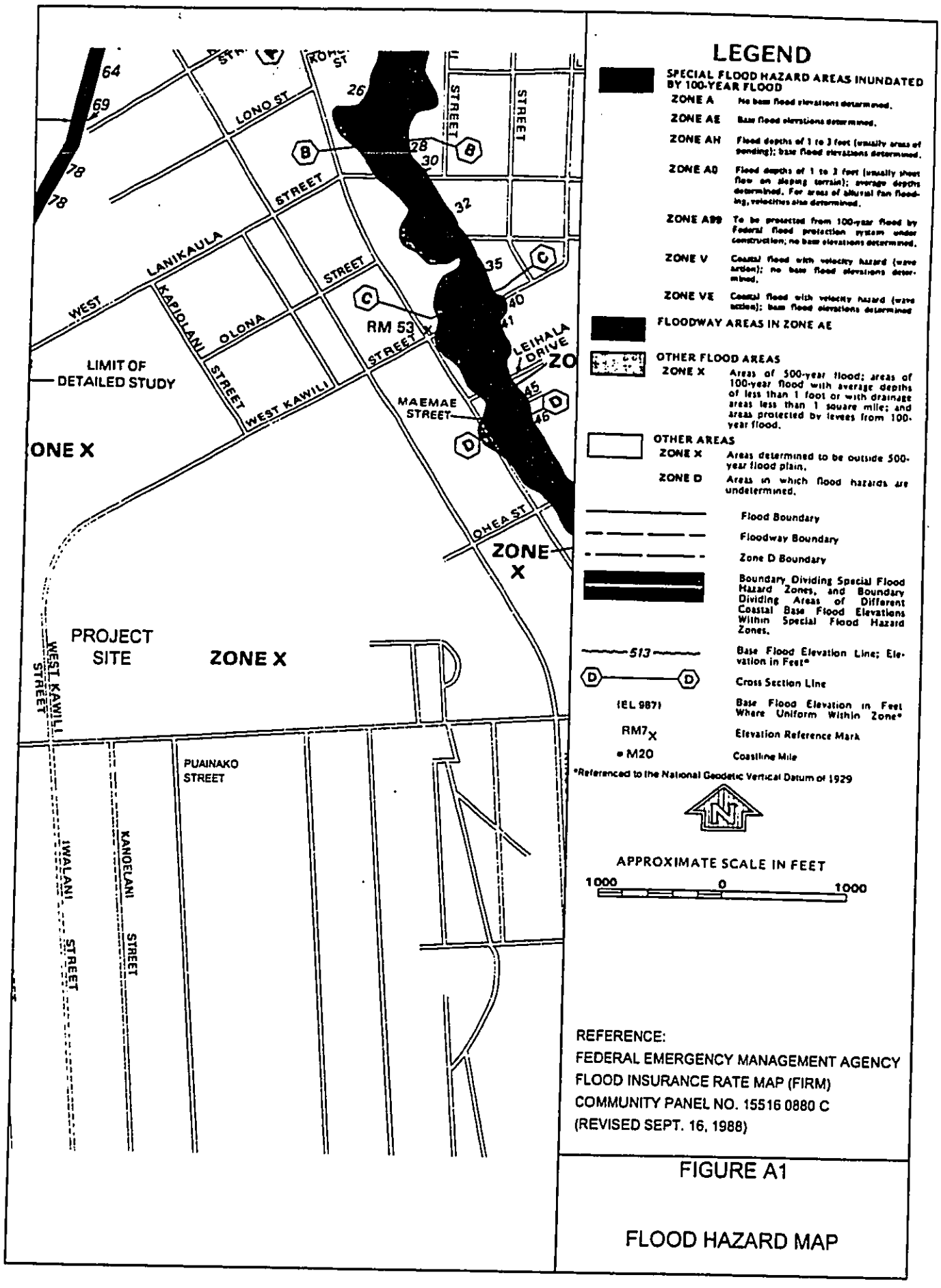
B. MITIGATION MEASURES

Electrical, telecommunication and cable television services are provided by privately owned utility companies regulated by the State Public Utilities Commission. These utility companies are mandated by their respective tariff rules to exercise reasonable diligence and care in maintaining their lines and structures to be able to provide continuous service to their customers. The companies are responsible to improve their systems/infrastructures to meet rising demand.

During the installation for the service lines within roadways, at least one lane shall be maintained open to traffic at all times. Proper traffic devices/flagmen shall be used to inform the public and to direct the traffic. If necessary, special duty police officers shall be hired to direct the traffic flow. Traffic Control Plans shall be prepared during the design phase. Since part of the utility lines will be located within the County's road, proper permit(s) shall be obtained before the utility line construction starts.

APPENDIX A

Flood Hazard Map



REFERENCE:
FEDERAL EMERGENCY MANAGEMENT AGENCY
FLOOD INSURANCE RATE MAP (FIRM)
COMMUNITY PANEL NO. 15516 0880 C
(REVISED SEPT. 16, 1988)

FIGURE A1

FLOOD HAZARD MAP

SSFM INTERNATIONAL

APPENDIX B

Water Supply Calculations

Estimated Water Demand

Facility	Zone	Unit Ave. Daily	Unit	Ave. Daily Demand (gpd)	Max. Daily Demand (gpd)	Peak Hour (gpd)
Entert.Plaza (1or 2-story)	Commercial	3000 gals. /acre	4.82 acres	14460	21690	72300
Hostel (3-story)	M-F Low Rise Dorms Suites	400 gals./unit 300 gals./unit 200 gals./unit	14 units 251 units* 48 units	5600 75300 9600	8400 112950 14400	28000 376500 48000
Cutural Center (3-story)	School	60 gals / capita	250 capita	15000	22500	75000
Harmony Tower (11-story)	Commercial	3000 gals. /acre	4.714 acres	14142	21213	70710
Total				134102	201153	670510
				93 (gpm)	140 (gpm)	466 (gpm)

* Assumed two rooms per dorm unit. Total Dorm Unit Number = 502/2=251

APPENDIX C

Sewer Line Calculations and Figures

SSFM ENGINEERS, INC.
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Honolulu, Hawaii 96817
Phone: (808) 531-1308
FAX: (808) 521-7348

PROJ. NO. 2000-109
PROJECT
PREPARED BY JT DATE 6-25-(
CHECKED BY DATE
SHEET 1 OF

Pressure Analysis

Known: 16" line from reservoir Nonelo St./Aohoku St.

12" Line in Nonelo St.

12" (fire) & 6" (domestic) to Classroom Bldg

PRV set 65 psi @ EL. 204 on 12" line

Assume: Conn. to 12" & 6" @ Classroom Bldg.

Figs. in «Water Study»

L (16") ~ 7200'

Constr. Drgs of Water System & Clsrm Bldg.

L (12", PRV.) ~ 1300'
L (12", End of 12" S. of Clsrm Bldg) ~ 2070' } 3370'
L (12", Site W. bdry.) ~ 300'

I. Fire Line:

(a). Try 12" fire line on site:

1) From PRV to Clsrm Bldg:

L (12") ~ 3370'

Q ~ 2000 gpm (fire flow) + 418 gpm (UHH Max Day)
= 2418 gpm

Cameron Hydraulic Data

→ $\Delta H_1 = (3370/100) * 1.251 \sim 42' = 18$ psi

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PROJ. NO. 2000-109
PROJECT
PREPARED BY JT DATE 6-25-01
CHECKED BY DATE
SHEET 2 OF

2) From Clssrm Bldg to SE corner on site (EL ~180): end of 12"@

L(12") ~ 300 + 2110 = 2410'

Q = 2000 gpm (fire flow)

⇒ ΔH_2 = (2410/100) * 0.862 ~ 21' = 9 psi

Critical Pt. ⇒ P (@ SE Corner) ~ 65 - 18 - 9 + (204-180)/2.31
= 38 + 10 = 48 psi
(w/o considering losses thru bends)

∴ County requires 20 psi residual pressure,
∴ allow 28 psi loss @ all fittings.

(b) Try 8" fire line on site:

From Site W. bdry to SE Corner:

L(8") = 2110', Q = 2000 gpm

⇒ ΔH = (2110/100) * 6.96 = 147' = 64 psi

Won't work

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PROJ. NO. 2000-109
PROJECT
PREPARED BY JT DATE 6-25-0
CHECKED BY DATE
SHEET 3 OF

(c) Try 10" fire line on site :

1) From Site W. bdry to SE Corner :

$L(10") \sim 2110'$ ... $Q = 2000$ gpm

$\rightarrow \Delta H_1 = (2110/100) * 2.2 = 46' = 20$ psi

2) From Clsrm Bldg (end of 12" @) to Site W. bdry :

$L(12") \sim 300'$ ... $Q = 2000$ gpm

$\rightarrow \Delta H_2 = (300/100) * 0.862 = 2.6' = 1.1$ psi

3) From PRV to Clsrm Bldg :

Same as ΔH_1 in (a.1)

$\rightarrow \Delta H_3 = 18$ psi

$\rightarrow P$ (@ SE Corner) $\sim (65 - 18 - 1 - 20.) + 10$
$= 36$ psi
(w/o Considering losses thru bends)

Allow 1.6 psi Loss on all fittings.

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PROJ. NO. 2000-109
PROJECT
PREPARED BY JT DATE 6-25-01
CHECKED BY DATE
SHEET 4 OF

Cameron Hydraulic Data

II. Domestic Line:

(a) Try 6" line

1) From PRV to Conn pt on 12" for Clsrm Bldg:

L(12") ~ 1580'

Q = 1392 (UHH peak hr.) + 466 (Site peak hr)
= 1858 gpm ~ 1860

⇒ $\Delta H_1 = (1580/100) * 0.75 = 12' \sim 5$ psi

2) From Conn pt to Clsrm Bldg:

L(6") ~ 245'

Q = 90 (Clsrm Bldg Peak hr.) + 466 (Site Peak hr)
= 556 gpm ~ 560

⇒ $\Delta H_2 = (245/100) * 2.53 = 6.2' \sim 3$ psi

3) From Clsrm Bldg to SE corner on site:

L(6") ~ 280' + 300' + 2110' = 2690'

Q = 466 gpm

⇒ $H_3 = (2690/100) * 2.158 = 58' \sim 25$ psi

p (@ SE Corner) = (65 - 5 - 3 - 25) + (204 - 180)/2.31
= 42 psi
(w/o considering losses thru fittings.)

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PROJ. NO. 2000-109
PROJECT
PREPARED BY JT DATE 6-25-0
CHECKED BY DATE
SHEET 5 OF

(b) Try 8" line:

1) From Clsrm Bldg to SE Corner on Site:

L(8") = 2690'

Q = 466 gpm

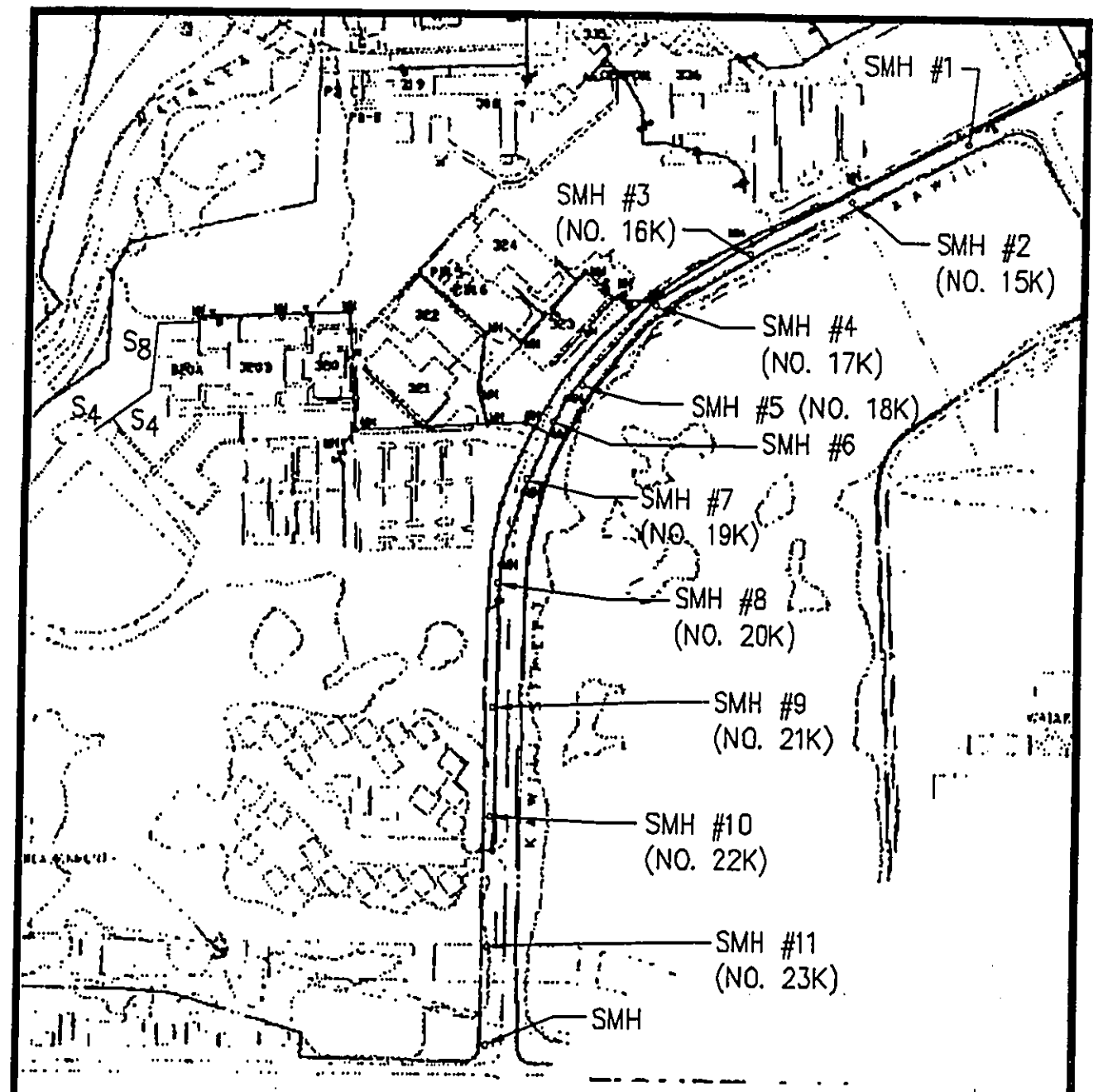
⇒ H_f = (2690/100) × 0.41 = 11' ~ 5 psi

Cameron Hydraulic Data

Ft. 0.18 0.2

⇒ p(@ SE Corner) = (65 - 5 - 5 - 3) + 10
= 62 psi
(w/o Considering Losses thru fittings)

County requires 40 psi residual pressure.
Allow 22 psi loss @ all fittings.



UH–HILO INTERNATIONAL VILLAGE

EXISTING 8" SEWERLINE ON WEST KAWILI STREET

SCALE: NOT TO SCALE

FIGURE C1

Capacity of 8" Sewer

Capacity for Kawili Truck Sewer Line (SMH No.15K to SMH No.23K)

SMH No.	Top EL.	Inv.	Size (in)	Length (ft)	Slope (ft/ft)	Capacity (gpm)	Calculated Exist. Peak Flow (gpm)	Estimated Prop.Peak Flow (gpm)	Comment
1 (14K)	109.9	101.7							
			8	300	0.041	958	371	700	From Admin. Bldg. and Project Site
2 (15K)	122.7	114.1							Possible Project Connection Point
			8	300	0.040	943	371	371	
3 (16K)	135.9	126.1							From New Classroom/Office Bldg.
			8	300	0.045	996	216		
4 (17K)	148.7	139.5							
			8	250	0.034	864	216		From Sheet Metal and Diesel Mech. Shop
5 (18K)	159.3	147.9							
(shallow drop)		151.9							
			8	107	0.035	876	203		From Baseball Stadium, Athletic Complex, Auto Body, and Auto
6 (Added)	163.9	155.6							
		(155.9)	(8)						
			8	143	0.029	798	84		
7 (19K)	196.3	159.7							
			8	250	0.033	859	84		
8 (20K)	176.8	168							
			8	285	0.022	701	84		
9 (21K)	182.6	174.3							
			8	250	0.022	693	84		From Ash Housing 280 FT Residents
10 (22K)	188.1	179.7							
			8	300	0.023	710			
11 (23K)	194.9	186.5							

Legend: SMH No. 1 – Lable shown on Inaba's Topographic Survay Map
SMH No. 14K – Lable shown on Hwawii County's Sewer Line Record Drawing
6 (Added) – Sewer Manhole not shown on County's Drawing.

Estimated Onsite Sewer Flows

Facility	Land Use	Land Area (acre)	cpa	Capita	Ave. Daily / Capita (gpcd)	Ave. Flow (gal/day)	Max. Flow (gal/day)	Dry Weather I/I (gallons)	Design Ave. Flow (gal/day)	Design Max. Flow (gal/day)	Wet Weather I/I (gallons)	Design Peak Flow (gal/day)
Entert.Plaza (1or 2-story)	Neighborhood Business	4.82	40	193	80	15424	77120	964	16388	78084	6025	84109
Hostel (3-story)	Apt. w/ Low Density	14.94		599	80	47904	239520	2994	50898	242514	18675	261189
Cultural Center (3-story)	School	6.31		250	25	6250	31250	1250	7500	32500	7888	40388
Harmony Tower (11-story)	Apt. w/ Low Density	4.70		200	80	16000	80000	1000	17000	81000	5875	86875
				1242		85578	427890	6208	91786	434098		472561
						0.09 (MGD) 60 (gpm) 0.134 (cfs)	0.43 (MGD) 298 (gpm) 0.664 (cfs)		0.09 (MGD) 64 (gpm) 0.143 (cfs)	0.43 (MGD) 302 (gpm) 0.673 (cfs)		0.47 (MGD) 329 (gpm) 0.733 (cfs)

Notes:

-- Current UH-Hilo enroll is 4120 FT and campus area is 117 acres, that leads to 35.2 cpa, less than std. 40 cpa for neighborhood business.
-- Assumed that 1 person per dorm room (506) and professor suite (48), and 3.2 persons per family unit (14).
-- Assumed that Dry Weather Infiltration / Inflow (*I/I*) is 5 gpcd.
-- Assumed that Wet Weather Infiltration / Inflow (*I/I*) is 1250 gad.

SSFM INTERNATIONAL

APPENDIX D

Electrical Demand Calculations

Estimated Electrical Load

Description of Load	Qty	Unit	kVA per Unit	Conn kVA	Demand Factor	Demand kVA	Average kW	Average kw/unit	kWhr/day during day	kwhr/day during night	Total kwhr/day
Dorm rooms without A/C	504	rooms	3.000	1,512.0	0.50	756.0	680	1.3492	680	5236	5916
Professor's suite without A/C	48	suites	5.000	240.0	0.40	96.0	86	1.7917	86	662	748
Apartment without A/C	14	apartments	10.000	140.0	0.40	56.0	50	3.5714	300	385	685
Commercial Buildings with A/C, sf	130000	sq feet	0.015	1,950.0	0.65	1,267.5	1014	0.0078	16224	2028	18252
China-U.S. Center, with A/C, sf	34000	sq feet	0.015	510.0	0.60	306.0	245	0.0072	3920	490	4410
Hotel with A/C, sf	45000	sq feet	0.010	450.0	0.40	180.0	144	0.0032	2304	461	2765
TOTALS				4,802.0		2,661.5					32,776.0

Final Environmental Impact Statement

China-U.S. Center

APPENDIX 5

Phase I Environmental Assessment

PHASE I
ENVIRONMENTAL SITE ASSESSMENT REPORT
FOR
155 W. KAWILI STREET
HILO, HAWAII 96720

T.M.K. Island 3, 2-4-001:005
36.066 acres

MNA Job No. 2046

February 28, 2001

Prepared For:

SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, HI 96817

Prepared By:

Myounghee Noh & Associates, L.L.C.
Environmental Research & Consulting Services
98-099 Uao Place #1101
Aiea, HI 96701

155 W. Kawili St. Hilo (2-4-001:005)
MNA Project No. 2046

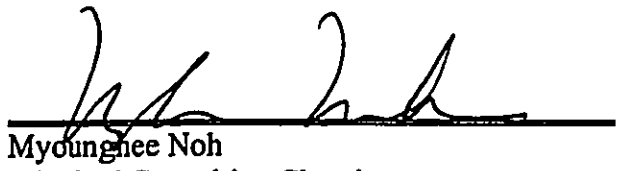
This Phase I report is prepared for:

SSFM International, Inc.
501 Sumner Street, Suite 502
Honolulu, HI 96817

PHASE I
ENVIRONMENTAL SITE ASSESSMENT
FOR
155 W. KAWILI STREET
HILO, HAWAII 96720
T.M.K. Island 3, 2-4-001:005
36.066 acres

MNA Job No. 2046

February 28, 2001



Myounghee Noh
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LIST OF ABBREVIATIONS

ASTM	American Society for Testing and Materials
CERCLIS	Comprehensive Environmental Response, Compensation & Liability Information System
CFR	Code of Federal Regulations
CORRACTS	RCRA Facilities that are undergoing "corrective action"
EPA	Environmental Protection Agency
ERNS	Emergency Response Notification System
ESA	Environmental Site Assessment
HDOH	Hawaii Department of Health
HEER	Hazard Evaluation and Emergency Response
LUST	Leaking Underground Storage Tank
MNA	Myounghee Noh & Associates, L.L.C.
NPL	National Priorities List
PCB	Polychlorinated Biphenyls
RCRA	Resource Conservation and Recovery Act
TSD	Treatment, Storage, and Disposal (of hazardous waste)
TMK	Tax Map Key
TRIS	Toxic Release Inventory System
USGS	United States Geological Survey
UST	Underground Storage Tank
VISTA	VISTA Information Solutions, Inc.

EXECUTIVE SUMMARY

Myounghee Noh & Associates, L.L.C. (MNA) was retained to conduct a Phase I Environmental Site Assessment (ESA) for the subject property in January 2001. This work was completed for SSFM International, Inc., 501 Sumner Street, Suite 502, Honolulu, Hawaii 96817; and the subject site is located at 155 W. Kawili Street, Hilo, Hawaii 96819 (TMK 3 2-4-001:005). Proposed is the China-U.S. Center which is designed to support campus-related commercial activities, student and visitor housing, general academic programs, and cultural exchange between Hawaii, the U.S. Mainland, and China.

Based on the information obtained during the site assessment performed in February 2001, MNA provides the following summary and conclusions:

- **Database Search for Subject and Adjoining Property**: The subject and adjoining properties were not listed in any of the federal and state databases searched by VISTA Information Solutions (Appendix C) and MNA.

- **Site Check**: At the time of MNA's site check on February 1-3, 2001, an overgrown unused lot with no building structure was observed. The entire site was surrounded by roads, but the access was quite limited due to densely grown vegetation (Photographs presented in Appendix B). The most abundant floral species were banyan (*Ficus benghalensis*), guava (*Psidium guajava*), Hawaiian tree ferns (*Citotium spp.*), and ti plants (*Cordyline terminalis*). Shrubs and hedges were comprised of exotic plants; no known rare or endangered species of plant inhabited the subject site.

- **Presence of UST**: MNA found no evidence of the presence of USTs on the subject property.

- **Potential Asbestos-, PCB- or Lead-Containing Material:** There was no evidence of potential asbestos-, polychlorinated biphenyls-, or lead-containing material. Sampling & analysis of material or other potential hazardous substance was not part of this ESA.

- **Offsite Contamination Source:** MNA found no potential offsite contamination sources that may migrate to the subject site.

This Phase I ESA has revealed no evidence of recognized adverse environmental conditions in connection with the property.

1.0 INTRODUCTION

Myounghee Noh & Associates, L.L.C. (MNA) was retained to conduct a Phase I Environmental Site Assessment (ESA) for the subject property in January 2001. This work was completed in February 2001 for SSFM International, Inc., 501 Sumner Street, Suite 502, Honolulu, Hawaii 96817. The subject site is a planned location for the China-U.S. Center of the University of Hawaii at Hilo located at 155 W. Kawili Street, Hilo, Hawaii 96819 (TMK 3 2-4-001:005).

The Phase I ESA was performed in accordance with the American Society for Testing and Materials (ASTM) "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (ASTM E 1527-97)." The purpose of Phase I ESA is to identify, to the extent feasible pursuant to the method, the presence or likely presence of any hazardous substances or petroleum products on the property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances into structures, ground, groundwater, or surface water of the property (ASTM E 1527-97).

1.1 SCOPE OF WORK

A Phase I ESA has four components: Records Review; Site Reconnaissance; Interview; and Report. MNA conducted the ESA using information sources with the potential to identify past or current releases of hazardous materials at the property. MNA performed the following:

1.1.1 Site History

MNA examined documents consisting of topographic maps, site maps, aerial photographs, Hawaii Department of Land and Natural Resources files, the County of Hawaii historical tax records, State Department of Education campus development plans, Waiakea Mill Company annual reports, planning documents, and an archeological survey report. The purpose of this basic research was to identify previous and current uses of the property, adjoining properties, and the surrounding area.

1.1.2 Regulatory Records

MNA examined government records with respect to environmental conditions, citations, complaints, and permits at the site, at adjoining properties, and the surrounding area. Information regarding the regulatory record sources is provided in Appendix A:

- National Priorities List (NPL)
- Resource Conservation and Recovery Act (RCRA) facilities that are undergoing "corrective action" (CORRACTS)
- RCRA-Treatment, Storage, & Disposal (TSD)

- Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS) List
- Solid Waste & Landfill
- Leaking Underground Storage Tank (LUST)
- Water Wells
- RCRA-Violators/Enforcement
- Underground Storage Tank (UST) list
- *Toxic Release Inventory System (TRIS)*
- Emergency Response Notification System (ERNS)
- RCRA-Large Generator
- RCRA-Small Generator
- Spill

1.1.3 Site Reconnaissance

MNA performed a site reconnaissance to obtain information indicating the likelihood of contamination, to interview available site personnel, and conduct a brief assessment of the adjoining properties. During the site reconnaissance, MNA looked for stained surface soil, dead or stressed vegetation, hazardous materials, aboveground and underground storage tanks, disposal areas, groundwater wells, sumps, and storm drains.

Sampling and testing of groundwater, potential asbestos-containing materials, and potential lead-based paint were not part of the scope of this work.

1.1.4 Site Geology and Hydrogeology

MNA reviewed published information on surface and subsurface conditions at the site and surrounding area. MNA used this information to assess topography, drainage, surface water bodies, subsurface geology, and groundwater occurrence in the area to assess the impact of migration of any potentially hazardous materials in connection with the property.

1.1.5 Data Evaluation and Reporting

MNA evaluated the information collected and prepared this report documenting the assessment. Section 2 presents the site background information; Section 3 the results of record review; Section 4 the information collected during the site reconnaissance; and Section 5 the summary and recommendations.

1.2 LIMITATIONS

Phase I ESA provides a "snap shot" of the site conditions and is, by its nature, limited. Summary and conclusions apply to site conditions existing at the time of our investigation and those reasonably foreseeable. They cannot apply to site changes of which MNA is not aware or has not had the opportunity to evaluate.

The conclusions presented are based upon visual observations of the site and vicinity, and interpretation of the available historical and regulatory information and documents reviewed. MNA cannot ensure the accuracy of the historical or regulatory information. This report is intended exclusively for the purpose outlined and applies only to the subject property.

This ESA does not include investigations regarding asbestos, lead paint, radon, or geotechnical concerns. No subsurface investigation or sampling was involved.

2.0 BACKGROUND INFORMATION

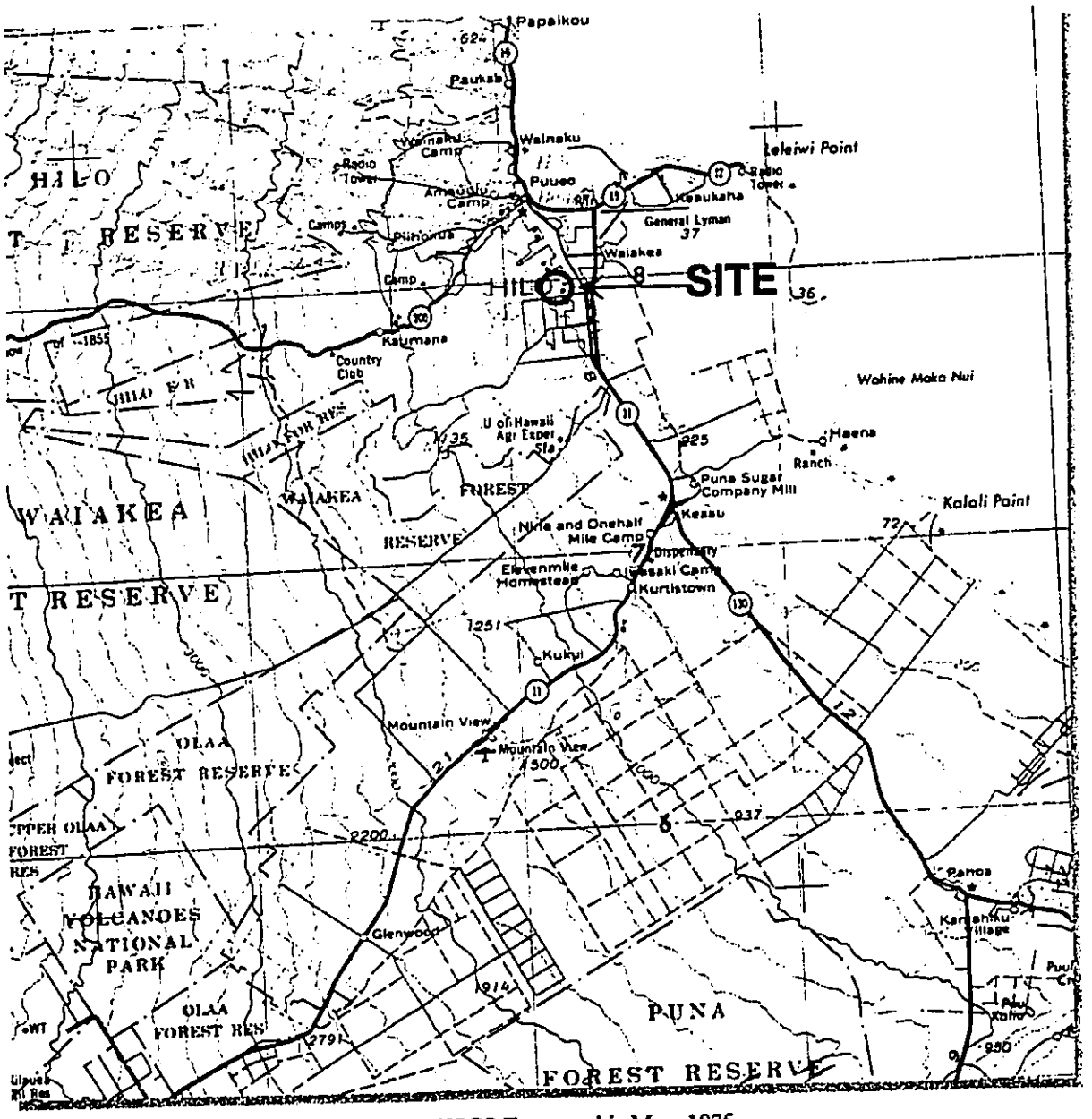
2.1 SITE LOCATION AND LEGAL DESCRIPTION

The subject property is located at 155 W. Kawili Street, Hilo, Island of Hawaii (Figure 1). Tax Map Key of the site is Island 3, Zone 2, Section 4, Plat 01, and Parcel 05. The site is designated as Urban use with unspccified zoning designation (First American Real Estate Solutions, 2000). According to the State of Hawaii Department of Taxation, the parcel consists of 36.066 acres.

2.2 VICINITY & SITE OVERVIEW

The 36.066 acre parcel is located on the windward Big Island coast but excluded from flood plain and tsunami inundation zones (Figure 2). Proposed is the China-U.S. Center which is designed to support campus-related commercial activities, student and visitor housing, general academic programs, and cultural exchange between Hawaii, the U.S. Mainland, and China.

The land area in the vicinity of Kawili Street and Puainako Street was developed from former sugarcane and pasture land. After the closure of the Waiakea Mill Company in 1947, the land was developed into a residential area with some large parcels set aside for public uses, such as the University of Hawaii at Hilo, Waiakea Education Complex, and the subject site. Residential areas surround the schools and the subject site.

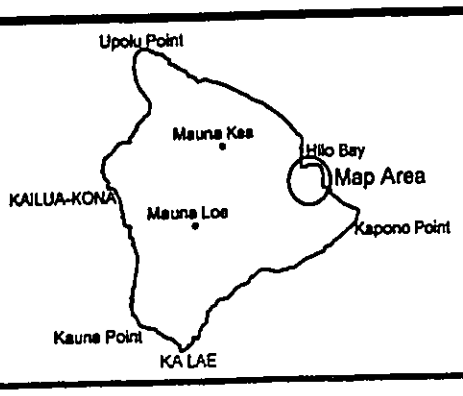


Source: USGS Topographic Map, 1975

0 5 10 15 mile

N

Figure 1. Site Location



155 W. Kawili Street
Hilo, Hawaii
TMK 3-2-4-001:005

February 2001
MNA Job No. 2046

Myounghee Noh & Associates, L.L.C.

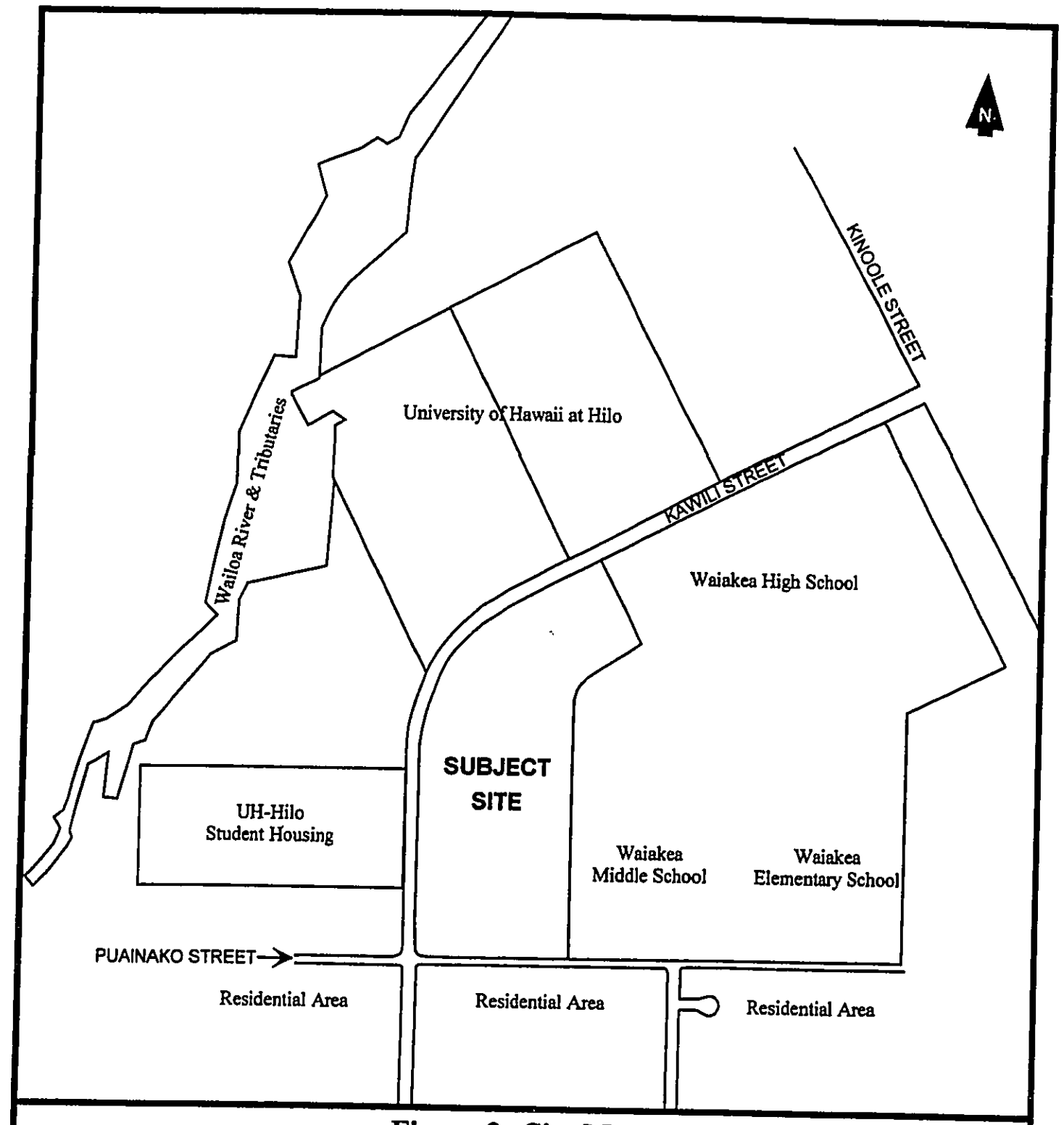
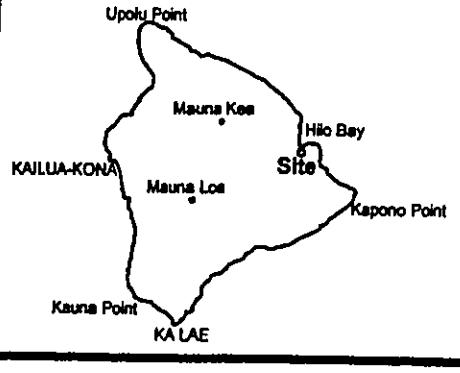


Figure 2. Site Map



155 W. Kawili Street
Hilo, Hawaii
TMK 3-2-4-001:005

February 2001
MNA Job No. 2046

Myounghee Noh & Associates, L.L.C.

Prior to the land development, the Waiakea Mill Co. had cultivated the area since 1879. When the company's lease expired in 1918, independent growers started cultivating the land (Kelly, et al., 1981). The Waiakea Mill Co. continued to process the sugar crop for the independent growers but eventually ceased its operation in 1947 due to contractual and legal problems combined with the devastating tsunami of 1946 (Rechtman and Henry, 1998; Kelly, et al., 1981).

The Waiakea Mill's productive areas were connected with a railroad system which fed into a main line terminating at the mill site (approximately the Waiakea Shopping Center) and barge berth at the inland end of the Waiakea Fishpond (Rechtman and Henry, 1998). The subject site today is a virtually unused parcel of land with overgrown vegetation. The site is surrounded by roads but with limited access due to the densely grown vegetation. The most abundant floral species were banyan (*Ficus benghalensis*), guava (*Psidium guajava*), Hawaiian tree ferns (*Citotium spp.*), and ti plants (*Cordyline terminalis*).

2.3 PHYSICAL STRUCTURES ON THE SITE

There were no building structures on the subject site. Several individual walls, five sets of parallel walls, three enclosures, and 102 mounds were identified by an archeological survey conducted by Rechtman's group in 1998. All were believed to have functioned as cane field clearing piles, and the parallel walls as either irrigation channels or to mark a right-of-way associated with railroad lines (Rechtman and Henry, 1998).

2.5 ENVIRONMENTAL LIENS OR PERTINENT INFORMATION

The U.S. Environmental Protection Agency (EPA) has the authority (CERCLA 1980) to file liens against real property in order to recover remedial action expenditures. Current State Department of Land and Natural Resources, Department of Taxation, and Department of Health records did not include any information on environmental liens on the subject property.

2.6 CURRENT USE OF THE PROPERTY

The property was occasionally used by Waiakea High School students for gathering of fruits and/or plant materials for class projects (Brian Simon, personal communication). Individual access to the heavily overgrown parcel was discouraged by the High School, however.

2.7 PAST USES OF THE PROPERTY

Information regarding past uses of the subject site was obtained from interviews and review of historical land management and tax files, publications, photographs, and maps. The subject property was a parcel of the Waiakea School Complex set aside by the Executive Order 1960. Table 1 lists the users and property uses of the subject site.

2.8 CURRENT AND PAST USES OF ADJOINING PROPERTIES

Information regarding past uses of the adjoining property, Waiakea Education Complex, was obtained from interviews and review of historical land management and tax files, publications, photographs, and maps. The property use information of the Waiakea Education Complex is summarized in Table 2.

Table. 1 Users and Primary Uses of the Subject Property

Period (approx.)	Property User	Area (acre)	Primary Use
155 W. Kawili Street, Hilo, HI (TMK 2-4-001:005)			
1999 - 02/2001	State of Hawaii	36.066	Set aside as Government Land
1976 - 1999	State of Hawaii	39.066	Set aside as Government Land
1961 - 1976	State of Hawaii	39.066	Undeveloped parcel of Waiakea Education Complex
1960 - 1961	William K. Kamau, Sr.	20.35	Pasture land
1949 - 1959	Fairview Dairy	20.35	Pasture land
1939 - 1948	Waiakea Mill Company	19.94	Sugarcane field
Prior to 1939	Waiakea Mill Company	?	Sugarcane field since 1879

Table. 2 Users and Primary Uses of Adjoining Property

Period (approx.)	Property User	Area (acre)	Primary Use
155 Kawili Street, Hilo, HI (TMK 2-4-001:015)			
1999 - 02/2001	State of Hawaii	92.723	Waiakea High School; Waiakea Middle School; Waiakea Elementary School
1976 - 1999	State of Hawaii	89.723	Waiakea High School; Waiakea Middle School; Waiakea Elementary School
1961 - 1975	State of Hawaii	82.915	Set aside as Waiakea Education Complex: Middle School & Elementary School built
1959 - 1960	Alfred M. Jardine, Sr.	57.95	Agricultural land
1958 - 1975	Honpa Hongwanji Mission of Hawaii	40.75	Mission house & living quarters
1954 - 1958	Territorial Government of Hawaii	57.42	Agricultural land
1951 - 1953	David P. Soares	57.42	Agricultural land
1950 - 1951	John H. Kong & Thomas De Lima	57.42	Agricultural land
1949 - 1950	Territorial Government of Hawaii	57.42	Agricultural land
1939 - 1948	Waiakea Mill Company	27.28	Sugarcane field, housing, railroads
Prior to 1939	Waiakea Mill Company since 1879	---	Sugarcane field, housing, railroads

3.0 RECORDS REVIEW

3.1 STANDARD ENVIRONMENTAL RECORD SOURCES

3.1.1 General Overview

MNA used VISTA Information Solutions, Inc. (800-733-7605) for searching standard federal and state government databases of known or potential sources of hazardous materials or waste. The VISTA assessment report is provided in Appendix C. MNA conducted further local searches as needed.

ASTM E 1527-97 specifies a minimum search distance for specific environmental record sources. The following sources are specified for incidents or sites within one mile of the subject property:

- Federal NPL site list
- Federal RCRA CORRACTS TSD facilities list
- State hazardous waste sites (State-equivalent NPL)

The following sources are specified for incidents or sites within one-half mile of the subject property:

- Federal CERCLIS list
- Federal RCRA non-CORRACTS TSD facilities list
- State-equivalent CERCLIS
- State landfill and/or solid waste disposal site lists
- State leaking UST lists

The following sources are for incidents on the subject and adjoining properties:

- Federal RCRA generators list
- State registered UST lists

Finally, the following is for incidents for the subject property:

- Federal ERNS list

3.1.2 Federal National Priorities List

The NPL, compiled by the EPA, is a list of sites with the highest priority for cleanup under the EPA's Hazard Ranking System [40 Code of Federal Regulations (CFR) Part 300]. VISTA found no NPL sites within one mile of the subject property (VISTA, 2001).

3.1.3 Federal RCRA CORRACTS TSD Facilities List

The RCRA CORRACTS TSD facilities list is compiled by the EPA and contains those RCRA regulated facilities which are undergoing "corrective action" due to a release of hazardous substance. VISTA found no CORRACTS sites within 1.25 mile of the subject site (VISTA, 2001).

3.1.4 State Hazardous Waste Sites (State-equivalent NPL)

VISTA found no hazardous waste sites listed within 1.25 mile of the subject property. MNA searched State of Hawaii Department of Health's (HDOH) Sites Database [Hazard Evaluation and Emergency Response Office (HEER), 2001] and found no state-equivalent NPL sites within the area.

3.1.5 Federal CERCLIS List

The CERCLIS list, compiled by EPA, contains sites currently or formerly under review by EPA for potential hazardous substance contamination for possible inclusion on the NPL. VISTA found one CERCLIS site within 3/4 mile of the subject property (VISTA, 2001).

- USDA Forest Service PSW Experiment Station, 1643 Kilauea Avenue at Kawili, Hilo, HI 96720. EPA ID. HI012239008; not on NPL; no further remedial action planned by the federal facility; completed on March 1, 1986.

3.1.6 Federal RCRA non-CORRACTS TSD facilities list

The RCRA non-CORRACTS TSD facilities list, compiled by EPA, contains RCRA permitted treatment, storage, and disposal facilities. VISTA found no RCRA TSD site listed within 1.25 mile of the subject property (VISTA, 2001).

3.1.7 State-equivalent CERCLIS List

HDOH's HEER office evaluates potential hazardous waste sites using EPA's Hazard Ranking System by the federal CERCLIS list (HEER, 2001). No further search was conducted.

3.1.8 State Landfill / Solid Waste Disposal Sites

VISTA found no permitted solid waste landfills, incinerators, or transfer station within 3/4 mile of the subject property (VISTA, 2001).

3.1.9 State Leaking UST List

This database is compiled by HDOH Solid and Hazardous Waste Branch, UST section. VISTA and HDOH's database searches found one (1) LUST within 3/8 mile and five (5) within 3/4 mile of the subject property (VISTA, 2001; Hawaii Department of Health, 2001). Table 3 lists the LUST sites, their locations with respect to the subject site, and incident details.

Table 3. LUST Sites in the Vicinity of the Subject Property

Facility	Site Loc	Address	Incident detail
Within 3/8 mile:			
University of Hawaii at Hilo	0.29 mi NE	200 W. Kawili St. Hilo, HI 96720	One diesel, two kerosene, and three used oil USTs closed in 1999; diesel-impacted soil was excavated and disposed of offsite. One diesel & one gasoline USTs closed in 1998.
Within 3/8 to 3/4 mile:			
Shell Station	0.56 mi NE	1260 Kilauea Ave. Hilo, HI 96720	Hydrocarbon-impacted soil treated and reused on site in 1993.
Dukes Kilauea Shell	0.64 mi NE	1104 Kilauea Ave. Hilo, HI 96720	Sample analytical results found ehtylbenzene conc. greater than DOH action levels; additional assessment activities planned for the yr 2000.
Pacific Rent-All, Inc.	0.66 mi NE	1080 Kilauea Ave. Hilo, HI 96720	Gasoline-impacted soil was treated and reused as fill in 1994.
Hilo Radiator Glass	0.68 mi N	1335 Kinoole St. Hilo, HI 96720	Gasoline-impacted soil was excavated in 1991.
Kens Service Station	0.72 mi E	1698 Kilauea Ave. Hilo, HI 96720	Gasoline- and diesel-impacted soil treated and reused to backfill in 1999.

3.1.10 Federal RCRA Generators List

This database, compiled by EPA, contains RCRA registered small or large generators of hazardous waste. VISTA's search found one (1) generator within 3/8 mile of the subject property (Table 4). There were no other RCRA-Small or -Large Generators within one mile of the subject property.

Table 4. RCRA Generator within One Mile of the Subject Property

Facility	Address	Site
University of Hawaii at Hilo	200 W. Kawili St. Hilo, HI 96720	0.29 mi NE
This site is characterized as an RCRA-Small Generator, generates 100 kg/month but less than 1,000 kg/month of non-acutely hazardous waste. The facility is indicated as a conditionally exempt small quantity generator.		

3.1.11 State registered UST List

This database is compiled by HDOH Solid and Hazardous Waste Branch, UST section. VISTA's search revealed two (2) USTs within 3/8 mile of the subject property. There are no registered USTs on the subject and adjoining properties (HDOH, 2000). Table 5 lists the USTs in the vicinity.

Table 5. USTs in the Vicinity of the Subject Property

Facility	Site	Address	Note
Within 3/8 mile:			
I Kitagawa Company Ltd	0.26 mi NE	400 Kawili St. Hilo	5-gasoline USTs out of service 2-diesel USTs out of service
University of Hawaii at Hilo	0.29 mi NE	200 W. Kawili St. Hilo	4-used oil USTs out of service 2-diesel USTs out of service 1-gasoline UST out of service 2-kerosene USTs out of service
Within 1/2 to 3/4 mile:			
Shell Station	0.56 mi NE	1260 Kilauea Ave.	4-gasoline USTs in use 1-used oil UST in use
Dukes Kilauea Shell	0.64 mi NE	1104 Kilauea Ave.	3-gasoline USTs out of service 1-used oil UST out of service 3-gasoline USTs in use 1-used oil UST in use
Pacific Rent-All Inc.	0.66 mi NE	1080 Kilauea Ave.	2-gasoline USTs out of service
Hilo Radiator Glass	0.68 mi N	1335 Kinoole St.	2-gasoline USTs out of service
Kens Service Station	0.72 mi E	1698 Kilauea Ave.	3-gasoline USTs out of service 1-diesel UST out of service 2-gasoline USTs in use 1-used oil UST in use

3.1.12 Federal ERNS List

The ERNS list, compiled by EPA, contains reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. VISTA's search revealed no reported incident on the subject property.

3.1.13 State SPILL List

This database is compiled by HDOH HEER office. VISTA's search revealed no spill incidents on the subject and adjoining properties (VISTA, 2001). However, 2000 HEER Release Database listed three minor spills or releases at the Waiakea High School: (1) chlorine vapor in April 1998; (2) solid Drano®/water/aluminum foil in June 1998; (3) unknown gray liquid substance in January 1999. All three incidents were addressed by the Hilo Fire Department or by the State Department of Education officials, and the hazardous substances were disposed of promptly.

3.2 PHYSICAL SETTING SOURCES

3.2.1 USGS Topographic Map

Topographic coverage of the site vicinity was provided by the 1912-1914, 1963, and 1975 U.S. Geological Survey (USGS) maps at scales of 1:62,500 ('12-'14), 1:24,000 ('63), and 1:250,000 ('75). The subject property is located at approximately 19°70' latitude and 155°08' longitude. No detailed information can be obtained from the topographic maps for the subject or surrounding properties; only landmark buildings, railroads, and roadways are shown.

3.2.2 Current Land Use and Zoning

The subject property is zoned as RS-10 Single Family Residential Zone according to the County Planning office. The entire property is covered by dense vegetation with no obvious use.

3.2.3 Geologic and Hydrogeologic Setting

Geology: Published geologic and hydrogeologic reports and maps were reviewed to obtain information regarding subsurface conditions in the general area of the property. The Island of Hawaii is of volcanic origin and was built by the Kohala, Mauna Kea, Mauna Loa, Kilauea, and Hualalai volcanoes and is comprised of numerous thin, extremely permeable tholeiitic basalt lava flows. The subject site is situated on the downslope of the Mauna Loa volcano which covers 50.5% of the entire island (Stearns, 1985).

The land surface at the subject site consists of well-drained, silty clay loams that formed in volcanic ash overlying pahoehoe lava bedrock; they receive from 90 inches to more than 150 inches of rainfall annually (Foote, et. al., 1972).

Hydrogeology: The permanent source of potable groundwater is the basal aquifer which floating on and displacing salt water which saturates the base of the island. The basal aquifer is recharged by precipitation; it percolates through soil and rock, until confined by an impermeable layer or floats on basal salt water. The groundwater in the region is known to be either basal water floating on salt water or water perched on ash, soil, or alluvium and underlaid with basal water (Stearns, 1985).

3.3 HISTORICAL USE INFORMATION

3.3.1 Historical Topographic Maps

USGS topographic map review of the subject and its vicinity indicated land use changes within the area, which may have impacted site conditions. The 1912-14 topographic map showed Camp Two of the Waiakea Sugar Co. (what is now Pamala Street and Lokahi Circle) and a railroad appeared to be near the subject site. The 1963 map showed development of Waiakea Homesteads and building structures at the University of Hawaii (Hilo Campus) and Waiakea-Kai School (what is now Waiakea Middle School). No building structures or roads were found at the subject site.

3.3.2 Sanborn Fire Insurance Map

Sanborn Fire Insurance map coverage of the Hilo area was reviewed for the years 1914-1921. The maps do not cover the subject site or the vicinity; however, they showed housing development moving south of Hilo.

3.3.3 Survey Map and Aerial Photographs

A survey map of 1933 showed the entire south Hilo area under cultivation by the Waiakea Mill Co. (Maly, 1996). Aerial photographs from 1949, 1977, 1978, 1985, 1992, and 1998 were reviewed (courtesy of R.M. Towill Corporation). The 1949 photograph showed the site and the vicinity with sugarcane fields and trails. The 1977 photograph showed the University of Hawaii Hilo Campus buildings, student housing, and Waiakea Intermediate and Elementary School structures; however, only three building structures were shown at the high school location. The 1978 and 1985 photographs showed additional high school buildings and student housing and an athletic field for the university. All of the aerial photographs showed no structures on the subject site; the photographs of 1949 to 1992 showed trails within the subject site.

4.0 SITE RECONNAISSANCE

4.1 HAZARDOUS MATERIALS AND REGULATED WASTES

During the site check conducted on February 1-3, 2001, MNA observed an unused lot with no building structures on the subject property (Photographs 1 ~ 11 in Appendix B). MNA found no evidence of hazardous materials or regulated wastes.

4.2 UNDERGROUND STORAGE TANKS

MNA observed no signs of storage tanks, such as dispenser pumps, fill pipe, or vent pipe. HDOH does not have any registered USTs for the subject or adjoining properties (Hawaii Department of Health, 2001).

4.3 ASBESTOS, LEAD, & PCB INDICATIONS

No potential asbestos-, lead-, or polychlorinated biphenyls (PCB)-containing materials were observed on the subject site.

4.4 SOLID WASTE DISPOSAL

MNA observed no signs of solid waste on the subject site.

4.5 PHYSICAL SETTING ANALYSIS AGAINST POTENTIAL MIGRATION

MNA found no potential offsite contamination sources that may migrate to the subject site.

5.0 SUMMARY AND CONCLUSION

MNA performed a Phase I ESA of 155 W. Kawili St., Hilo, Island of Hawaii, in accordance with the scope and limitations of ASTM E 1572-97. Based on the information obtained during the site assessment performed in February 2001, MNA provides the following summary and conclusion:

- **Database Search for Subject and Adjoining Property:** The subject and adjoining properties were not listed in any of the federal and state databases searched by VISTA Information Solutions (Appendix C) and MNA.
- **Site Check:** At the time of MNA's site check on February 1-3, 2001, an overgrown unused lot with no building structure was observed. The entire site was surrounded by roads, but the access was quite limited due to densely grown vegetation. The most abundant floral species were banyan (*Ficus benghalensis*), guava (*Psidium guajava*), Hawaiian tree ferns (*Citotium spp.*), and ti plants (*Cordyline terminalis*). Shrubs and hedges were comprised of exotic plants; no known rare or endangered species of plant inhabited the subject site (Photographs 8 ~ 11).
- **Presence of UST:** MNA found no evidence of the presence of USTs on the subject property.
- **Potential Asbestos-, PCB- or Lead-Containing Material:** There was no evidence of potential asbestos-, PCB-, or lead-containing material. Sampling & analysis of material or other potential hazardous substance was not part of this ESA.
- **Offsite Contamination Source:** MNA found no potential offsite contamination sources that may migrate to the subject site.

This Phase I ESA has revealed no evidence of recognized adverse environmental conditions in connection with the property.

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APPENDIX A

Regulatory Record Sources

- National Priorities List (NPL) - The NPL is the U.S. Environmental Protection Agency's (EPA) database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the U.S. Department of Health and Human Services and the EPA in order to become an NPL site.

- CORRACTS - The EPA maintains this database of Resource Conservation and Recovery Act (RCRA) facilities that are undergoing "corrective action." A "corrective action order" is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

- RCRA-Treatment, Storage, & Disposal (TSD) CORRACTS - The EPA's RCRA Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste.

- Comprehensive Environmental Response, Compensation & Liability Information System (CERCLIS) List - The CERCLIS list contains sites which are either proposed to or on the NPL and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activities or events at the site, financial funding information for the events, and unrestricted enforcement activities.

- No Further Remedial Action Planned (NFRAP) - NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

- RCRA-TSD - The RCRA Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

- Solid Waste & Landfill - The database can be obtained from the Hawaii Department of Health (HDOH), Solid and Hazardous Waste Branch (808.586.4240). The agency release date for Permitted Landfills, Transfer Station, Incinerator Facilities Database was May 1999.

- Leaking Underground Storage Tank (LUST) - This database can be obtained from the HDOH Solid and Hazardous Waste Branch Underground Storage Tank (UST) Section (808.586.4226). The agency release date for Active LUST List was July 2000.

- Water Wells - The Ground Water Site Inventory (GWSI) database was provided by the U.S. Geological Survey (USGS, 702.648.6819). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used, or otherwise had reason to document through the course of research. The agency release date for USGS Water Wells was March 1998.

- RCRA-Viol/Enf - The RCRA Program identifies and tracks hazardous waste from the point of generation to the point of disposal. RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980. RCRA Enforcements are enforcement actions taken against RCRA violators. The agency release date was December 1999.

- UST list - This database can be obtained by the HDOH UST Section (808.586.4226). The agency release date for UST Section Database was July 2000.

- Toxic Release Inventory System (TRIS) - Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities. Facilities subject to this reporting are required to complete a Toxic Chemical Release Forms (Form R) for specified chemicals. The agency release date for TRIS was January 1998.

- Emergency Response Notification System (ERNS) - This is a national database containing records from October 1986 to the release date below and is used to collect information for reported releases of oil and hazardous substances (202.260.2342). The database contains information from spill reports made to federal authorities including the EPA, the U.S. Coast Guard, the National Response Center, and the Department of Transportation. The agency release date for ERNS was August 1999.

- RCRA-LgGen - RCRA Large Generators are facilities which generate at least 1,000kg/month or non-acutely hazardous waste (or 1kg/month of acutely hazardous waste). The agency release date was December 1999.

- RCRA-SmGen - RCRA Small and Very Small Generators are facilities which generate less than 1,000kg/month or non-acutely hazardous waste. The agency release date was December 1999.

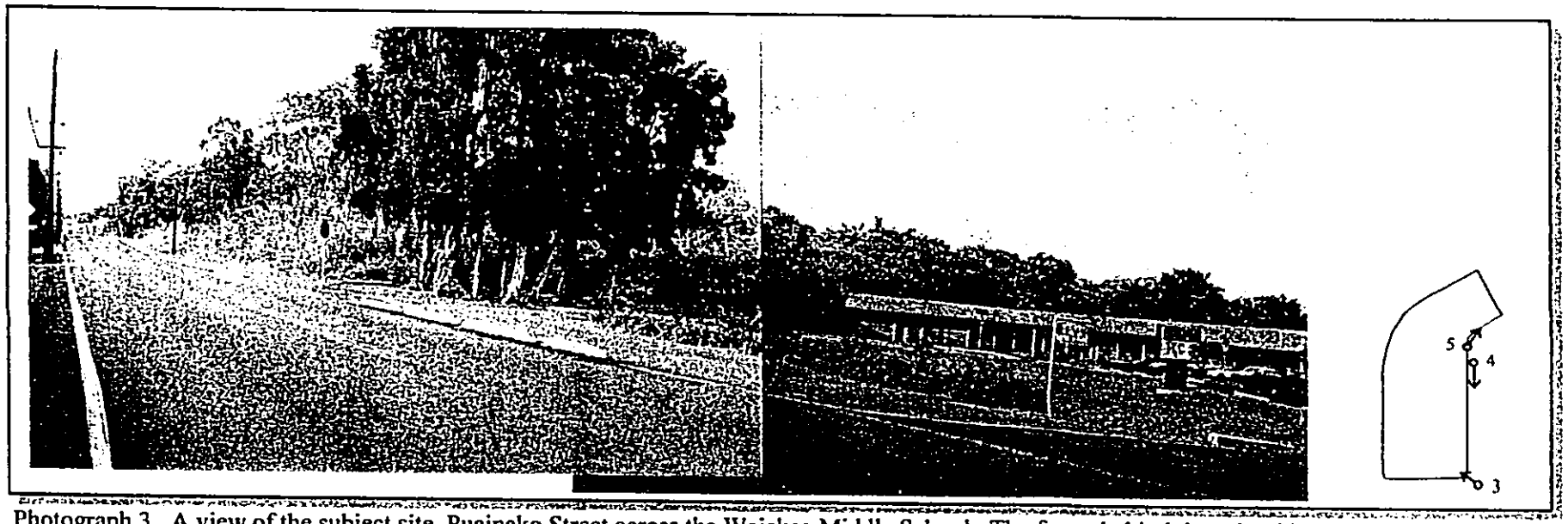
- SPILL - This database can be obtained from the HDOH Hazard Evaluation Emergency Response office (HEER, 808.586.4249). The Spills list provides a short description of the circumstances of each spill. The agency's online database was updated on September, 2000.

APPENDIX B

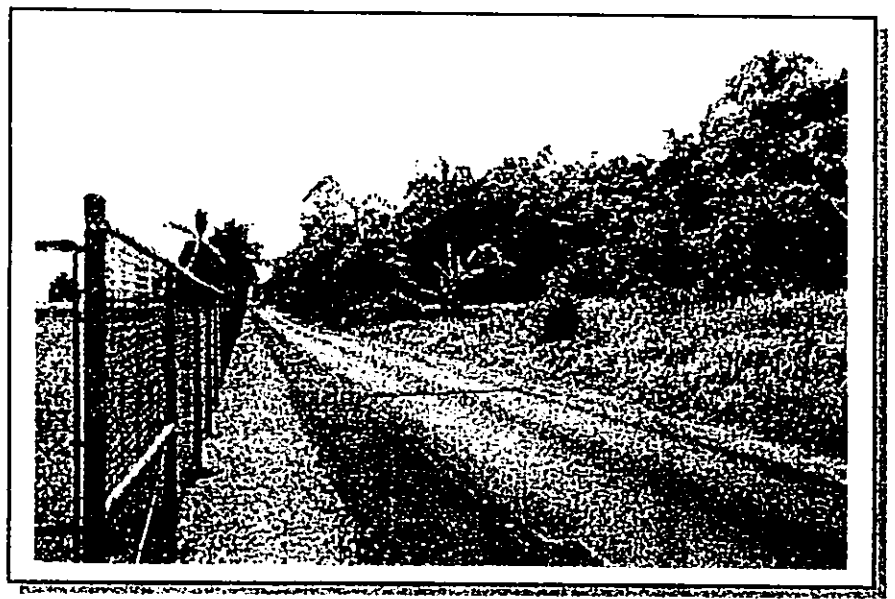
Photographs

Photograph 1. A view of the subject site on Kawili Street, across the UH-Hilo campus. A strip of grassy area, left, served as an access path to the heavily grown site (March 3, 2001).

Photograph 2. A view of the subject site, intersection of Kawili and Puainako Street. UH-Hilo Student Housing is located off to the right.

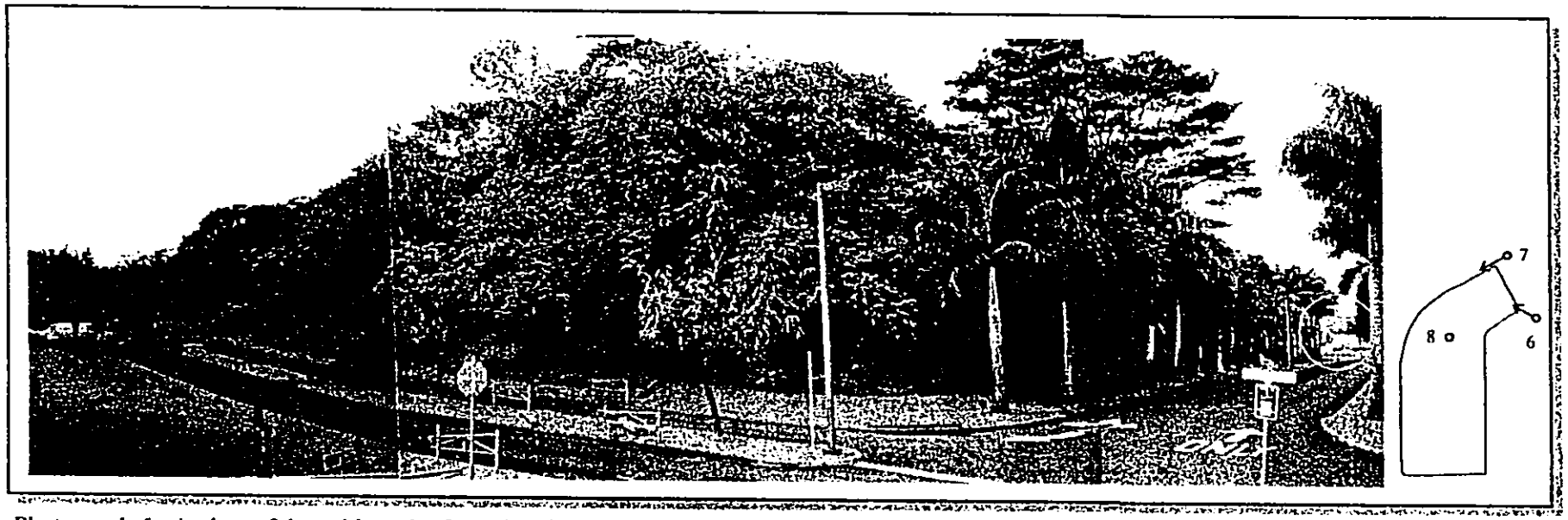


Photograph 3. A view of the subject site, Puainako Street across the Waiakea Middle School. The forest behind the school building is a part of the subject site (March 2, 2001).



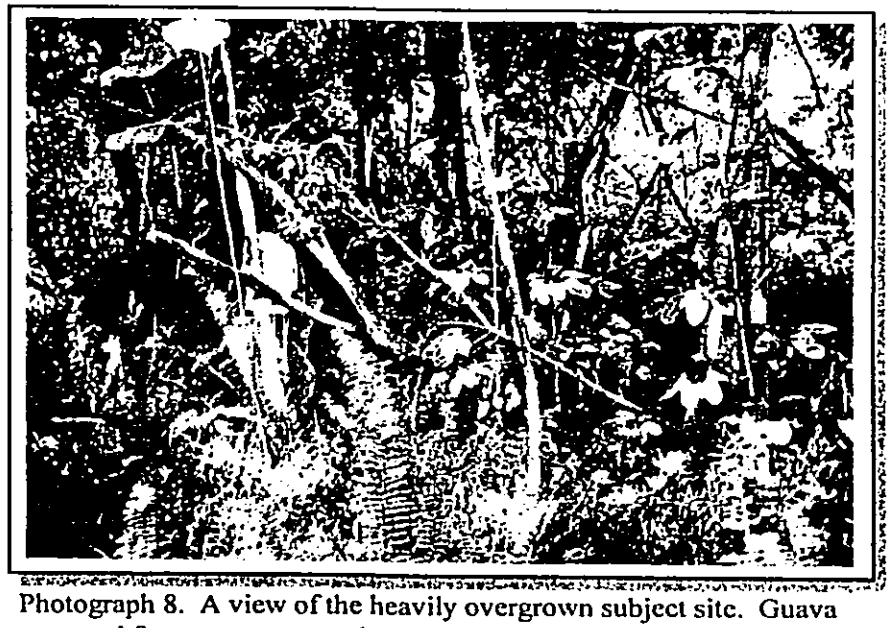
Photograph 4. A view of the subject site, adjacent to the Waiakea Middle School fence. This road continues on to the high school campus.

Photograph 5. The subject site adjacent to the Waiakea High School campus. The road shown in photograph 4 connects on to this road.



Photograph 6. A view of the subject site from the high school campus. The landscaped area is maintained by the school. The building and vehicles shown in the background (circled) are those of UH-Hilo campus across the Kawili Street (March 2, 2001).

Photograph 7. A view of the subject site, Kawili Street across from the UH-Hilo campus (March 2, '01).



Photograph 8. A view of the heavily overgrown subject site. Guava trees and ferns were among the abundant vegetation (March 3, '01).

Photograph 9. The banyan trees were well established in the subject site. These trees were growing out of an old rock mound (March 3, 2001).

Photograph 10. A view of a rock wall observed during the site check on March 3, 2001.

Photograph 11. Some patches of densely grown grass were also found within the subject site. Some of the grasses were as tall as 6 ft.

APPENDIX C

VISTA Site Assessment Report

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: MNA 5046 TMK 2-4-001:005 Kawili St & Puainako St Hilo, HI 96720 Latitude/Longitude: (19.700245, 155.083053)	Myounghee Noh Myounghee Noh & Assoc LLC 98-099 Uao Pl Ste 1101 Aiea, HI 96701

Site Distribution Summary Agency / Database - Type of Records			within 3/8 mile	3/8 to 1/2 mile	1/2 to 3/4 mile	3/4 to 1 1/4 mile
A) Databases searched to 1 1/4 mile:						
US EPA	NPL	National Priority List	0	0	0	0
US EPA	CORRACTS (TSD)	RCRA Corrective Actions and associated TSD	0	0	0	0
B) Databases searched to 3/4 mile:						
US EPA	CERCLIS / NFRAP	Sites currently or formerly under review by US EPA	0	0	1	-
US EPA	TSD	RCRA permitted treatment, storage, disposal facilities	0	0	0	-
STATE REG CO	LUST	Leaking Underground Storage Tanks	1	0	5	-
STATE/ REG/CO	SWLF	Permitted as solid waste landfills, incinerators, or transfer stations	0	0	0	-
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	0	0	0	-
C) Databases searched to 1/2 mile:						
US EPA	RCRA Viol	RCRA violations/enforcement actions	1	0	-	-
US EPA	TRIS	Toxic Release Inventory database	0	0	-	-
STATE	UST/AST	Registered underground or aboveground storage tanks	2	0	-	-

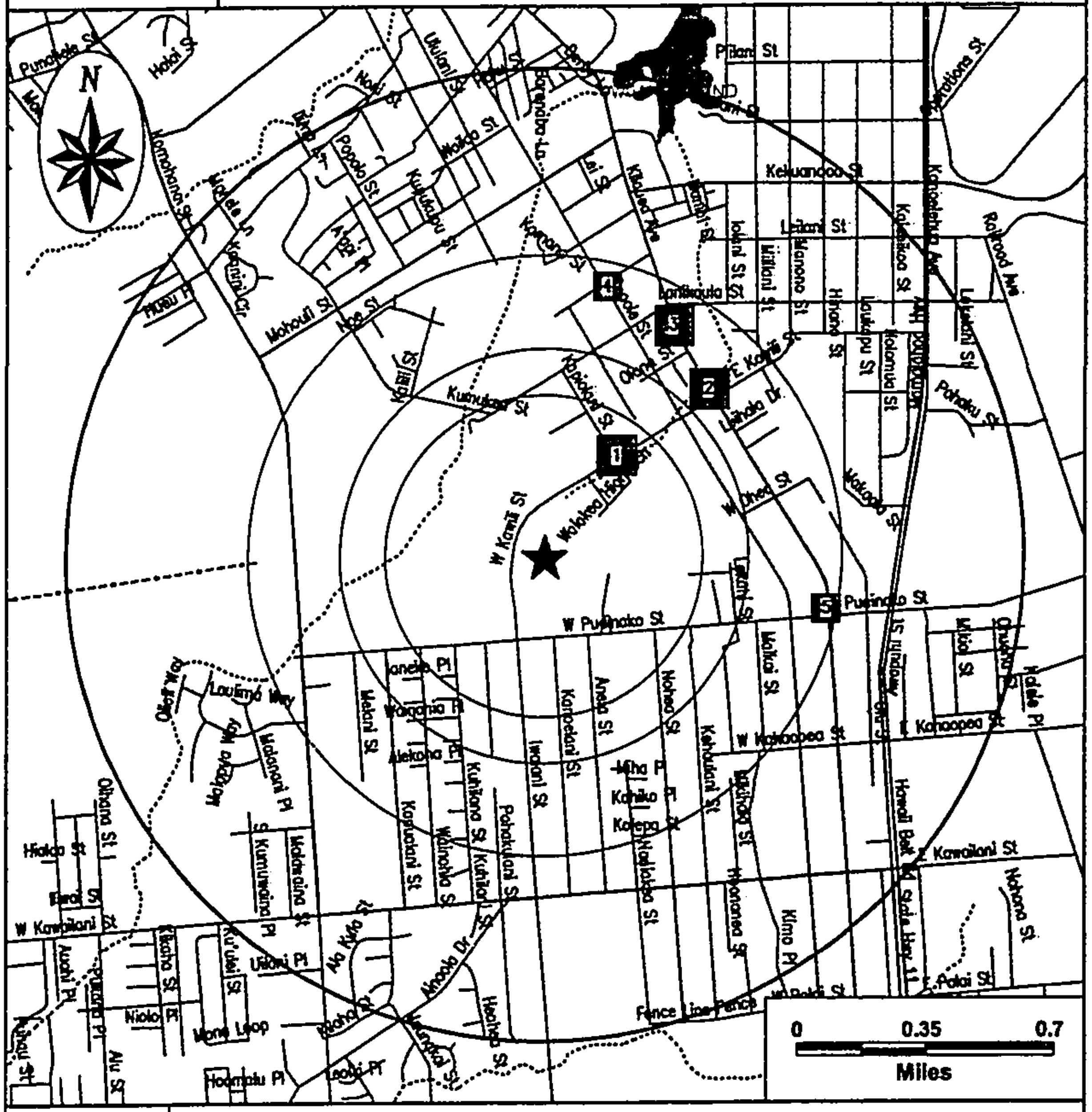
Site Distribution Summary Agency / Database - Type of Records			within 3/8 mile	3/8 to 1/2 mile	1/2 to 3/4 mile	3/4 to 1 1/4 mile
D) Databases searched to 3/8 mile:						
US EPA	ERNS	Emergency Response Notification System of spills	0	-	-	-
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	1	-	-	-
STATE	SPILLS	State spills list	0	-	-	-

This report meets the ASTM standard E-1527 for standard federal and state government database research in a Phase I environmental site assessment. A (-) indicates a distance not searched because it exceeds these ASTM search parameters.

NOTES

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

Map of Sites within 1 1/4 Miles



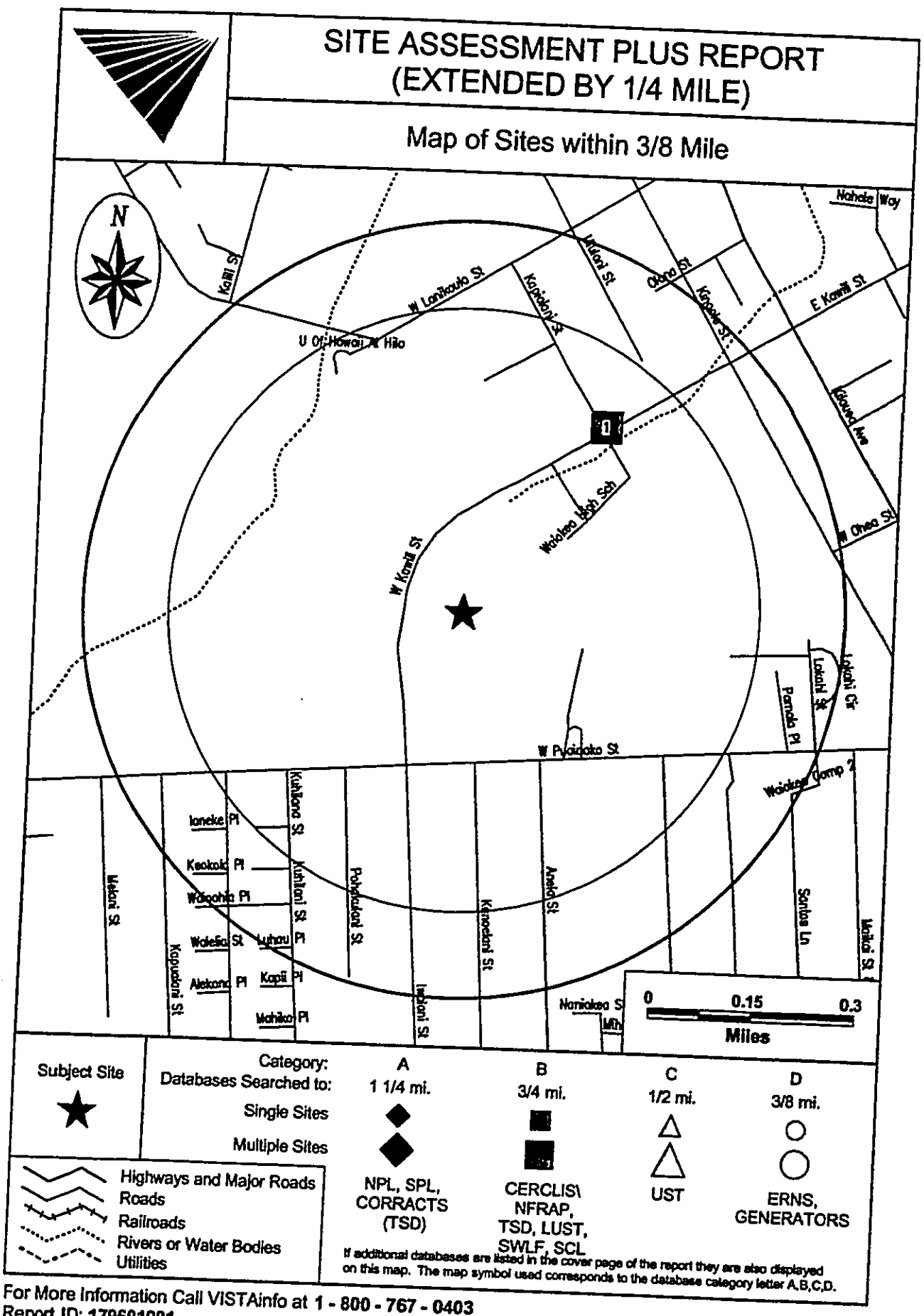
Subject Site	Category:	A	B	C	D
★	Databases Searched to:	1 1/4 mi.	3/4 mi.	1/2 mi.	3/8 mi.
	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

Map of Sites within 3/8 Mile



Subject Site	Category: Databases Searched to:	A 1 1/4 mi.	B 3/4 mi.	C 1/2 mi.	D 3/8 mi.
★	Single Sites	◆	■	△	○
	Multiple Sites	◆	■	△	○
Highways and Major Roads Roads Railroads Rivers or Water Bodies Utilities		NPL, SPL, CORRACTS (TSD)	CERCLIS\ NFRAP, TSD, LUST, SWLF, SCL	UST	ERNS, GENERATORS

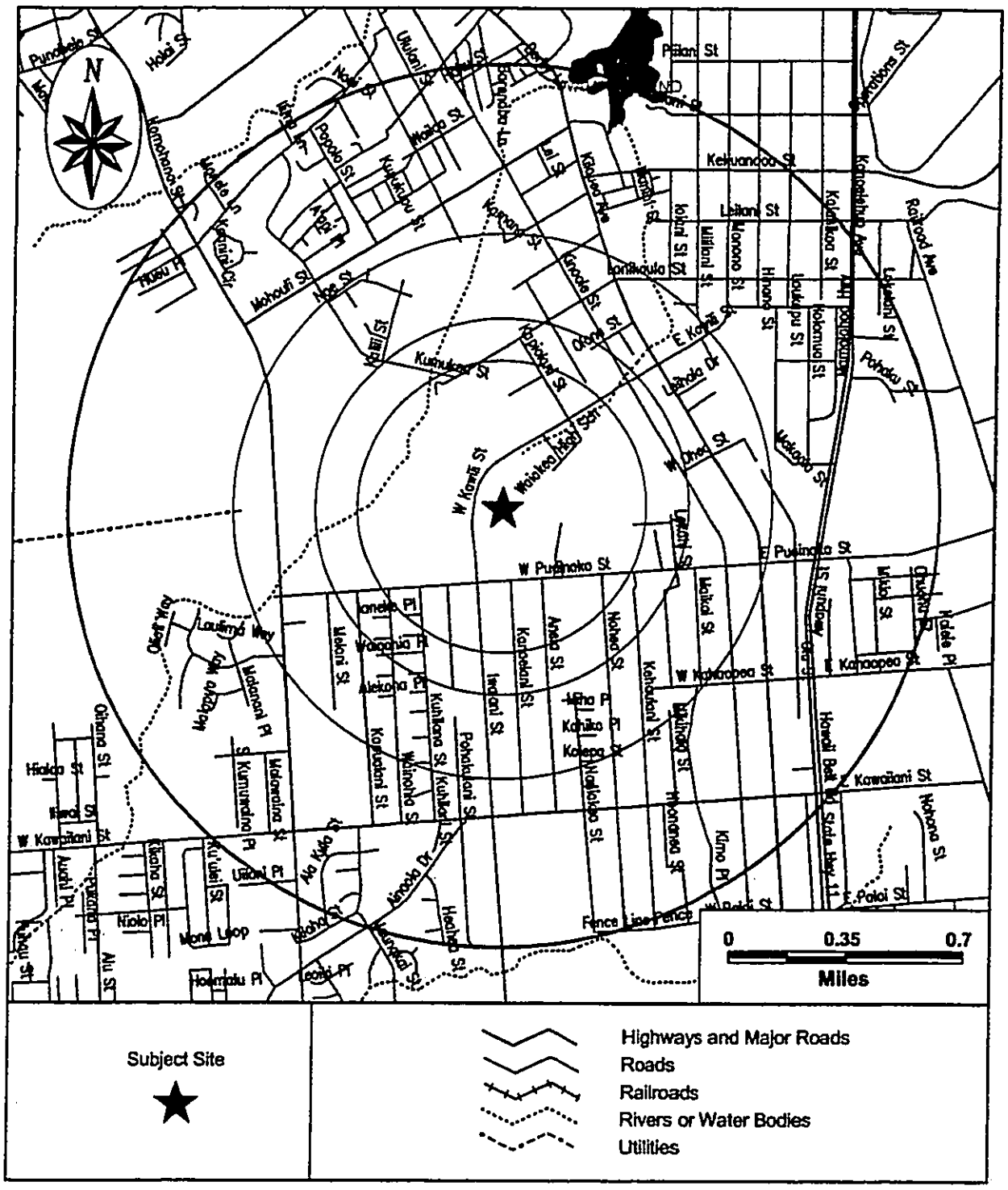
If additional databases are listed in the cover page of the report they are also displayed on this map. The map symbol used corresponds to the database category letter A,B,C,D.

For More Information Call VISTAinfo at **1 - 800 - 767 - 0403**
Report ID: **179601901**

Date of Report: **February 1, 2001**

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

Street Map



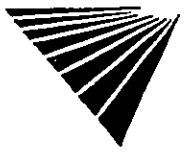
SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 3/8 mile)	VISTA ID / DISTANCE / DIRECTION	A		B					C			D		
			NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
1	I KITAGAWA COMPANY LTD 400 KAWILI ST HILO, HI 96720	*62735201* *0.26 MI* *NE*										X			
1	UNIVERSITY OF HAWAII AT HILO 200 W KAWILI ST HILO, HI 96720	*5348827* *0.29 MI* *NE*					X			X		X		X	

MAP ID	SITES IN THE SURROUNDING AREA (within 3/8 - 1/2 mile)	VISTA ID / DISTANCE / DIRECTION	A		B					C			D		
			NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found															

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 3/4 mile)	VISTA ID / DISTANCE / DIRECTION	A		B					C			D		
			NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
2	SHELL STATION 1260 KILAUEA AVE HILO, HI 96720	*64528096* *0.56 MI* *NE*					X					•			
2	USDA FS PSW EXPT STATION KAWILI ST HILO, HI 96720	*3430387* *0.60 MI* *NE*			X										
3	DUKES KILAUEA SHELL 1104 KILAUEA AVE HILO, HI 96720	*3438992* *0.64 MI* *NE*					X					•			
3	PACIFIC RENT-ALL INC 1080 KILAUEA AVE HILO, HI 96720	*3438990* *0.66 MI* *NE*					X					•			



X = search criteria; • = tag-along (beyond search criteria).
For more information call VISTAinfo at **1 - 800 - 767 - 0403.**
Report ID: **179601901**
Version 2.7

Date of Report: **February 1, 2001**

MAP ID	SITES IN THE SURROUNDING AREA (within 1/2 - 3/4 mile)	VISTA ID / DISTANCE / DIRECTION	A		B					C			D		
			NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
4	HILO RADIATOR GLASS 1335 KINOOLE ST HILO, HI 96720	3430444 0.68 MI N					X					•			
5	KENS SERVICE STATION 1698 KILAUEA AVE HILO, HI 96720	3438997 0.72 MI E					X					•			

MAP ID	SITES IN THE SURROUNDING AREA (within 3/4 - 1 1/4 mile)	VISTA ID / DISTANCE / DIRECTION	A		B					C			D		
			NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
No Records Found															

X = search criteria; • = tag-along (beyond search criteria).
For more information call VISTAinfo at 1 - 800 - 767 - 0403.

UNMAPPED SITES	A		B					C			D		
VISTA ID	NPL	CORRACTS(TSD)	CERCLIS/NFRAP	TSD	LUST	SWLF	WATER WELLS	RCRA VIOL	TRIS	UST/AST	ERNS	GNRTR	SPILLS
65020542													
MIYASHIRO POULTRY HOG FARM INC 853 KEALAKAI ST HILO, HI 96720										X			

SITE ASSESSMENT PLUS REPORT
(EXTENDED BY 1/4 MILE)

DETAILS

PROPERTY AND THE ADJACENT AREA (within 3/8 mile)

				Map ID
VISTA Address*:	I KITAGAWA COMPANY LTD 400 KAWILI ST HILO, HI 96720	VISTA ID#: Distance/Direction: Plotted as:	62735201 0.26 MI / NE Point	1
STATE UST - State Underground Storage Tank / SRC# 236		Agency ID:	9-601327	

Agency Address:	*SAME AS ABOVE*
Facility ID:	*9-601327*
Owner ID:	*OWN-00000519*
Tank ID:	*R-1*
Tank Capacity:	*8000*
Tank Substance:	*GASOLINE*
Tank Material:	*ASPHALT COATED OR BARE STEEL*
Status:	*PERMANENTLY OUT OF USE*
Date Installed:	*06-MAY-77*
Date Closed:	*12-JUN-89*
Tank ID:	*R-2*
Tank Capacity:	*3000*
Tank Substance:	*GASOLINE*
Tank Material:	*ASPHALT COATED OR BARE STEEL*
Status:	*PERMANENTLY OUT OF USE*
Date Installed:	*06-MAY-61*
Date Closed:	*12-JUN-89*
Tank ID:	*R-3*
Tank Capacity:	*3000*
Tank Substance:	*GASOLINE*
Tank Material:	*ASPHALT COATED OR BARE STEEL*
Status:	*PERMANENTLY OUT OF USE*
Date Installed:	*06-MAY-61*
Date Closed:	*12-JUN-89*
Tank ID:	*R-4*
Tank Capacity:	*4000*
Tank Substance:	*GASOLINE*
Tank Material:	*ASPHALT COATED OR BARE STEEL*
Status:	*PERMANENTLY OUT OF USE*
Date Installed:	*06-MAY-73*
Date Closed:	*12-JUN-89*
Tank ID:	*R-5*

PROPERTY AND THE ADJACENT AREA (within 3/8 mile) CONT.

Tank Capacity:	1030
Tank Substance:	DIESEL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	06-MAY-61
Date Closed:	12-JUN-89
Tank ID:	R-6
Tank Capacity:	3000
Tank Substance:	GASOLINE
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	06-MAY-61
Date Closed:	12-JUN-89
Tank ID:	R-7
Tank Capacity:	550
Tank Substance:	DIESEL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	06-MAY-61
Date Closed:	12-JUN-89
Owner Name:	I KITAGAWA COMPANY LTD
Owner Address:	400 KAWILI ST
Owner City, State, Zip:	HILO, HI 96720
Owner ID:	OWN-00000519

VISTA Address*:	UNIVERSITY OF HAWAII AT HILO 200 W KAWILI ST HILO, HI 96720	VISTA ID#:	5348827
		Distance/Direction:	0.29 MI / NE
		Plotted as:	Point

Map ID **1**

RCRA-Violations / SRC# 11		EPA ID:	HID982523185
Agency Address:	SAME AS ABOVE		
Violation Number:	HID982523185S0001		
Area of Violation:	GENERATOR-ALL REQUIREMENTS		
Violation Class:	CLASS 1		
Priority Indicator:	HIGH		
Date Determined:	07/13/1998		
Fields Not Reported by the Source Agency for this Site:	Date Resolved(1). Scheduled Response Date(1)		

RCRA-SmGen - RCRA-Small Generator / SRC# 15		EPA ID:	HID982523185
Agency Address:	SAME AS ABOVE		
EPA Region:	09		
Mailing Address:	200 W KAWILI ST		
Significant Non-Complier Indicator:	HANDLER IS A SIGNIFICANT NON-COMPLIER AT BEGINNING OF FISCAL YEAR.		
RCRA Facilty Classification(s):	HANDLER IS NOT A MEMBER OFTHE SUBJECT TO CORRECTIVE ACTION UNIVERSE.		

PROPERTY AND THE ADJACENT AREA (within 3/8 mile) CONT.

	HANDLER IS NOT A MEMBER OFTHE RCRA REGULATED TRANSPORTER UNIVERSE.
	HANDLER IS NOT A MEMBER OFTHE VERIFIED FULLY-REGULATEDGENERATOR UNIVERSE.
	HANDLER IS A NOT MEMBER OFTHE VERIFIED SMALL QUANTITYGENERATOR UNIVERSE.
	HANDLER IS A MEMBER OF THEVERIFIED CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR UNIVERSE.
	FACILITY IS NOT A MEMBER OFTHE VERIFIED STORAGE/TREATMENT UNIVERSE.
	FACILITY IS NOT A MEMBER OFTHE VERIFIED LAND DISPOSALUNIVERSE.
	FACILITY IS NOT A MEMBER OFTHE VERIFIED COMBUSTION UNIVERSE.
	NOTIFICATION DATA - CORE
Notification Type:	
Contact:	*EDWARD KATAHIRA ENVIRO MANAGER*
Title:	*(808) 933-3333*
Phone:	*200 W KAWILI ST*
Contact Address:	*CURRENT OWNER*
Owner/Operator Indicator:	*PRIVATE*
Owner/Operator Type:	*STATE OF HAWAII*
Owner/Operator Name:	*(415) 555-1212*
Phone:	*NOT REQUIRED*
Address:	*CURRENT OPERATOR*
Owner/Operator Indicator:	*PRIVATE*
Owner/Operator Type:	*NOT REQUIRED*
Owner/Operator Name:	*(415) 555-1212*
Phone:	*NOT REQUIRED*
Address:	
Generator Indicator:	*CONDITIONALLY EXEMPT SMALLQUANTITY GENERATOR*
Transporter Indicator:	*UNVERIFIED*
TSD Indicator:	*NOT A TSD, UNVERIFIED*
Burner/Blender Indicator:	*UNVERIFIED*
HWF Market to Burner Indicator:	*NO GENERATOR-MARKETING-TO-BURNER ACTIVITY*
HWF Other Marketer Indicator:	*NO OTHER MARKETER ACTIVITY*

PROPERTY AND THE ADJACENT AREA (within 3/8 mile) CONT.	
HWF Burner Indicator:	*NO BURNER ACTIVITY*
Used Oil Fuel Marketer to Burner Indicat:	*NO MARKETING TO BURNER ACTIVITY*
Used Oil Fuel Burner Indicator:	*NO USED OIL FUEL BURNER ACTIVITY*
Specification Used Oil Marketing Indicat:	*NO SPEC. USED OIL FUEL MARKETING ACTIVITY*
Utility Boiler Indicator:	*NO ACTIVITY*
Industrial Boiler Indicator:	*NO ACTIVITY*
Industrial Furnace Indicator:	*NO ACTIVITY*
Underground Injection Control Indicator:	*NO ACTIVITY*
Used Oil Recycler Indicator:	*UNVERIFIED*
Used Oil Transporter Indicator:	*NO USED OIL TRANSPORT/TRANSFER FACILITY ACTIVITY*
Used Oil Processor/Re-refiner:	*NO PROCESS/RE-REFINE ACTIVITY*
Air Transporter Indicator:	*DOES NOT TRANSPORT BY AIR*
Rail Transportation Indicator:	*DOES NOT TRANSPORT BY RAIL*
Road Transportation Indicator:	*DOES NOT TRANSPORT BY ROAD*
Water Transportation Indicator:	*DOES NOT TRANSPORT BY WATER*
Generator Status Description:	*CONDITIONALLY EXEMPT SMALL QUANTITY GENERATOR*
Generator Status:	*NOT RCRA REGULATED*
Information Source:	*NOTIFICATION*
Date Submitted:	*07/29/1993*
Evaluation Number:	*19980521001*
Evaluation Type:	*COMPLIANCE EVALUATION INSPECTION.*
Evaluation Date:	*05/21/1998*
Lead Agency:	*STATE*
Fields Not Reported by the Source Agency for this Site:	*Other Transportation Indicator(1), Transporter Status Description(1), TSD Status Description(1), Burner/Blender Status Description(1), Transporter Status(1), TSD Status(1), Burner/Blender Status(1), Used Oil Recycler RCRA Regulatory Status(1), Evaluation Coverage Area(1)*

STATE UST - State Underground Storage Tank / SRC# 236	Agency ID:	9-603380
Agency Address:	*SAME AS ABOVE*	
Facility ID:	*9-603380*	
Owner ID:	*OWN-00001183*	
Tank ID:	*9*	
Tank Capacity:	*250*	
Tank Substance:	*USED OIL*	
Tank Material:	*ASPHALT COATED OR BARE STEEL*	

PROPERTY AND THE ADJACENT AREA (within 3/8 mile) CONT.

Status:	TEMPORARILY OUT OF USE
Date Installed:	01-JAN-83
Tank ID:	R-1
Tank Capacity:	850
Tank Substance:	DIESEL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Closed:	20-MAY-98
Tank ID:	R-2
Tank Capacity:	550
Tank Substance:	GASOLINE
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Closed:	20-MAY-98
Tank ID:	R-3
Tank Capacity:	500
Tank Substance:	KEROSENE
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Tank ID:	R-4
Tank Capacity:	500
Tank Substance:	KEROSENE
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Tank ID:	R-5
Tank Capacity:	250
Tank Substance:	USED OIL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Tank ID:	R-6
Tank Capacity:	250
Tank Substance:	USED OIL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Tank ID:	R-7
Tank Capacity:	550
Tank Substance:	DIESEL

PROPERTY AND THE ADJACENT AREA (within 3/8 mile) CONT.

Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Tank ID:	R-8
Tank Capacity:	250
Tank Substance:	USED OIL
Tank Material:	ASPHALT COATED OR BARE STEEL
Status:	PERMANENTLY OUT OF USE
Date Installed:	01-JAN-83
Date Closed:	18-MAY-99
Owner Name:	STATE UH - HAWAII COMMUNITYCOLLEGE
Owner Address:	FACILITIES PLANNING CONSTRUCTION OFFICE 200 W KAWILI ST
Owner City, State, Zip:	HILO, HI 96720
Owner ID:	OWN-00001183
Fields Not Reported by the Source Agency for this Site:	Date Closed(1), Date Installed(2)

STATE LUST - State Leaking Underground Storage Tank / SRC# 237	Agency ID:	9-603380
Agency Address:	SAME AS ABOVE	
Facility ID:	9-603380	
Last Name:	TAKABA	
Alternate Event ID:	990202	
Last Name:	TAKABA	
Alternate Event ID:	980134	

SITES IN THE SURROUNDING AREA (within 3/8 - 1/2 mile)

No Records Found

SITES IN THE SURROUNDING AREA (within 1/2 - 3/4 mile)

VISTA Address*:	SHELL STATION 1260 KILAUEA AVE HILO, HI 96720	VISTA ID#: Distance/Direction: Plotted as:	64528096 0.56 MI / NE Point	Map ID 2

STATE LUST - State Leaking Underground Storage Tank / SRC# 237	Agency ID:	9-601628
Agency Address:	SAME AS ABOVE	
Facility ID:	9-601628	
Last Name:	ASSIGNED	
Alternate Event ID:	930044	

SITES IN THE SURROUNDING AREA (within 1/2 - 3/4 mile) CONT.

VISTA Address*:	USDA FS PSW EXPT STATION KAWILI ST HILO, HI 96720	VISTA ID#:	3430387	Map ID 2
		Distance/Direction:	0.60 MI / NE	
		Plotted as:	Point	
NFRAP / SRC# 18		EPA ID:	0902902	

Agency Address:	*USDA FOREST SERVICE PSW EXPT STATION* *1643 KILAUEA AVE AT KAWILI* *HILO, HI 96720*
EPA ID:	*HI0122390008*
Site ID:	*0902902*
EPA Region:	*09*
USGS Hydrologic Unit Code:	*20010000*
Ownership Type:	*FEDERALLY OWNED*
Federal Facility Indicator:	*FEDERAL FACILITY*
NPL Status:	*NOT ON THE NPL*
Hazardous Waste Docket Flag:	*NOT ON THE HAZARDOUS WASTEDOCKET*
Action:	*DISCOVERY*
Action Lead:	*FEDERAL FACILITIES*
Scheduled Completion Date:	*MARCH 31, 1986*
Actual Completion Date:	*MARCH 1, 1986*
Action:	*PRELIMINARY ASSESSMENT*
Action Qualifier:	*NFRAP (NO FUTHER REMEDIAL ACTION PLANNED*
Action Lead:	*FEDERAL FACILITIES*
Scheduled Completion Date:	*MARCH 31, 1986*
Actual Completion Date:	*MARCH 1, 1986*
Operable Unit ID:	*00*
Operable Unit Name:	*SITEWIDE*

VISTA Address*:	DUKES KILAUEA SHELL 1104 KILAUEA AVE HILO, HI 96720	VISTA ID#:	3438992	Map ID 3
		Distance/Direction:	0.64 MI / NE	
		Plotted as:	Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 237		Agency ID:	9-601320	

Agency Address:	*SAME AS ABOVE*
Facility ID:	*9-601320*
Last Name:	*RUIZ*
Alternate Event ID:	*930099*

VISTA Address*:	PACIFIC RENT-ALL INC 1080 KILAUEA AVE HILO, HI 96720	VISTA ID#:	3438990	Map ID 3
		Distance/Direction:	0.66 MI / NE	
		Plotted as:	Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 237		Agency ID:	9-601678	

Agency Address:	*SAME AS ABOVE*
Facility ID:	*9-601678*

SITES IN THE SURROUNDING AREA (within 1/2 - 3/4 mile) CONT.

Last Name:	*BREWER*
Alternate Event ID:	*940099*

				Map ID
VISTA Address*:	**HILO RADIATOR GLASS** **1335 KINOOLE ST** **HILO, HI 96720**	VISTA ID#: Distance/Direction: Plotted as:	3430444 0.68 MI / N Point	**4**
STATE LUST - State Leaking Underground Storage Tank / SRC# 237		Agency ID:	9-600152	
Agency Address:	*SAME AS ABOVE*			
Facility ID:	*9-600152*			
Last Name:	*BREWER*			
Alternate Event ID:	*920063*			

				Map ID
VISTA Address*:	**KENS SERVICE STATION** **1698 KILAUEA AVE** **HILO, HI 96720**	VISTA ID#: Distance/Direction: Plotted as:	3438997 0.72 MI / E Point	**5**
STATE LUST - State Leaking Underground Storage Tank / SRC# 237		Agency ID:	9-601325	
Agency Address:	*SAME AS ABOVE*			
Facility ID:	*9-601325*			
Last Name:	*SADOYAMA*			
Alternate Event ID:	*990073*			

SITES IN THE SURROUNDING AREA (within 3/4 - 1 1/4 miles)

No Records Found

Final Environmental Impact Statement

China-U.S. Center

APPENDIX 6

Comments and Responses to Draft EIS

Harry Kim
Mayor

Edward Bumatay
Fire Chief

County of Hawai'i
FIRE DEPARTMENT
25 Aupuni Street • Suite 103 • Hilo, Hawai'i 96720
(808) 961-8297 • Fax (808) 961-8296

November 6, 2001

Mr. Ron Terry
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

We have reviewed the Draft Environmental Impact Statement for the Chine-U.S. Center and have no comments.

Thank you for giving us the opportunity to comment.

Sincerely,

EDWARD BUMATAY
Fire Chief

EB/mo

cc: Director, OEQC
Gerald DeMello, UH Hilo

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

Chief
Hawaii County Fire Department
25 Aupuni Street, Suite 103
Hilo, Hawaii 96720-4239

Dear Chief:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for the letter of November 6, 2001, stating that your agency has no comments on the Draft EIS. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Harry Kim
Mayor

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

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

November 8, 2001

Mr. Ron Terry
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Environmental Impact Statement Preparation Notice
GEO International Explorer, Inc.
China-U.S Center at the University of Hawaii at Hilo
TMK: 2-4-01:5

Thank you for the opportunity to provide comments on the Environmental Impact Statement Preparation Notice (EISPN) for the China-U.S. Center project proposed at the University of Hawaii at Hilo property identified by TMK: 2-4-01:5.

According to the information provided in the EISPN, the proposed Chine-U.S. Center would support campus-related commercial activities, student and visitor housing, general academic and cultural exchange programs. The four main elements are a commercial plaza, the China-U.S. Cultural Center, student-housing unit, and a Harmony Tower with its University Inn.

The land use designations for the property are as follows:

General Plan Land Use designation:	University Use
State Land Use District Classification:	Urban
County Zoning:	Single Family Residential – 10,000 square feet (RS-10)

We have no further comments to offer at this time. Should you have any questions, please feel free to contact us at 961-8288.

Sincerely,

CHRISTOPHER J. YUEN
Planning Director

PF:pak
p:wpwin60\ch343\2001\EISPN01-15USChina.doc

cc: Long Range Planning

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integrating geographic science and planning

April 4, 2002

Christopher J. Yuen, Director
Hawaii County Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Yuen:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 8, 2001, commenting on the Draft EIS, in which you confirm the land use designations for the property stated in the DEIS and state that you have no further comments at this time We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Harry Kim
Mayor

Edwin S. Taira
Housing Administrator

County of Hawaii
OFFICE OF HOUSING AND COMMUNITY DEVELOPMENT
50 Wailuku Drive • Hilo, Hawai'i 96720-2484
V/TT (808) 961-8379 • FAX (808) 961-8685

November 13, 2001

Ron Terry, Ph.D.
GEO Metrician
HC 2 Box 9575
Keaau, Hawai'i 96749

Subject: **Environmental Impact Statement Preparation Notice (EISPN) for China-U.S. Center**
Waiakea, South Hilo District
TMK: 2-4-01: por. 5

Thank you for the opportunity to review and comment on the subject project's EISPN.

The Office of Housing and Community Development (OHCD) believe that the 600 new dormitory facilities for the proposed project will increase the supply and affordability of rental units in the surrounding neighborhood.

If you have questions or need further assistance, please feel free to contact Clyde M. Yoshida at 961-8379.

Edwin S. Taira
Housing Administrator

c: Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

Gerald DeMello
University of Hawai'i at Hilo
200 W. Kawili Street
Hilo, Hawai'i 96720

9264ccmy

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integrating geographic science and planning

April 4, 2002

Mr. Edwin S. Taira, Administrator
Hawaii County Off. Hous. Comm. Dev.
50 Wailuku Drive
Hilo, HI 96720

Dear Mr. Taira:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 13, 2001, commenting on the Draft EIS, in which you state that the 600 new dormitory facilities will increase the supply and affordability of rental units in the surrounding neighborhood. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSO
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMEN

DEPUTIES
JANET E. KAWELO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

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

November 14, 2001

LOG NO: 28588 ✓
DOC NO: 0111PM09

Dr. Ron Terry
HC 2 Box 8575
Kea'au, Hawaii 96749

Dear Dr. Terry:

SUBJECT: ***Draft Environmental Impact Statement—China-U.S. Center***
Waiakea, South Hilo, Hawaii Island
TMK: 2-4-01: 05 (por.)

Thank you for transmitting a copy of the above referenced document to us for review and comment. The DEIS was received in our office on November 7, 2001.

The applicant, GEO International Explorer, Inc., proposes to construct residential, classroom, conference and commercial facilities on the University of Hawaii Hilo campus. PHRI conducted an archaeological inventory survey of the proposed 40-acre project area in 1998. One site (21461) was found in the survey. The site, which consists of some 117 mounds and walls, is related to historic period sugarcane cultivation. Our office reviewed and approved the report on the survey. Our review letter of October 4, 2000, which is included with Appendix 2 of the DEIS, indicates that no mitigation of this site is needed, because an adequate and reasonable amounts of the information in the site were recovered/recorded during the survey. Thus, the site no longer needs to be protected, and the proposed project will have "no adverse effect" on the historic site.

If you should have any questions about this project please contact either Patrick McCoy (692-8029).

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

PM:amk

c. Director, OEQC
Gerald DeMello, University of Hawaii at Hilo

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April 4, 2002

Dr. Donald Hibbard
State Historic Preservation Division
Hawaii Department of Land and Natural Resources
601 Kamokila Blvd., Room 555
Kapolei HI 96707

Dear Dr. Hibbard:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 14, 2001, commenting on the Draft EIS, in which you reiterated the conclusions of your letter of October 4, 2001. In the former letter you stated that the archaeological site found on the parcel, which is comprised of historic period sugar cane cultivation features, had been adequately studied and was "no longer significant", and that no mitigation would be required. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM
LAND USE COMMISSION
P.O. Box 2359
Honolulu, HI 96804-2359
Telephone: 808-587-3822
Fax: 808-587-3827

November 14, 2001

Ron Terry, Ph. D.
Geo Metrician
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

Subject: Draft Environmental Impact Statement (DEIS)
China-U.S. Center
GEO International Explorer, Inc.
Waiakea, South Hilo, Hawaii, TMK No: 2-4-01:por. 5

We have reviewed the subject DEIS and reaffirm our previous comments dated April 30, 2001, that the subject property is located within the boundary of the State Land Use Urban District. Based on the description of the proposed China-U.S. Center in the DEIS, it would appear that it is consistent with the provisions of the State Land Use Law, Chapter 205, Hawaii Revised Statutes, governing uses within the Urban District. We appreciate the opportunity to comment on the subject DEIS.

Please feel free to contact Bert Saruwatari of my staff at 587-3822 should you require clarification or any further assistance.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

c: Office of Environmental Quality Control
Gerald DeMello, University of Hawaii (Hilo)

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integrating geographic science and planning

April 4, 2002

Mr. Anthony Ching, Acting Executive Officer
State Land Use Commission
Department of Business, Economic Development and Tourism
P.O. Box 2359
Honolulu HI 96804-2359

Dear Mr. Ching:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 14, 2001, commenting on the Draft EIS, in which you state that it would appear that the project is consistent with the provisions of the State Land Use Law, Chapter 205, HRS. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

SHARYN L. MIYASHIRO
EXECUTIVE DIRECTOR

ROBERT J. HALL
EXECUTIVE ASSISTANT

STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

01:PEO/2700

November 19, 2001

Ron Terry, Ph.D.
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

Subject: Draft Environmental Impact Statement for China-U.S. Center
Applicant: GEO International Explorer, Inc.

Thank you for the opportunity to review the Draft Environmental Impact Statement for the proposed China-U.S. Center in Hilo, Hawaii. We have no comments.

Sincerely,

Sharyn L. Miyashiro
Executive Director

c: Director, Office of Environmental Quality Control
Gerald DeMello, University of Hawai'i at Hilo

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April 4, 2002

Ms. Sharyn L. Miyashiro, Acting Executive Director
Housing and Community Development Corp. of Hawaii
677 Queen Street, Suite 300
Honolulu HI 96813

Dear Ms. Miyashiro:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 19, 2001, commenting on the Draft EIS, in which you state that you have no comments. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Harry Kim
Mayor

James S. Corr
Police Chief

County of Hawaii

POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawaii 96720-3998
(808) 935-3311 • Fax (808) 961-8869

November 20, 2001

Mr. Ron Terry
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

RE: DRAFT ENVIRONMENTAL IMPACT STATEMENT
CHINA-U.S. CENTER

Staff has reviewed the draft environmental impact statement for the above-referenced project.

Based on the TIAR, we agree with the proposed measures specified under 4.4.1.6, as the improvements will help mitigate the project's traffic impact.

We also agree that no on-street parking along the entire frontage of the proposed facility should be allowed, and also recommend a traffic signal at Drive A at Kawili. This should make the intersection more pedestrian friendly.

Thank you for the opportunity to comment.

Sincerely,

JAMES S. CORREA
POLICE CHIEF

Thomas J. Hickcox

THOMAS J. HICKCOX
ASSISTANT POLICE CHIEF
FIELD OPERATIONS BUREAU

DAK:lk

cc: Director, Office of Environmental Quality Control
Mr. Gerald DeMello, University of Hawaii at Hilo

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April 4, 2002

Chief James Correa
Hawaii County Police Department
349 Kapiolani St.
Hilo HI 96720
Attn: Thomas J. Hickcox,
Assistant Police Chief
Field Operations Bureau

Dear Chief Correa and Mr. Hickcox:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 20, 2001, commenting on the Draft EIS. Our responses to your individual comments are as follows:

1. *Mitigation of project's impact.* Thank you for your evaluation of the proposed mitigation measures.
2. *No on-street parking and traffic signal at Drive A.* We agree with these measures and it is expected that the University of Hawai`i at Hilo, in coordination with the Hawai`i County Department of Public Works, will implement them.

We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

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

REPLY TO
ATTENTION OF

November 20, 2001

Civil Works Technical Branch

Mr. Ron Terry
HC 2, Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Thank you for the opportunity to review and comment on the Draft Environmental Impact Statement (DEIS) for the China-U.S. Center, South Hilo, Hawaii (TMK 2-4-1: por. 5). The following comments are provided in accordance with Corps of Engineers authorities to provide flood hazard information and to issue Department of the Army (DA) permits.

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

b. The flood hazard information provided on page 4-6 of the DEIS is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876. A copy of this letter has been furnished to Mr. Gerald DeMello at the University of Hawaii at Hilo.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

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integrating geographic science and planning

April 4, 2002

Mr. James Pennaz, P.E., Chief
Civil Works Technical Branch
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, HI 96858-5440

Dear Mr. Pennaz:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 20, 2001, commenting on the Draft EIS. Our responses to your individual comments are as follows:

1. *Based on information provided, no need for DA Permit.* We note your evaluation.
2. *Flood hazard information.* Thank you for confirming that the information provided in the EIS is correct.

We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

WAYNE H. KIMURA
COMPTROLLER

MARY ALICE EVANS
DEPUTY COMPTROLLER

LETTER NO. (P)1723.

NOV 23 2001

Mr. Ron Terry, Ph.D.
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Mr. Terry:

Subject: University of Hawaii at Hilo
China - U.S. Center
Draft Environmental Impact Statement (DEIS)

Thank you for the opportunity to review and comment on the subject project's DEIS. The proposed construction and operation of the China - U.S. Center does not directly impact any of our facilities. Therefore, we have no comments.

If there are any questions regarding the above, please have your staff call Mr. Brian Isa of the Planning Branch at 586-0484.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

BI:mo
c: Ms. Genevieve Salmonson, OEQC
Mr. Gerald DeMello, UH Hilo

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integrating geographic science and planning

April 4, 2002

Mr. Gordon Matsuoka, Public Works Administrator
Hawaii Dept. of Accounting and General Services
P.O. Box 119
Honolulu HI 96810

Dear Mr. Matsuoka:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 23, 2001, commenting on the Draft EIS, in which you state that the project does not directly impact any DAGS facilities and therefore your agency has no comment. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

[redacted]
PATRICIA HAMAMOTO
INTERIM SUPERINTENDEN

STATE OF HAWAI'I
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAI'I 96804

OFFICE OF THE SUPERINTENDENT

November 23, 2001

Mr. Ron Terry
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, Hawai`i 96749

Dear Mr. Terry:

Subject: China - U.S. Center Draft EIS

The Department of Education has no additional comment on the subject project.

Thank you for the opportunity to respond.

Very truly yours,

Patricia Hamamoto
Interim Superintendent of Education

PH:hy

cc: A. Suga, DAS
G. Salmonson, OEQC
G. DeMello, UH-Hilo

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integrating geographic science and planning

April 4, 2002

Patricia Hamamoto,
Superintendent of Education
Hawaii State Dept. of Education
P.O. Box 2360
Honolulu HI 96804

Dear Ms. Hamamoto:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 23, 2001, commenting on the Draft EIS, in which you state that your agency has no additional comments. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR
STATE OF HAWAII

RAYNARD C. SOON
CHAIRMAN
HAWAIIAN HOMES COMMISSION

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

STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

November 27, 2001

Mr. Ron Terry
GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, HI 96749

Dear Mr. Terry:

Subject: China-U.S. Center, Draft Environmental Impact Statement, TMK 2-4-1:05 por., Waiakea, Hawaii, Dated November, 2001

Thank you for the opportunity to review the subject application. The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call Daniel Ornellas of our Planning Office at 586-3836.

Aloha,

Raynard C. Soon, Chairman
Hawaiian Homes Commission

fg

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integrating geographic science and planning

April 4, 2002

Mr. Raynard Soon, Chairman
Hawaiian Homes Commission
Hawaii Dept. of Hawaiian Home Lands
P.O. Box 1879
Honolulu HI 96804

Dear Mr. Soon:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of November 27, 2001, commenting on the Draft EIS, in which you state that your agency has no comments to offer. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Hawaii Island
Chamber of Commerce

106 Kamehameha Ave
Hilo, Hawaii 96
Phone: (808) 935-7
Fax: (808) 961-4
email: hicc@interpac
gohilo.

December 6, 2001

GEO International Explorer, Inc.
c/o Ron Terry
HCR 2 Box 9575
Keaau, HI 96749

Re: China-U.S. Center Draft EIS

Thank you for the opportunity to examine this Draft EIS. This proposed project is one that is certainly welcome in our community. We are proud of our University and want it to grow and realize that sometimes private capital is needed to make certain parts of it happen.

The proposed China-U.S. Center is one of these times. One of the great things about higher education facilities in the State of Hawaii is the inter-action between the students and the community. In Hawaii, particularly in Hilo, this interaction works well because of our multi-cultural community. Such a project, emphasizing the United States relations with China is very appropriate at this time.

We believe the location is superb and we wish those who are willing to engage in developing it well in their endeavor.

We look forward to the day when it opens!

Sincerely,

Robert E. Cooper
President

cc: OEQC
UHH

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integrating geographic science and planning

April 4, 2002

Robert E. Cooper, President
Hawaii Island Chamber of Commerce
202 Kamehameha Avenue
Hilo, HI 96720

Dear Mr. Cooper:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 6, 2001, commenting on the Draft EIS. Our responses to your individual comments are as follows:

1. *Need for private capital to make certain UH Hilo projects happen.* The University agrees and believes that the China-U.S. Center represents a good model for such ventures.
2. *Cultural interaction.* The University appreciates the Chamber's recognition of this important function and looks forward to enhancing its role as a venue for cultural interaction involving the whole community.
3. *Location.* We agree that the location for the project is very suitable.

We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

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

December 7, 2001

Mr. Ron Terry
HC 2 Box 9575
Keeau, HI 96749

Dear Mr. Terry:

SUBJECT: China-U.S. Center

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

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

[x] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[x] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[ ] OTHER:

If there are any questions, please contact Ryan Imata at 587-0255 or toll free at 974-4000, extension 70255.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

RI:ss

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management
Hawaii Department of Land and Natural Resources
P.O. Box 621
Honolulu HI 96809

Dear Ms. Nishioka:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 7, 2001, commenting on the Draft EIS. Our responses to your individual comments are as follows:

1. *Recommend coordination with County Department of Water Supply(DWS) to incorporate project into county's Water Use and Development Plan.* The University and its engineering consultants are currently coordinating with DWS.
2. *Permits if wells to be constructed.* We recognize that the entity developing water wells will be required to obtain permits from your agency.

We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSO
DIRECTOR

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

December 7, 2001

Mr. Gerald DeMello
University of Hawai'i at Hilo
200 West Kawili Street
Hilo, Hawai'i 96720-4091

Dr. Ron Terry
for GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, Hawai'i 96749

SSFM International Inc.
500 Sumner Street, Suite 502
Honolulu, Hawai'i 96813

Dear Mr. DeMello, Dr. Terry and SSFM International:

The Office of Environmental Quality Control has reviewed the draft environmental impact statement for the proposed China U.S. Centre at the University of Hawai'i at Hilo, Tax Map Key 2-4-01, portion of parcel 05, situated in Waiakea, South Hilo District, island of Hawai'i.

Thank you for responding to the comments set forth in our EISPN comment letter. The DEIS is a well-prepared comprehensive and detailed document, and we have no comments at this time.

Thank you for the opportunity to comment. If there are any questions, please call Leslie Segundo at (808) 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

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

Dear Ms. Salmonson:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 7, 2001, commenting on the Draft EIS, in which you state that the EIS is adequate and that you have no comments at this time We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Harry Kim
Mayor

Patricia G. Engelhard
Director

Pamela N. Mizuno
Deputy Director

County of Hawai`i

DEPARTMENT OF PARKS AND RECREATION
25 Aupuni Street, Room 210 • Hilo, Hawai'i 96720-4252
(808) 961-8311 • Fax (808) 961-8411

December 7, 2001

Ron Terry
HC 2 Box 9575
Keaau, HI 96749

Re: Draft Environmental Impact Statement for China-U.S. Center
GEO International Explorer, Inc.
TMK: 2-4-01:por 5

Dear Mr. Terry:

We have concluded that the self-contained college community is not expected to significantly impact the County's recreational facilities, thus the need for 'mitigation' is not foreseen. We also note that onsite 'entertainment services' will be provided.

Thank you for the opportunity to review and provide input on the draft EIS.

Sincerely,

Pat Engelhard

Patricia G. Engelhard
Director

cc Office of Environmental Quality Control
UH at Hilo (attn: Gerald DeMello)

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

Ms. Patricia Engelhard, Director
Hawaii County Parks and Recreation Department
25 Aupuni Street
Hilo HI 96720

Dear Ms. Englehard:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 7, 2001, commenting on the Draft EIS, in which you state that the project is not expected to significantly impact the County's recreational facilities and therefore requires no mitigation for impact to such. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai'i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

Royal Order of Kamehameha I
Heiau O Mamalahoa Helu 'Elua
1162 Kalanianaole Blvd.
Keaukaha-Hilo, Hawaii 96720
Phone: (808) 961-6763

To: Mr. Gerald De Mello
University Relations
University of Hawaii Hilo
200 W. Kawili Street
Hilo, Hawaii 96720

From: Royal Order of Kamehameha I
Moku O Mamalahoa
Heiau O Mamalahoa Helu 'Elua
1162 Kalanianaole Blvd.
Keaukaha-Hilo, Hawai'i 96720
Phone: (808) 961-6763

Aloha kaua e Mr. Gerald DeMello,

Please provide all information regarding China/U.S. Center projects to include Environmental Impact Statement.

Additionally request tentative date be establish for input and dialogue.

In regards I remain,

Jonathan Mason - Pro-tem
Alii Sir Robert C. Mc Keen Jr.
Kaka'olelo O Mamalohoa

Mamo Dennis Soriano
Kuauhau

Paul K. Neves
Alii Sir Paul K. Neves
Alii Aimoku O Mamalahoa

Cc: All Brothers of the Royal Order of Kamehameha I

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

Royal Order of Kamehameha
1162 Kalanianaole Blvd.
Hilo HI 96720

Dear Sirs:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter, received by the University in mid-December, 2001, requesting information and dialogue on the China-U.S. Center. Gerald DeMello responded to your request by delivering an EIS to your offices and inviting your organization to meet with UH Hilo officials. We appreciate your interest in the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

JOR GENERAL EDWARD L. CORREA, JR.
DIRECTOR OF CIVIL DEFENSE

EDWARD T. TEIXEIRA
VICE DIRECTOR OF CIVIL DEFENSE

STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE DIRECTOR OF CIVIL DEFENSE
3949 DIAMOND HEAD ROAD
HONOLULU, HAWAII 96816-4495

PHONE (808) 733-4300
FAX (808) 733-4287

December 20, 2001

Ron Terry, Ph.D.
Geo International Explorer, Inc.
HC 2 Box 9575
Keaau, Hawaii 96749

Dear Dr. Terry:

DRAFT ENVIRONMENTAL IMPACT STATEMENT,
CHINA-U.S. CENTER

Thank you for the opportunity to comment on the Draft Environmental Impact Statement for the *China-U.S. Center*, Hilo, Hawaii.

The location of the center has inadequate outdoor warning siren coverage. Request that the developer include an outdoor warning siren on the grounds of the center.

State Civil Defense (SCD) technicians and planners are available to assist and answer questions you may have. Please call Mr. Norman Ogasawara, SCD, at 733-4300, extension 531, if you have any questions.

Sincerely,

EDWARD T. TEIXEIRA
Vice Director of Civil Defense

c: Hawaii Civil Defense Agency
Director, Office of Environmental Quality Control
University of Hawai'i at Hilo
George Burnett, Telecommunications

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April 4, 2002

Mr. Edward Texeira
Vice Director of Civil Defense
Hawaii Department of Defense
3949 Diamond Head Road
Honolulu HI 96816-4495

Dear Mr. Texeira:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 20, 2001, commenting on the Draft EIS, in which you state that the location of the center has inadequate outdoor warning siren coverage. We understand the Hawai`i Community College is working with State and County Civil Defense to locate a site on the Lower Campus that could serve the entire University area, as well as adjacent properties. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

NRCS Natural Resources Conservation Service

USDA United States Department of Agriculture

P.O. Box 50004
Honolulu, HI 96850
Phone: 808-541-2600
FAX: 808-541-1335

Our People...Our Islands...In Harmony

December 20, 2001

Ron Terry, Ph.D.
HC2 Box 9575
Kea'au, Hawaii 96749

Dear Dr. Terry:

Subject: Draft Environmental Impact Statement (DEIS) – China-U.S. Center, Waiakea, South Hilo District, Hawaii Island, State of Hawaii

We have reviewed the above mentioned document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

Actg

KENNETH M. KANESHIRO
State Conservationist

Cc:
SSFM International Inc., 501 Sumner Street, Suite 502, Honolulu, HI 96817

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April 4, 2002

Mr. Kenneth Kaneshiro, State Conservationist
U.S. Natural Resources Conservation Service
U.S. Department of Agriculture
P.O. Box 50004
Honolulu HI 96850

Dear Mr. Kaneshiro:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 20, 2001, commenting on the Draft EIS, in which you state that your agency has no comment to offer at this time. We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAII
345 KEKUANAOA STREET, SUITE 20 • HILO, HAWAII 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

December 24, 2001

Mr. Ron Terry
HC 2 Box 9575
Keaau, HI 96749

CHINA-U.S. CENTER
DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
TAX MAP KEY: 2-4-001:005 POR.

Thank you for the opportunity to review the Draft Environmental Impact Statement for the China-U.S. Center.

We have no comments to offer at this time.

Sincerely yours,

Milton D. Pavao, P.E.
Manager

SHK:jkh

copy – Director, Office of Environmental Quality Control
Mr. Gerald DeMello, University of Hawaii at Hilo

...Water brings progress...

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ASSOCIATES, LLC
integrating geographic science and planning

April 4, 2002

Mr. Milton Pavao, Manager
Hawaii County Dept. of Water Supply
25 Aupuni Street
Hilo HI 96720

Dear Mr. Pavao:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of December 24, 2001, commenting on the Draft EIS, in which you state that your agency has no comment to offer at this time. We appreciate your review of the project. As initiated in the meeting of February 7, 2002, as the project moves forward, GEO and the University of Hawai`i at Hilo will continue coordination with your agency concerning appropriate requirements for obtaining water service for the property.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
JEAN L. OSHITA
JADINE Y. URASAKI

IN REPLY REFER TO:

HWY-PS
2.5238

JAN 0 8 2002

GEO International Explorer, Inc.
HC 2 Box 9575
Keaau, HI 96749

Attn: Ron Terry

Dear Mr. Terry:

Subject: Draft Environmental Impact Statement (EIS) for China – U.S. Center, Waiakea, South Hilo, TMK: 2-4-01: por. 05

Thank you for the opportunity to review the Draft EIS. We have the following comments:

1. In the event the Puainako Street widening is delayed beyond 2010, the developer should commit to mitigate project traffic impacts, by widening and improving the Puainako Street/Kawili Street intersection.

2. The EIS Traffic Impact Analysis Report (TIAR) should be revised to address the following questions and concerns.

- The UH Hilo entrance from Kawili Street was closed during traffic surveys. How did this affect traffic circulation and baseline traffic reported in the TIAR?

- We believe practically all trips generated by the shopping and entertainment plaza in the morning peak hour (Table 5) will be new trips rather than pass-by trips diverted to the subject land use.

- It was assumed (Table 6) that student apartments would generate 25% less traffic than ordinary apartments. Why was "25%" used rather than some other number?

- Proximity of a shopping plaza to residential uses will not result in a uniform 10% reduction in vehicle trips, regardless of source, as assumed in the Phase 1 Trip Generation Summary (Table 9). While there might be as much as a 15% reduction in vehicle trips generated by dwelling and lodging uses, vehicle trips generated by the shopping plaza would be relatively unaffected.

- Why was it assumed (Table 10) that the proposed China-U.S. Cultural Center would generate average vehicle occupancy of 2.0 persons per vehicle?

- Given that the Phase 1 Trip Generation Summary (Table 9) already assumes that proximity of a shopping plaza to residential uses will result in fewer vehicle trips, the project Trip Generation Summary (Table 12) should not assume that addition of Phases 2 and 3 justifies another 10% reduction in total traffic generated by Phase 1.

- We are unable to reconcile the project Trip Generation Summary (Table 12) with the Project Trip Assignments (Figure 7).

- Pass-by trips should be incorporated in turning movement volumes to access the shopping plaza in Figures 8 and 9.

3. After the TIAR is revised, we may request additional traffic mitigation measures.

4. All plans for work within the State highway right-of-way must be submitted to our Highways Division, Hawaii District Office for review and approval.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

for BRIAN K. MINAAI
Director of Transportation

c: Office of Environmental Quality Control
UH Hilo, Attn: Gerald DeMello

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integrating geographic science and planning

April 12, 2002

Mr. Brian Minaai, Director
Hawaii State Department of Transportation
869 Punchbowl Street,
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Comment Letter in Response to Draft Environmental Impact Statement (DEIS) for China-U.S. Center

Thank you for your letter of January 8, 2001, commenting on the Draft EIS. We note that although the comment period for the DEIS had terminated on December 23, 2001, Doug Meller of your agency requested and was granted a two-week extension in mid-December. Our responses to your individual comments, which reflect further discussions with your staff, are as follows:

1. *Puainako/Kawili Street intersection improvements.* We agree that if the Puainako Street Widening project is not completed by the time the China-U.S. Center is in operation, the combination of existing traffic, increased background traffic and the proposed project traffic will necessitate upgrades to this intersection. Of course, we also recognize the compelling State interest in completing the Puainako Street Widening project in terms of linking State highways and serving the various public State elementary, secondary and higher education facilities. We are hopeful that the Puainako Widening project is funded and completed soon. As the China-U.S. Center project plans progress, GEO and UH-Hilo would like to coordinate with your agency concerning the existing Puainako/Kawili intersection and the possibility for placing this project on the Statewide Transportation Improvement Project list and receiving federal match funding, should upgrades be necessary. Please note that a discussion of this has been added to the "Unresolved Issue" portion of the EIS in Section 6.4. We will be sending you and the Hawai`i District Office a copy of the EIS for your records.

2a. *TIAR: Temporary closure of main UH-Hilo entrance during survey.* The traffic consultant re-counted the intersection in April 2002 when the entrance was open and school was in session. However, the counts were not consistent with the traffic counts at the adjacent intersections. Therefore, the consultant then estimated the 2010 morning traffic volumes from the traffic study for the Puainako Street Widening and Extension project. The traffic projections and the levels-of-service were recalculated in the TIAR using these new projections.

2b. *Morning peak-hour bypass trips versus new trips.* Based on discussions with your staff, it was agreed that the PM peak hour percentage of pass-by trips could be used for the AM peak hour, since the shopping center would have businesses that are oriented toward serving the university population, similar to University Square that is adjacent to the USC campus in Los Angeles. The discussion in the report was expanded to include a statement that the shopping center would be operational during the morning peak hour.

phone: (808) 982-5831 • fax: (808) 966-7593 • HC 2 Box 9575, Keaau, Hawaii 96749 • rterry@interpac.net

2c. *Student apartment traffic generation.* In the Draft EIS TIAR, Table 6 was prepared assuming that the residents in the apartments, who are required to be students, would likely walk to campus (which is directly across the street) rather than drive. In order to be conservative, a discount of only 25% was used. In consultation with your staff, an even more conservative assumption was made, and the discount was eliminated. This increased the number of morning and afternoon peak hour trips be 13 and 16 trips per hour, respectively. Subsequent traffic projections have been changed accordingly, but these numbers are not large enough to have an impact on the conclusions of the report.

2d. *Reduction in vehicle trips: commercial versus dwelling uses.* It was agreed in consultation with your staff that the total number of trips generated by Phase 1 (Table 9) would be discounted by 15% for all non-retail uses to adjust for trips with both origin and destination within the project.

2e. *Average vehicle occupancy.* It was agreed that the number of persons per vehicle would be reduced from 2.0 to 1.25. We agreed that this value was lower than what we expected but was used to be conservative.

2f. *Ten percent reduction for Phase 2 and 3.* The 10% reduction was eliminated.

2g. *Reconciliation of Trip Generation Summary.* The trip assignments were recalculated based on the changes discussed above and double checked.

2h. *Pass-by trips in turning movement volumes.* The trip assignments were recalculated based on the changes discussed above and double checked.

3. *DOT may request additional mitigation measures after TIAR revision.* We acknowledge this and intend to continue coordination with your agency on this matter.

4. *Plans for work in State Highway right-of-way.* UH Hilo and GEO International Explorer recognize the need to submit plans to the Hawai`i Island Highways Division of DOT for any work within the right-of-way.

We appreciate your review of the project.

Sincerely,

Ron Terry

cc: University of Hawai`i at Hilo
GEO International Explorer Inc.

Final Environmental Impact Statement

China-U.S. Center

APPENDIX 7

Public Meeting Materials

PRESS RELEASE
PUBLIC HEARING
CHINA-U.S. CENTER
ENVIRONMENTAL IMPACT STATEMENT

FOR IMMEDIATE RELEASE

FAX:	**2 pgs. total (call 982-5831 if all pages not received)**	
From:	**Ron Terry**	**Fax 966-7593**
	[On Behalf Of]:	
	The University of Hawai`i at Hilo	
	Contact: Gerald DeMello	**Phone 974-7567**
To:	**Hawaii Tribune-Herald**	**Fax 961-3680**
	KWXX Radio	**Fax 935-7761**
	Big Island Radio	**Fax 969-7949**
Date:	**December 5, 2001**	
Subject:	**Public Meeting, China-U.S. Center Environmental Impact Statement**	
Event Date:	**December 11, 2001**	
Details:	**See Below**	

The University of Hawai`i at Hilo will hold a public meeting at 6:30 PM on Tuesday, December 11, 2001, in Campus Center 306-307 at the University of Hawaii at Hilo. The purpose is to present information and receive comments concerning the EIS for the China-U.S. Center. UH Hilo seeks to develop the China-U.S. Center in partnership with GEO International Explorer Inc. (GEO) to support educational activities and cultural exchange between Hawai`i, the U.S. Mainland and China. The four main elements are a commercial plaza, the China-U.S. Cultural Center, a student housing unit, and the Harmony Tower.

Residential halls for about 600 students will be built. The halls will include classrooms, meeting rooms, seminar rooms, and faculty offices. Performances, films, lectures and social events within the common spaces will promote interaction. The intimate involvement of faculty and staff will stimulate residents' personal and intellectual development.

The commercial plaza will have retail and service outlets in clusters of low buildings set back from Kawili Street, interspersed with parking and landscaping. The side facing the road will have the lively feeling of a shopping arcade, while the interior will have a courtyard atmosphere, suitable for

PUBLIC MEETING
CHINA-U.S. CENTER
ENVIRONMENTAL IMPACT STATEMENT

DECEMBER 11, 2001
UNIVERSITY OF HAWAII AT HILO,
CAMPUS CENTER 306-307

AGENDA

1. Opening Message and Introductions:
   Gerald DeMello, Director, UH Hilo Office of University Relations

2. Statement from Chancellor Rose Tseng

3. Statement from GEO International Explorer

4. Project Description and Environmental Impacts
   Environmental Consultant Ron Terry and Engineering Consultant Corey Matsuoka

5. Questions

6. Summary
   Gerald DeMello

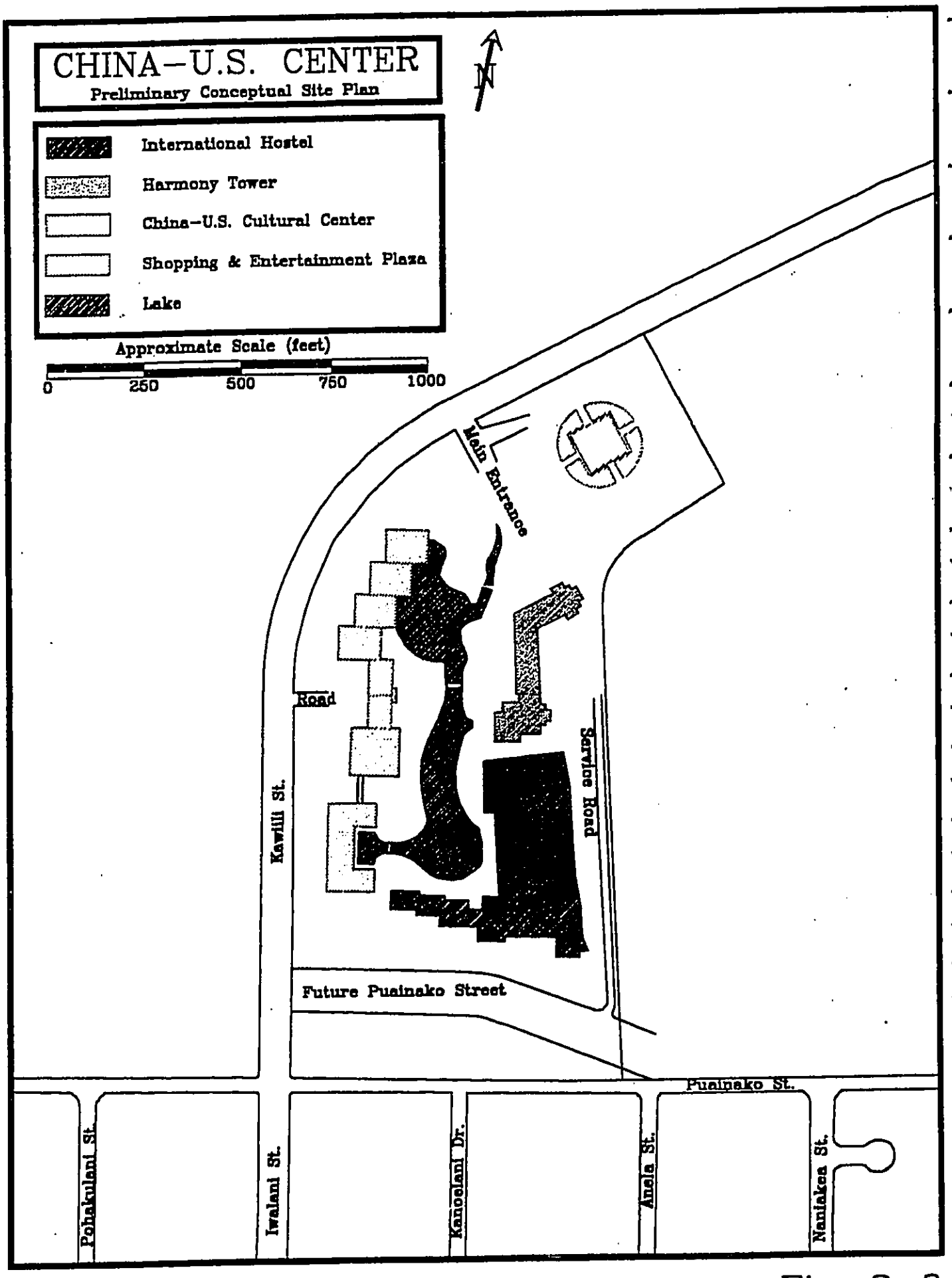
CHINA–U.S. CENTER
Preliminary Conceptual Site Plan
N
International Hostel
Harmony Tower
China–U.S. Cultural Center
Shopping & Entertainment Plaza
Lake
Approximate Scale (feet)
0
250
500
750
1000
Main Entrance
Road
Kawilili St.
Saratoga Road
Future Pualnako Street
Pualnako St.
Pohakulani St.
Iwalani St.
Kanoelani Dr.
Anela St.
Naniakea St.

Fig. 2–3

CHINA-U.S. CENTER SUMMARY

DEVELOPER:	GEO International Explorer, Inc., in cooperation with the University of Hawai`i at Hilo
LOCATION:	Waiakea, Hilo District, County of Hawai`i
TAX MAP KEY:	2-4-01:05 (por.)
ESTIMATED COST:	$60,000,000 (Estimated Design/Construction Costs)
LAND USE DESIGNATION:	State Land Use District Urban, County Zone RS-10
PERMITS REQUIRED:	*State:* Underground Injection Control, State Historic Preservation Division Chapter 6E Concurrence, NPDES *County*: Plan Approval, Grading and Grubbing, Building Permits

PROJECT PURPOSES:

- Increase the inventory and broaden the range of student housing;
- Build facilities for commercial operations tailored to create a "college town" atmosphere adjacent to campus, in order to serve existing students and the Hilo community and attract new students;
- Provide a cultural conference center with space for international academic and cultural conferences, seminars, conventions, and workshops;
- Develop a full-service University Inn for families and academic visitors;
- Provide new business opportunities for local entrepreneurs and jobs for students;
- Extend the range of cultural offerings for community and academic purposes in the vital new direction of Asia; and
- Promote peaceful and enriching international exchange.

RECEIVED AS FOLLOWS

	NAME	AFFILIATION (IF ANY)
	LOUIS & HELEN DEETMAN	—
	THAO ICHAMOUI	USDA Rural Dev.
	STEVE CHAPMAN	USDA RURAL DEVELOPMENT
	THOM CURTIS	UHH
	Shelley Stephens } Native Hi. garden / Perm. organic garden	Aquaculture use of lake — Please send info PO Box 5547. HILO, HI. 96720
		HawCC/Environmental/Culture
		IDAC (International Div. Aquaculture Club
	Alan Sabigan	Public
	Peter Young	Mayor's office
8	ANDY LEVIN	MAYOR'S OFFICE
9	Audrey Furukawa	UH Hilo
10	Raynold Misthilda	—
11	Kingford Lazo	— PO Box 4631 Hilo, HI 96720-0631
12	John Whittaker	UH Hilo
13	KEITH MISER	UH Hilo
14	Patrick Looby	UHH student
15	HARVEY TAJIRI	—
16	STACY OJANO	ARCHITECTURAL DRAFTSMAN & DESIGNER
17	Rose Tseng	UH Hilo
18	Steven Martin	UH Hilo student
19	Daryl Pieta 959-6822	UH HILO HCC Alumni CPRO-Concept

RECEIVED AS FOLLOWS

The Environmental Notice

A Semi-Monthly Bulletin of the Office of Environmental Quality Control

Benjamin J. Cayetano
Governor

Office of
Environmental
Quality Control
Genevieve Salmonson
Director

The Environmental Notice reviews the environmental impacts of projects proposed in Hawaii

Other Resources available at OEQC . . .

- *Guidebook for Hawaii's Environmental Review Process*
- *Environmental Impact Study Resource Library*
- *Environmental Council Annual Reports*
- *Rules and Policies*
- *"How to Plant a Native Hawaiian Garden"*

OEQC
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November 8, 2001

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Hawaii Tribune-Herald

Wednesday, December 12, 2001 Proudly serving Hilo and the Big Island since 1923 50 cents

Benefits of China center on UHH campus touted

❑ Students would get twice the dorm space plus some retail shops

By Dave Smith
Tribune-Herald

A China-U.S. Center proposed for the University of Hawaii at Hilo campus not only will nearly double the college's dormitory space but will also provide retail shops sorely needed by students.

That was among the information provided at a meeting held Tuesday at UHH by planners of the proposed $60 million project.

UHH Chancellor Rose Tseng, who spoke at the meeting, said students have told her that retail shops nearby are a must.

"There's not even a record shop within walking distance," Tseng said.

TSENG

The proposed center, which would also include temporary lodging for visiting scientists, would go a long way toward long-standing plans to transform Hilo into a "college town."

"That's the purpose for this," she said. "From the bottom up it's for the students."

Once the center is developed, "students won't have to drive away for everything they do," said Ron Terry, a consultant who is helping develop an environmental impact statement for the project.

GEO International Explorer Inc. of Taiwan is proposing to build the center in three stages over a seven-year period.

Architects from China will be coming to Hilo next month to take a closer look at the project proposed for state land across Kawili Street from UHH and above Waiakea High School.

One audience member asked officials what the likelihood is that the project will be developed.

Gerald DeMello, director of UHH community relations, said he was optimistic because investors have been steadfast in their plans despite world turmoil generated by the Sept. 11 terrorist attacks.

"Investors haven't backed away," DeMello said, adding he estimates the project's chances of going forward at 50-50.

See CENTER, Page 8

CENTER: It would turn Hilo into a college ...

From Page 1

Tseng was more upbeat, saying she came away confident from a recent meeting with GEO in Taiwan. "They promised me they will continue," she said. "These are people I feel are seriously committed."

Tseng also addressed the question of why the center being developed by private Taiwan investors is named after China. Tseng said the project is aimed at providing a cultural perspective.

"It's a cultural center, it's not a political center," she said.

Terry said the project's biggest impact will be on traffic. But even that shouldn't be a problem, he said, as long as the state moves ahead with a planned widening and expansion of Puainako Street.

He said if the state fails to find the money for the Puainako project, there are other ways to reduce the traffic, some of which may be used even if the Puainako project is completed. They include widening part of Kawili Street to four lanes and installing a traffic light to serve the main UHH entrance and the entrance to the China center.

Harvey Tajiri, a former state and county lawmaker, quizzed the project's planners about the center's long-term future, noting that university officials need to consider what they will be getting when the center reverts to UH ownership after its 30-year lease expires.

Terry said that design issues, such as whether the retail shops will be air-conditioned or naturally ventilated, still must be decided with the help of local architects.

Tajiri said such issues are pertinent because an air-conditioning system likely would need to be replaced after 30 years and he wanted to make sure the state doesn't "inherit an operational nightmare."

Another question from the audience included concern about maintenance of the project's proposed lake. Terry said that the Chinese engineers have experience in such matters and would consult with those in Hawaii familiar with local conditions.

Tajiri said local architects and engineers also need to be consulted on ways to deal with Hilo's more-than-ample rain.

Dec. 24 is the deadline for public comments on the project's draft EIS.

STORM

From Page 1

can be life-threatening in the rarefied air atop the 13,796-foot Mauna Kea.

Symptoms of high-altitude illnesses include headaches, nausea and shortness of breath. Those experiencing such symptoms should descend to lower altitudes immediately.

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Drivers should keep their vehicles in four-wheel-drive above Hale Pohaku and observe a 25 mph speed limit. Alcoholic beverages are also prohibited.

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Dec 7, 2001

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For more information, contact Gerald De Mello at 974-7567, or e-mail gmello@hawaii.edu.

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中美文化中心
CHINA-U.S. CENTER

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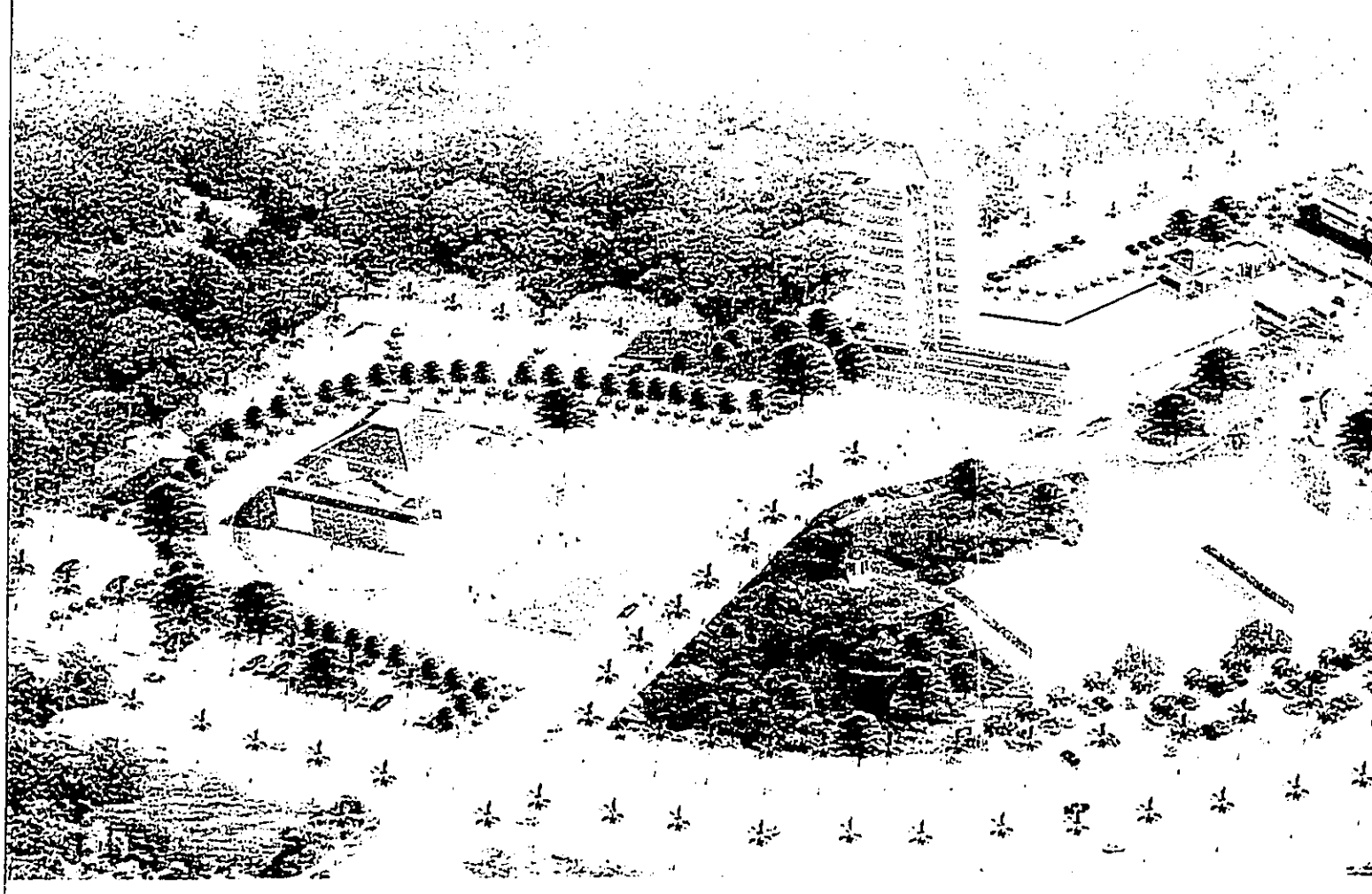

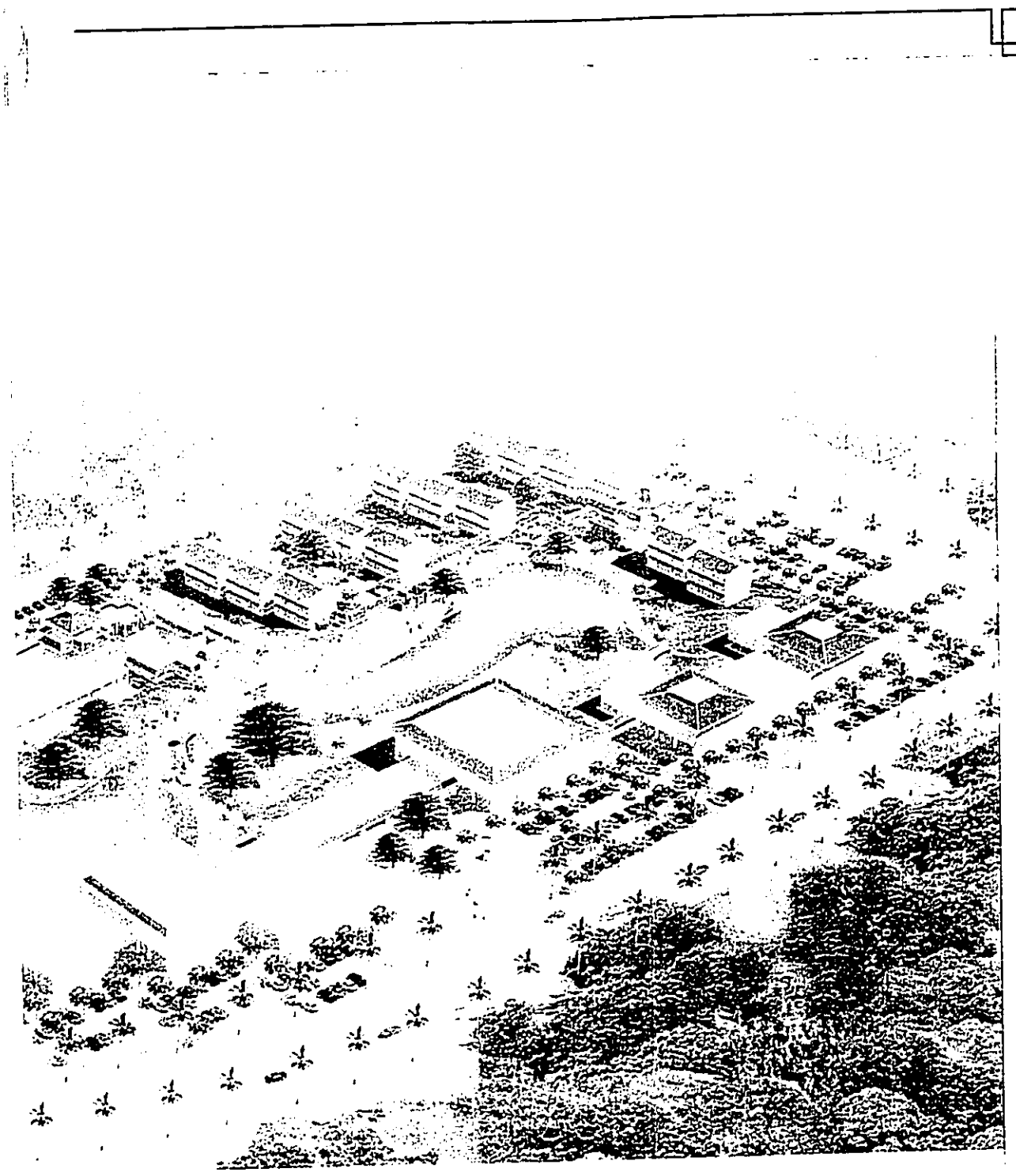

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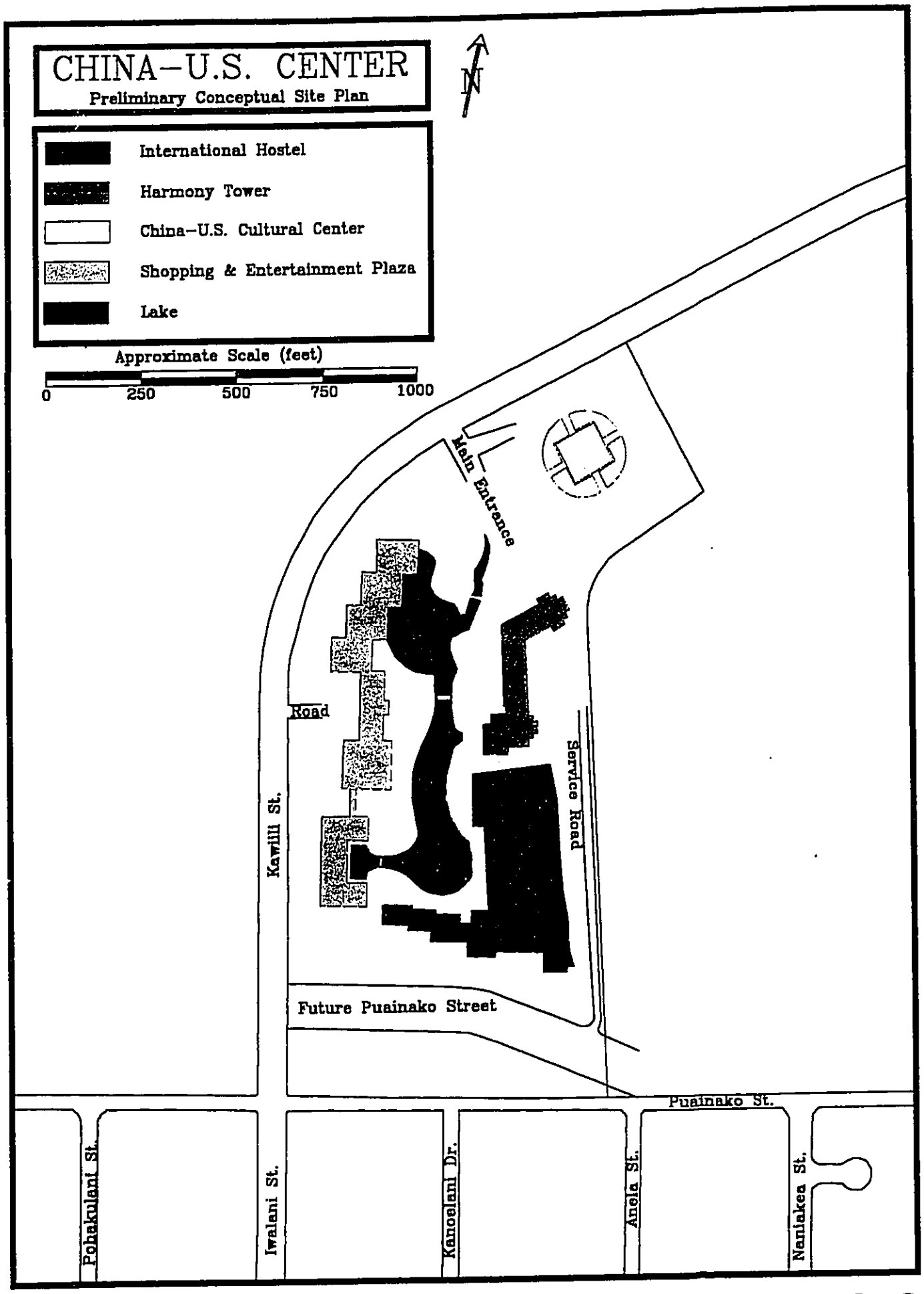
Fig. 2-4


CHINA–U.S. CENTER
Preliminary Conceptual Site Plan
International Hostel
Harmony Tower
China–U.S. Cultural Center
Shopping & Entertainment Plaza
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Future Puainako Street
Puainako St.
Pohakulani St.
Iwalani St.
Kanoelani Dr.
Anela St.
Naniakea St.

Fig. 2–3

The Environmental Notice

A Semi-Monthly Bulletin of the Office of Environmental Quality Control

Benjamin J. Cayetano
Governor

Office of
Environmental
Quality Control
Genevieve Salmonson
Director

The Environmental Notice reviews the environmental impacts of projects proposed in Hawaii

Other Resources available at OEQC . . .

- *Guidebook for Hawaii's Environmental Review Process*
- *Environmental Impact Study Resource Library*
- *Environmental Council Annual Reports*
- *Rules and Policies*
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