DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

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CDD-A 05-0015

January 25, 2005

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

Dear Ms. Salmonson:

Subject: Final Environmental Assessment (FEA) and Finding of No Significant Impact, Waipahu Street Drainage Improvements
Ewa District, Oahu, Hawaii
TMK: 9-4-09: Various Parcels

The City and County of Honolulu, Department of Design and Construction, has reviewed the comments during the 30-day comment period of this project, which began on July 23, 2004. The agency has determined that the project will not have significant environmental effects, and has issued a FONSI. Please publish this notice in the February 8, 2005 OEQC.

We have enclosed a completed OEQC Publication Form, four copies of the FEA, and the project summary on disk. Please call Mr. Keith Sugihara at 527-5896 if you have any questions.

Very truly yours,

for TIMOTHY E. STEINBERGER, P.E.
Acting Director

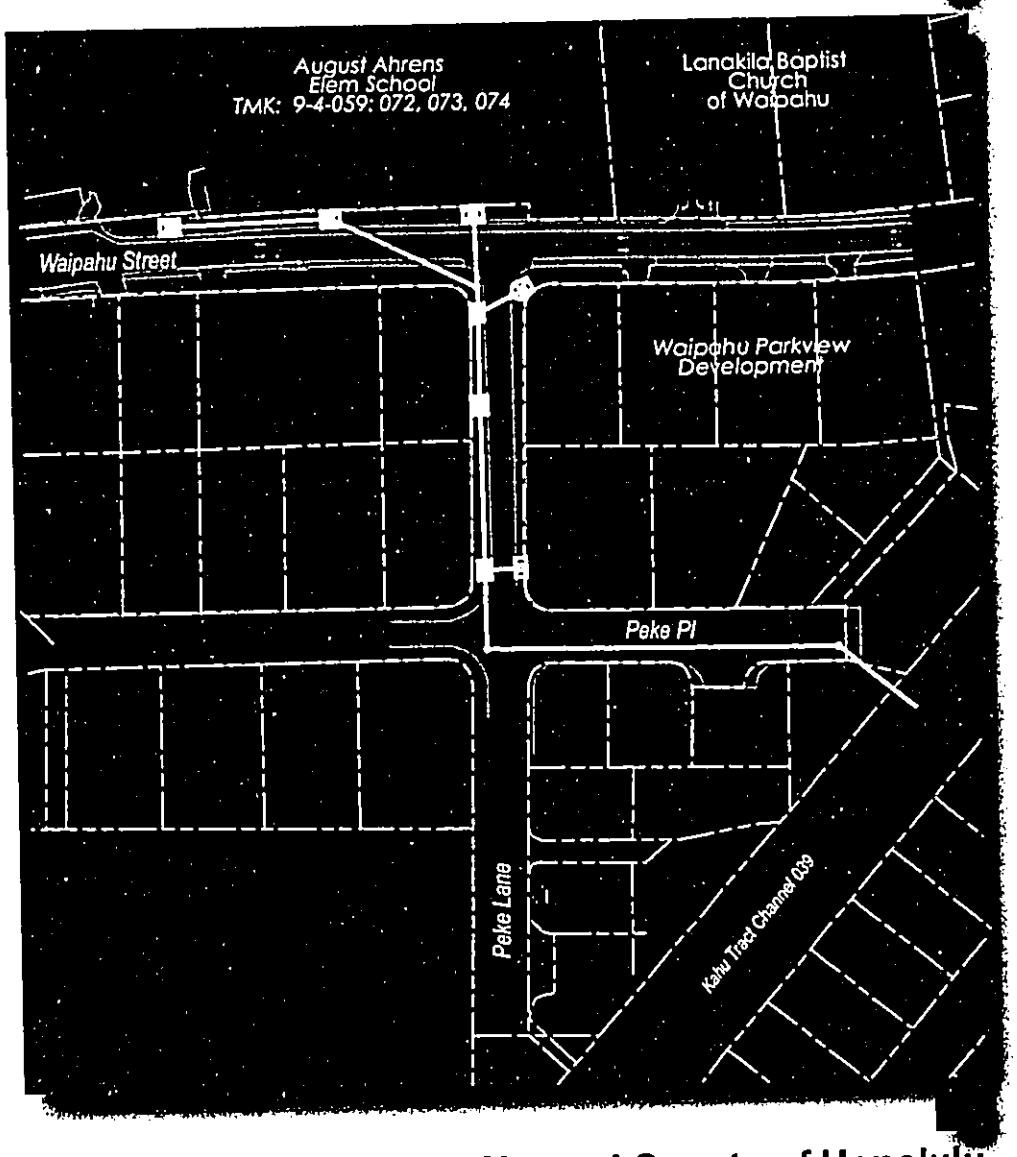
KS:FK:pto

Encl.

2005-02-08 FONSI
WAIPAHU STREET DRAINAGE IMPROVEMENTS

Waipahu Street DRAINAGE IMPROVEMENTS

FINAL Environmental Assessment



City and County of Honolulu
Department of Design and Construction
Civil Division

January 2005

Waipahu Street
DRAINAGE IMPROVEMENTS

FINAL Environmental Assessment

Prepared for:

City and County of Honolulu
Department of Design and Construction
Civil Division

Prepared by:

KIMURA INTERNATIONAL
1600 Kapiolani Blvd, Suite 1610
Honolulu, HI 96814

January 2005

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1 INTRODUCTION

1.1 PROPOSING AGENCY AND ACTION

The City and County of Honolulu Department of Design and Construction (DDC) proposes storm drainage improvements in the general vicinity of Waipahu Street near August Ahrens Elementary School, Waipahu, Oahu, Hawaii.

1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

Under Chapter 343, Hawaii Revised Statutes (HRS), Act 241, Session Laws of Hawaii (SLH) 1992, and Chapter 200 of Title 11, Department of Health (DOH) Administrative rules, "Environmental Impact Statement Rules," the proposed project involves the use of public funds and is therefore subject to the environmental review process.

This Final Environmental Assessment addresses potential impacts that may occur during construction and/or operation of the drainage improvements. It is anticipated that the project will have no significant impact, and an Environmental Impact Statement will not be required.

This Final Environmental Assessment and Finding of No Significant Impact (FONSI) is being filed with the State Office of Environmental Quality Control (OEQC) in accordance with Chapter 343, HRS. The accepting agency for the Final Environmental Assessment is the City and County of Honolulu Department of Design and Construction.

1.3 POTENTIAL ENVIRONMENTAL PERMITS AND APPROVALS REQUIRED

Environmental permits and approvals that may be required to implement the proposed action are listed in Table 1.

The Department of the Army (DA) U.S. Army Engineer District, Honolulu has determined that the project will not result in the discharge of dredged or fill material below the Ordinary High Water Mark, is not subject to jurisdiction under Section 404 of the Clean Water Act, and no DA permit is required. Their Final determination letter, dated November 19, 2004, is included in Chapter 9, Section 9.2, Draft EA Comment Letters and Responses.

Table 1: Potential Government Permits and Approvals

Type	Agency
State of Hawaii	
Chapter 343 Hawaii Revised Statutes	Office of Environmental Quality Control
HRS Chapter 6E Historic Preservation Review	Department of Land and Natural Resources, State Historic Preservation Division
Stream Channel Alteration Permit	State of Hawaii Department of Land and Natural Resources, Commission on Water Resource Management
National Pollutant Discharge Elimination System (NPDES)	State of Hawaii Department of Health, Clean Water Branch
Disability and Communication Access Board Approval	Department of Health, Disability and Communication Access Board
City and County of Honolulu	
Street Usage Permit for Construction	City and County of Honolulu, Department of Transportation Services
Construction and grading permits	City and County of Honolulu, Department of Planning and Permitting, Civil Engineering Branch
Noise permit	State Department of Health, Noise, Radiation, and Indoor Air Quality Branch
Permit to excavate/trench within City right-of-way	City and County of Honolulu, Department of Planning and Permitting, Site Development Division
Site Development Division One Time Review	City and County of Honolulu, Department of Planning and Permitting, Site Development Division

2. PROPOSED ACTION

2.1 PROJECT LOCATION

The proposed drainage improvements will be located on Waipahu Street, Peke Lane and Peke Place in Waipahu Town. Waipahu Street is the main thoroughfare through old Waipahu Town, located approximately 12 miles west of downtown Honolulu (Figure 1). The street runs along the south side of August Ahrens Elementary School. Peke Lane and Peke Place are adjoining streets that run through the surrounding residential neighborhood.

2.2 PROJECT PURPOSE AND NEED

2.2.1 Need for the Project

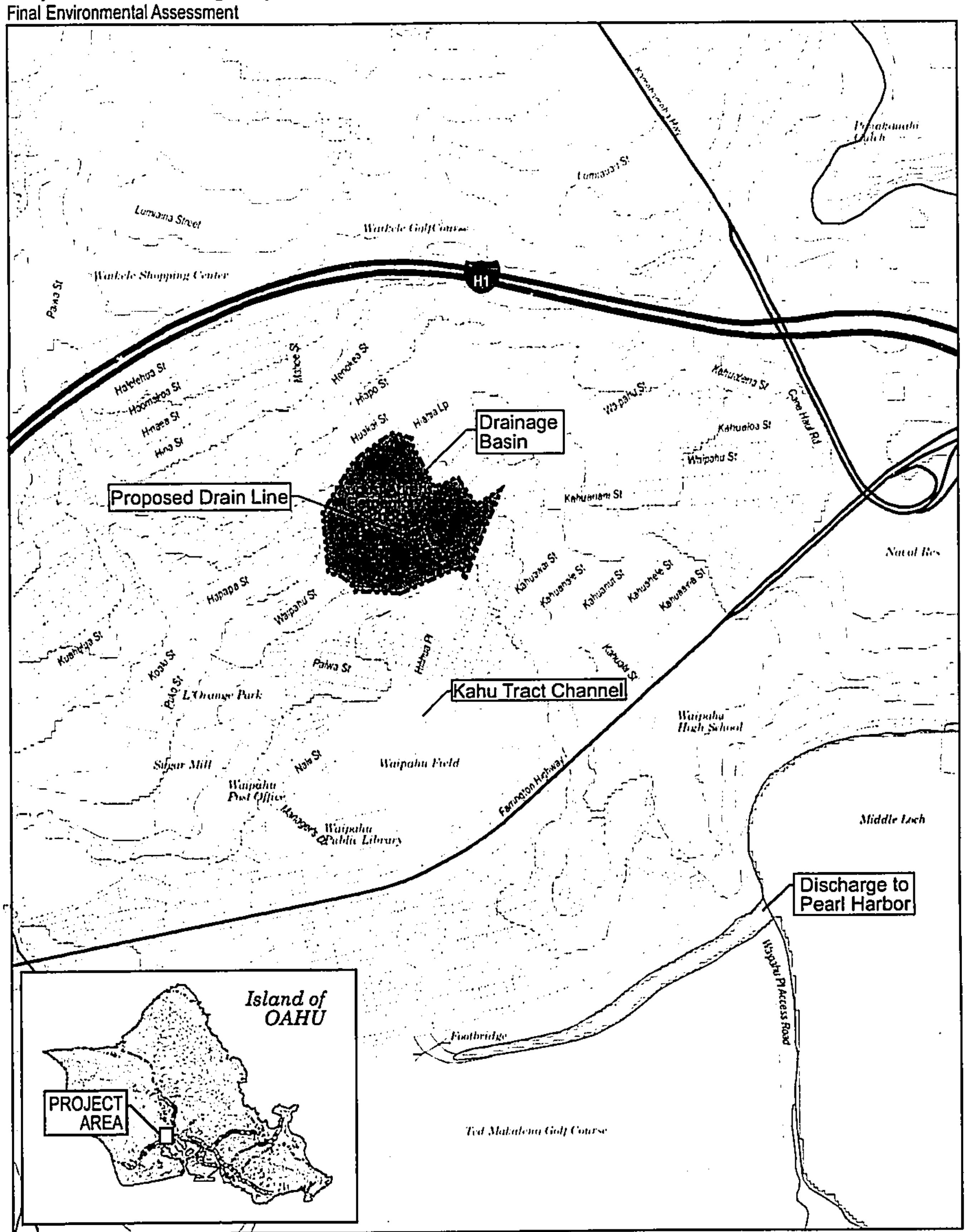
Waipahu Street near the August Ahrens Elementary School is a two-lane roadway, without curbs and gutters, and with an inadequate drainage system. Over the years, homeowners directly across August Ahrens Elementary School have reported flooding problems during periods of heavy rain. Anecdotes from long-time residents note that the flooding problem worsened in the early 1990's, when the surrounding sugar cane fields were replaced with new residential subdivisions. During this time, the elementary school extension and playground were also constructed, altering the drainage patterns in the area. During periods of heavy rain, storm water coming from the playground, school, and from both directions of Waipahu Street collects in a low-lying area of Waipahu Street near the school. The single existing storm drain on the mauka side of Waipahu Street is inadequate to handle the volume of water, causing the water to overflow into the yards of the residences across the street. The gushing water has eroded dirt and gravel, created deep holes on the properties, damaged retaining walls, and in some cases, undermined the home's structural foundation.

Engineering investigations (Hawaii Pacific Engineers, 2003) noted that the existing drainage system for the area consists of an 18-inch concrete drain culvert with only a single drainage inlet on the mauka side of Waipahu Street.

The engineering study noted that these structures are vastly inadequate to handle heavy storm flows. As a result, several options were investigated to improve the storm drainage system in the area. These options are discussed in Chapter 5.

2.2.2 Description of Existing Drainage System

The existing drainage system and drainage basin is shown in Figure 2. The existing drainage system for Waipahu Street adjacent to August Ahrens Elementary School consists of several drain inlets connecting 18-inch reinforced concrete drain culverts to a concrete ditch. The concrete ditch connects to a box culvert at Hilihua Way. The box culvert at Hilihua Way empties into the Kahu Tract Channel, at the unlined portion of the channel.

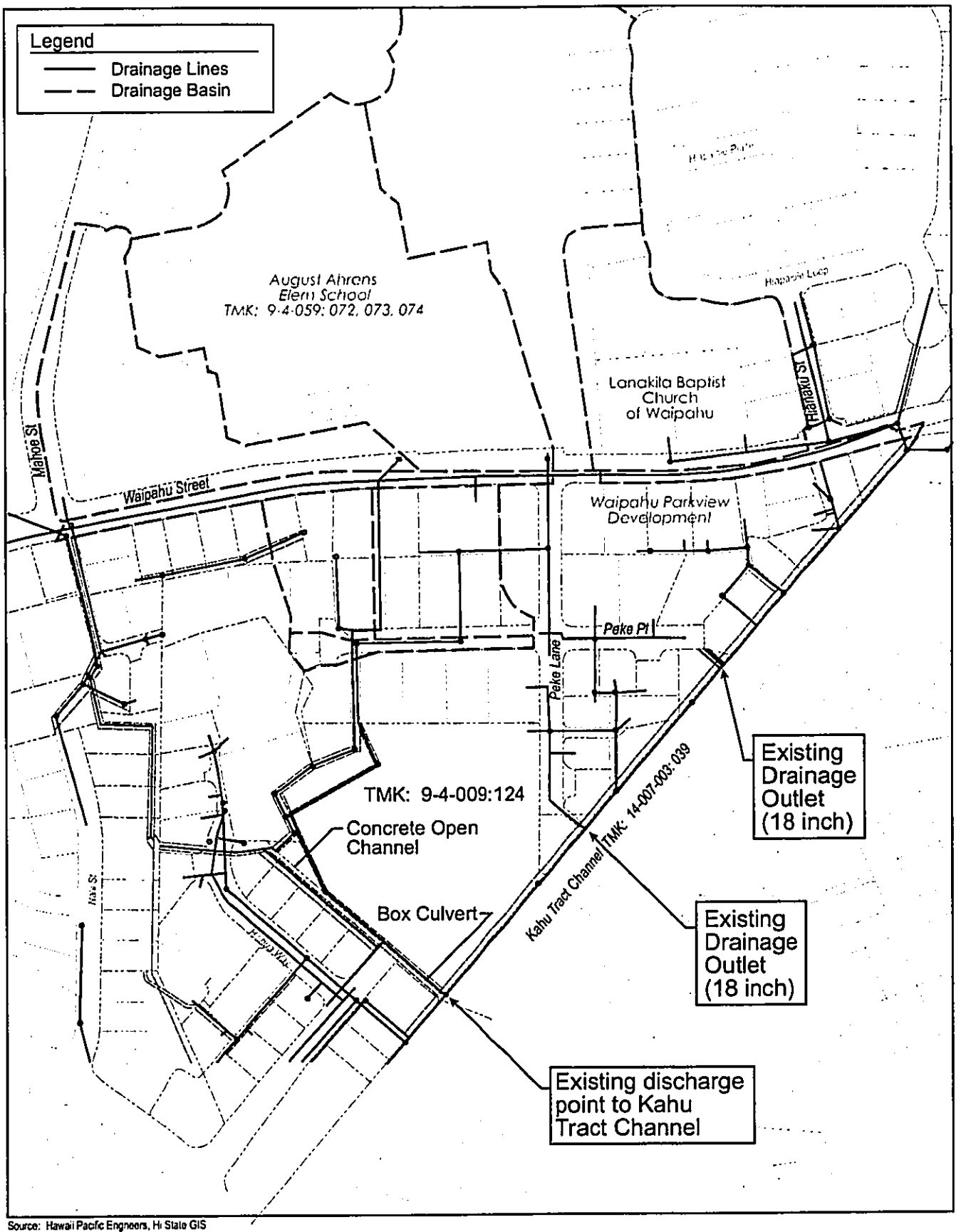


Source: Hawaii State GIS, street, parcel, cont20, dighydpy_ohd, strmsperon_ohd
June 2004

0 600 1,200 Feet

N

Figure 1
Project Location



Source: Hawaii Pacific Engineers, Hi State GIS
June 2004

0 125 250 Feet

Figure 2
Existing Drainage

The land area or drainage basin that is drained by these structures includes the August Ahrens Elementary School site, private residences along Huakai Street, Hiapaiole Loop, Lanakila Baptist Church, and portions of the John II Estate.

The 18-inch culvert drains water from Waipahu Street through several private residential lots, then outlets at an existing concrete channel at the watercress farm (TMK 9-4-09:124). The concrete channel outlets to the Kahu Tract Channel, a City-owned and maintained drainage channel. In this area, the Kahu Tract Channel is unimproved and unlined. The channel ultimately discharges into Pearl Harbor's Middle Loch.

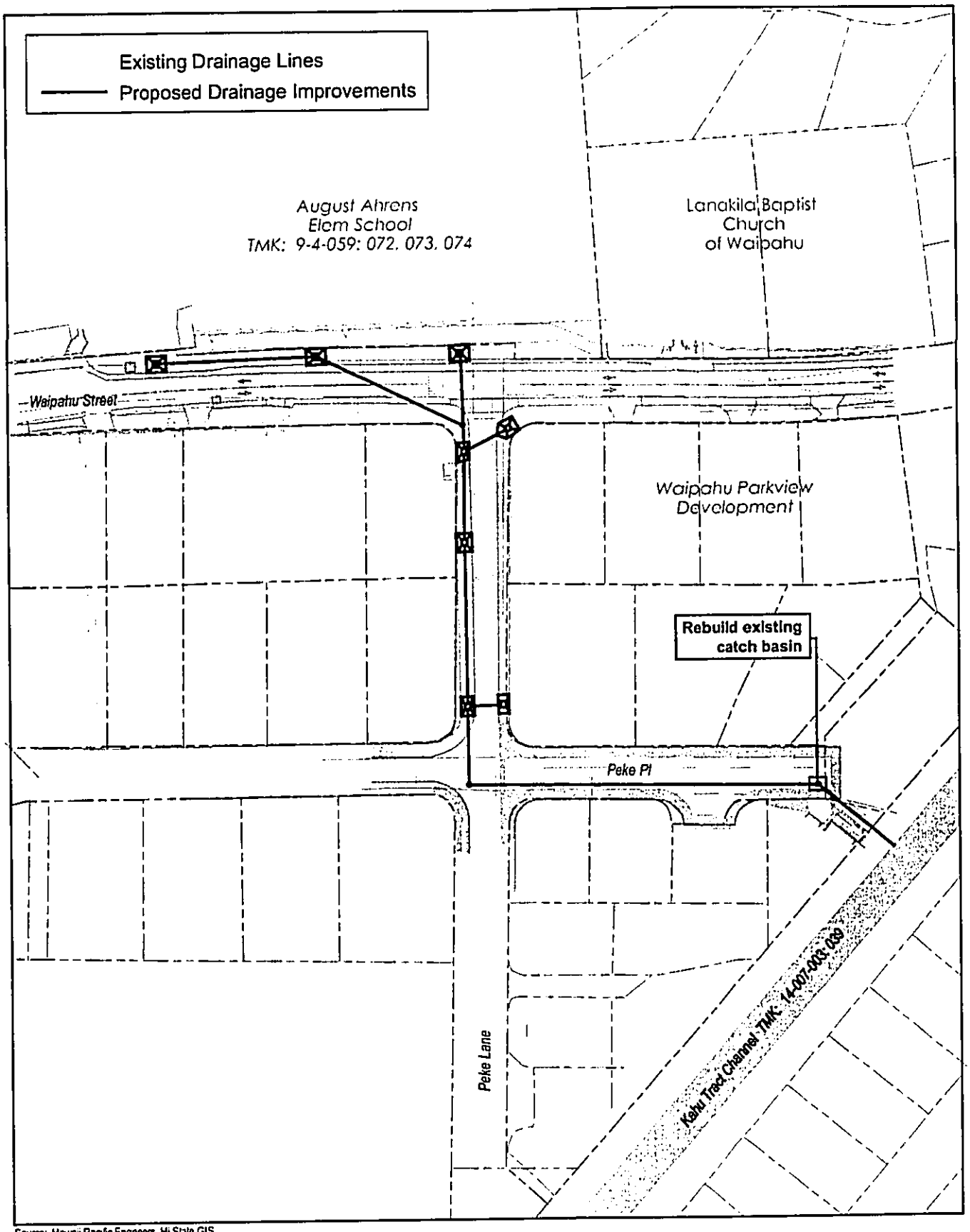
The existing Kahu Tract Channel is concrete lined at the Waipahu Street crossing to approximately 700 feet below the crossing. The Paiwa Street crossing area is partially lined with cement rubble masonry, only on the Ewa side, for approximately 400 feet upstream of the crossing. The remainder of the Kahu Tract Channel between Waipahu Street and Paiwa Street is not lined. Some neighboring residents have planted taro, trees and other plants within the drainage channel right-of-way.

2.3 PROJECT DESCRIPTION

The proposed project will construct new drainage structures to collect storm runoff from the mauka side of Waipahu Street at August Ahrens Elementary School and divert the runoff toward the Kahu Tract Channel. The pipe culvert system will run along Peke Lane, Peke Place, and empty into the Kahu Tract Channel, as shown in Figure 3. Most of the construction work will occur on City property, with the exception of the last 75 feet of the drain line. That portion will pass through an easement over private property, prior to emptying into Kahu Tract Channel.

The project will construct several new drainage inlets on the mauka side of Waipahu Street fronting the school and around the Peke Lane area. The inlets will be located in the low area between the existing sidewalk and the August Ahrens Elementary School fence line. Either a grassed or crushed rock swale will be constructed along the roadway to direct water toward the new drain inlets. The project also includes a new, pipe culvert system sized to accommodate storm runoff from the school area and the Peke Lane drainage area.

A connecting, 36-inch drain line will be located on the west (Ewa) side of Peke Lane. This drain line will in turn connect to another 36-inch line heading east along Peke Place. Due to the existing crest in the road on Peke Place, approximately 100 linear feet of drain line will be located at depths below 10 feet below existing ground.



Source: Hawaii Pacific Engineers, Hi State GIS
June 2004

0 50 100 Feet

N

Figure 3
Proposed Drainage Improvements

Currently, there is a drainage catch basin at the end of the cul-de-sac at Peke Place, and an 18-inch culvert that is located within an easement over private property (TMK 9-4-09:151). The project will remove the existing 18-inch drain line, catch basin and outlet headwall at the end of Peke Place and replace it with a new 36-inch line, catch basin and new headwall.

It should be noted that the easement is privately owned and was never granted to the City. The easement will be acquired by the City for drainage purposes, and will be of sufficient width to repair and maintain the proposed 36-inch drain line.

The culvert will empty into the Kahu Tract Channel through the existing channel wall. In this area, the Kahu Tract Channel is concrete lined. Further downstream, the Kahu Tract Channel is unlined.

Figure 4 shows the tax map for the area. As shown in the figure, these improvements will take place in TMK 9-4-09: various parcels.

2.4 PROJECT SCHEDULE AND COST

Project construction is expected to commence in 2006 and take approximately nine months to complete. The total estimated construction cost is $970,000 (not including stormwater quality device, planning, design, environmental investigation, Drainage Master Plan update, and inspection costs).

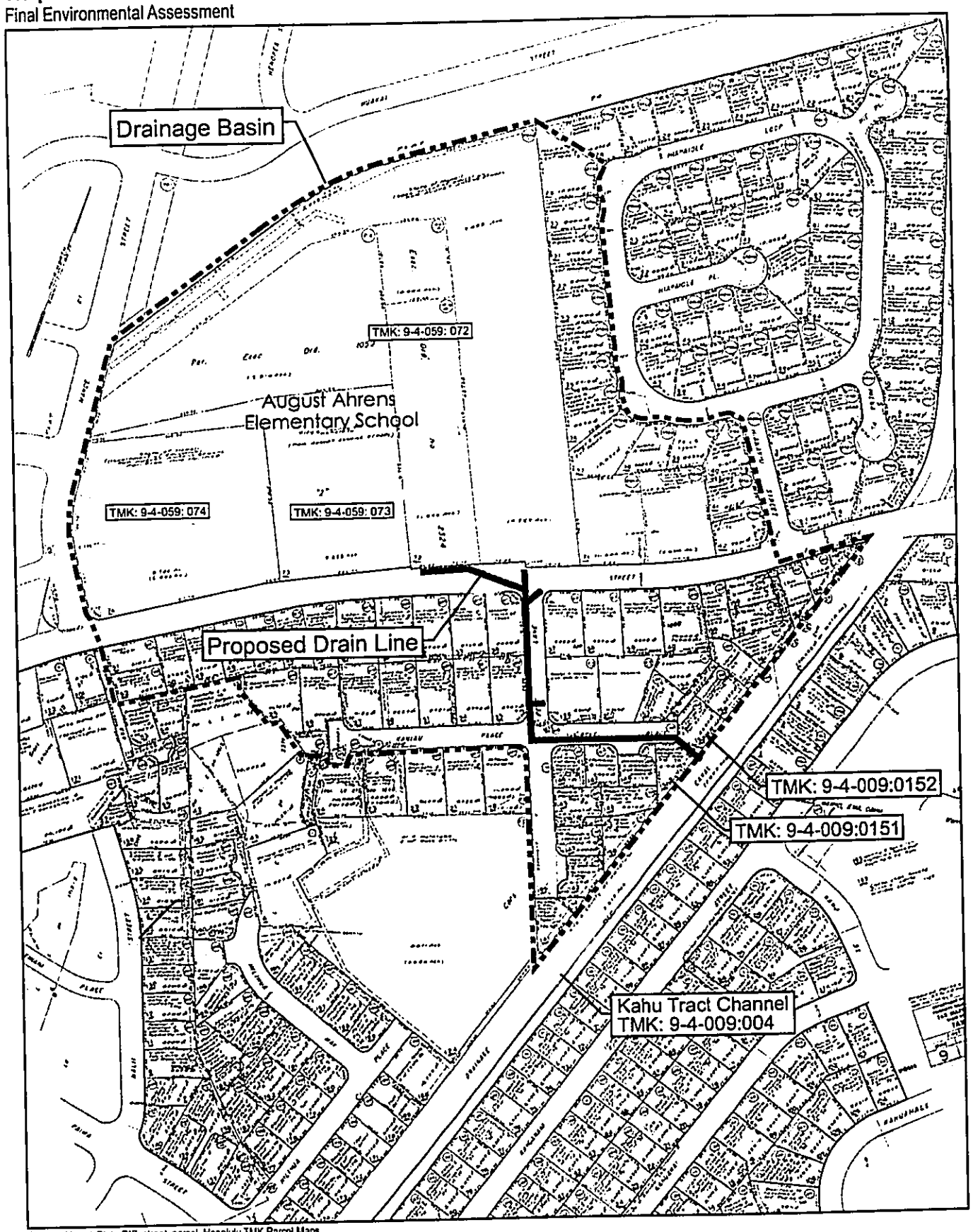
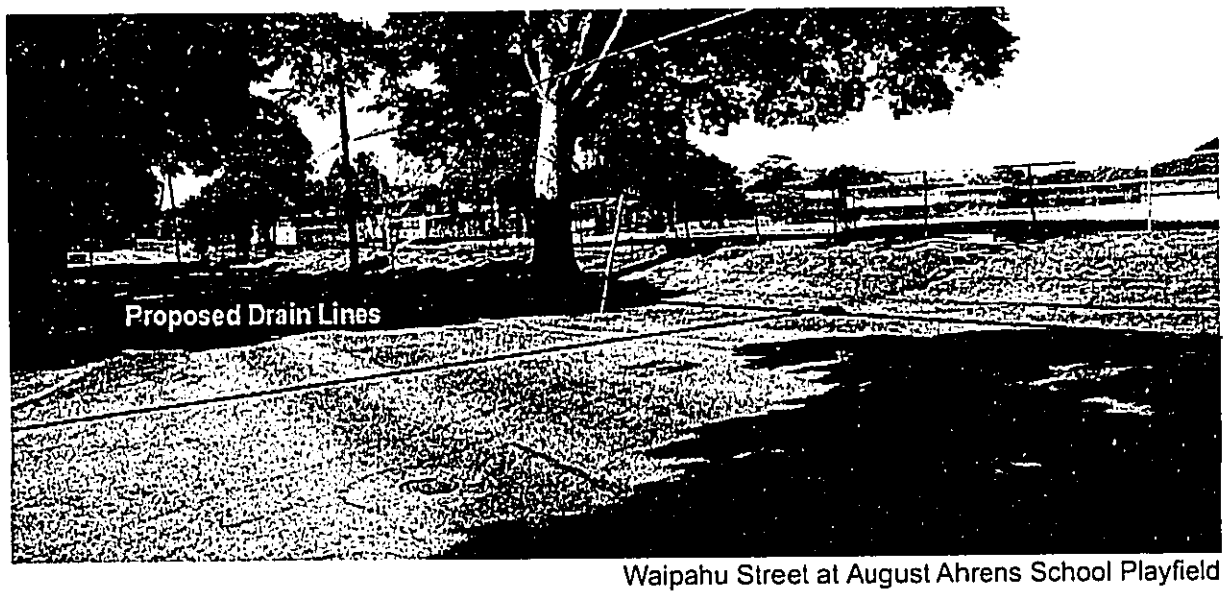


Figure 4
Tax Map



Waipahu Street at August Ahrens School Playfield

Erosion Resulting
from Playfield Runoff

Playfield Drainage Area

Existing Drainage Inlet
Ewa end of August Ahrens Playfield

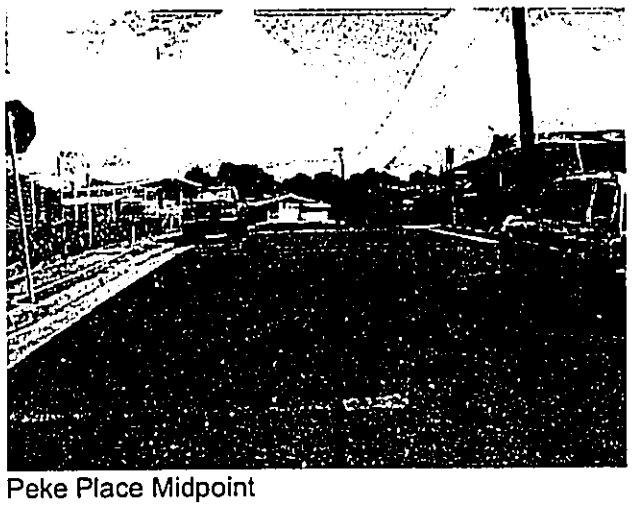
Existing Drainage inlet
Ewa end Waipahu Street

Intersection of Peke Lane and
Waipahu St looking makai

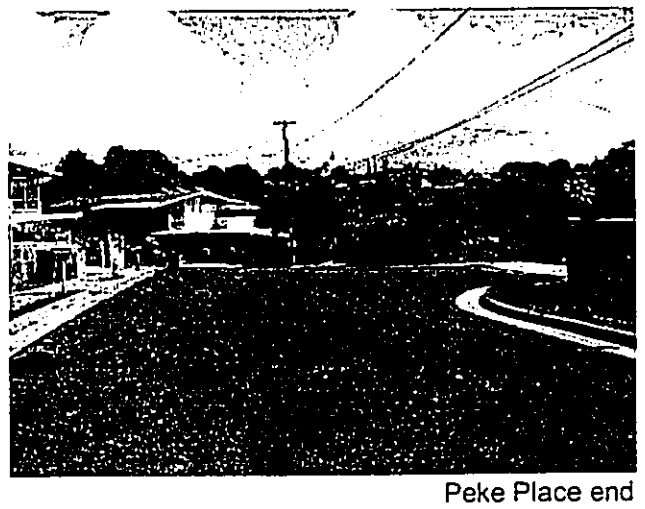
Peke Lane looking makai

Intersection of Peke Land and Peke Place

Peke Place looking Daimond Head

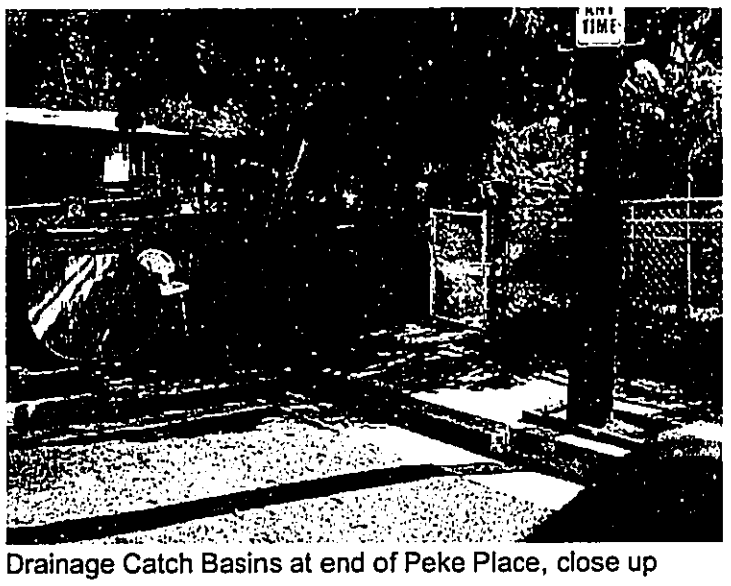


Peke Place Midpoint

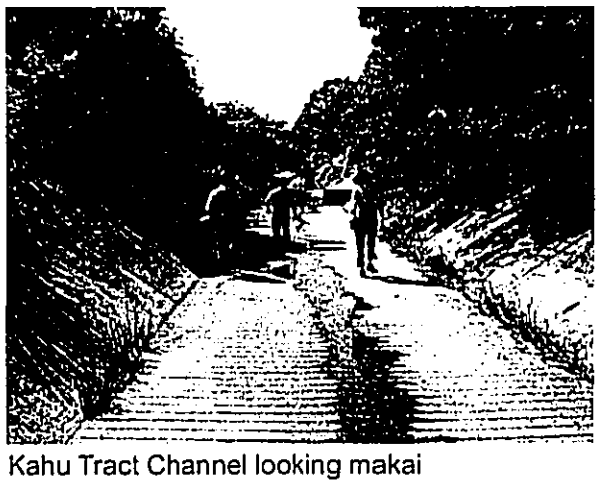


Peke Place end

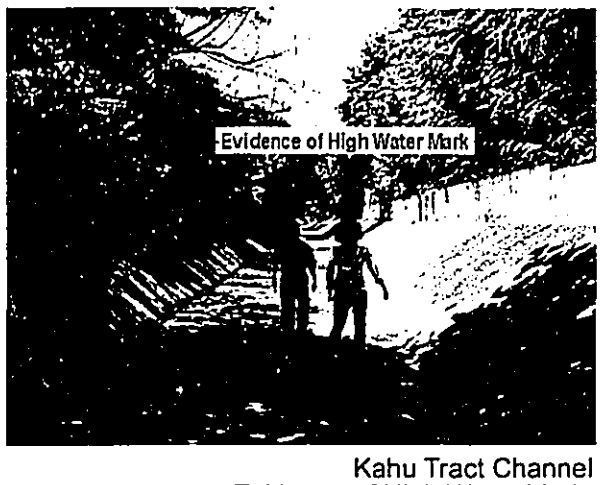
Drainage Catch Basins at end of Peke Place



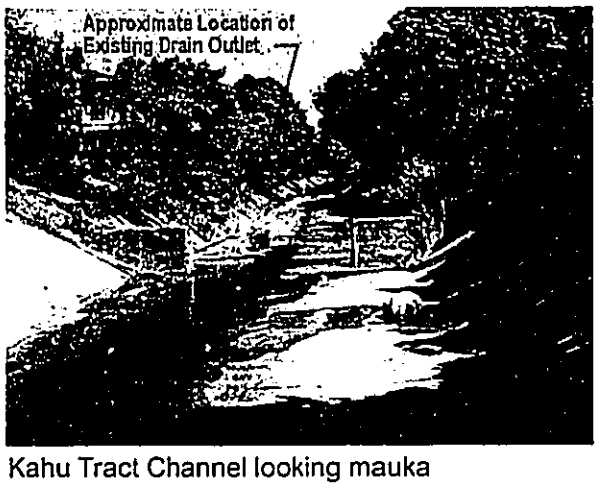
Drainage Catch Basins at end of Peke Place, close up



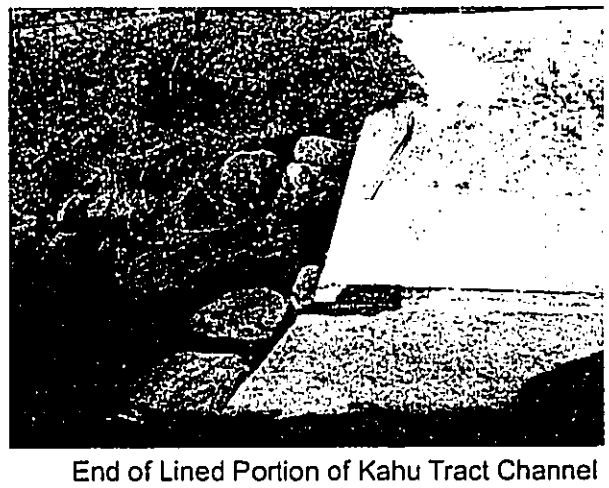
Kahu Tract Channel looking makai



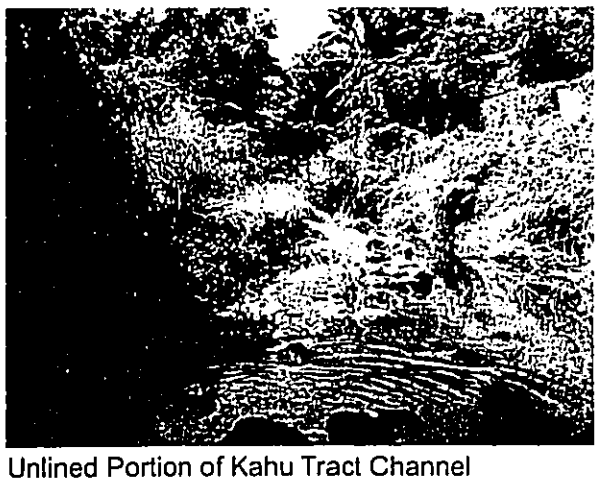
Kahu Tract Channel
Evidence of High Water Mark
after Nov 3-6 Heavy Rainfall



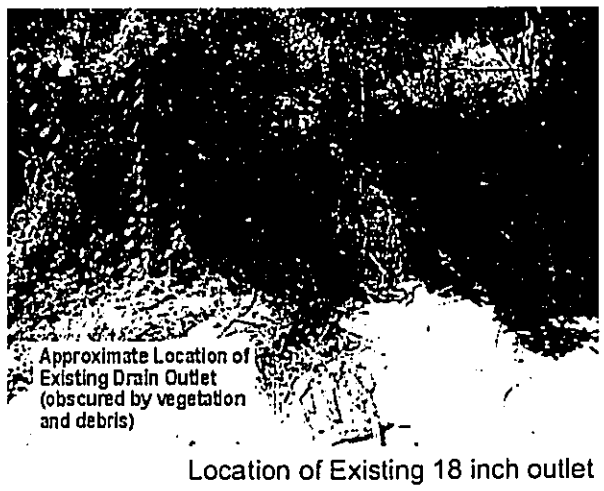
Kahu Tract Channel looking mauka



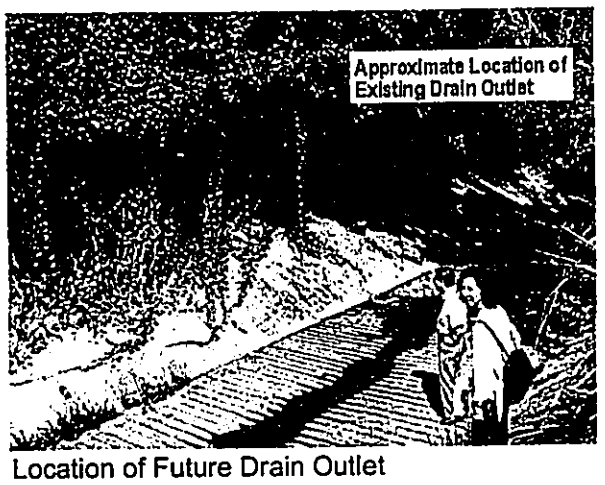
End of Lined Portion of Kahu Tract Channel



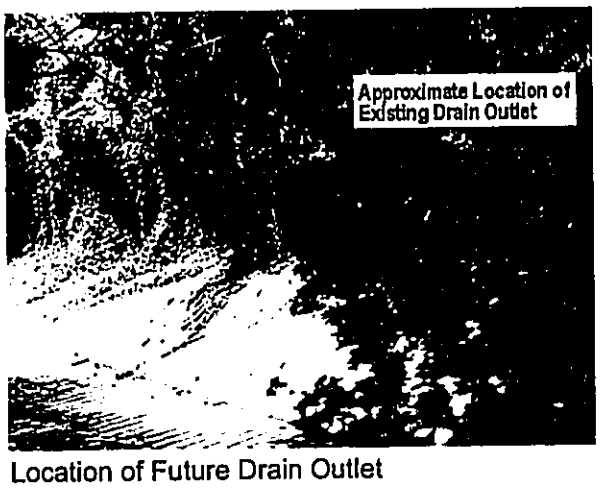
Unlined Portion of Kahu Tract Channel



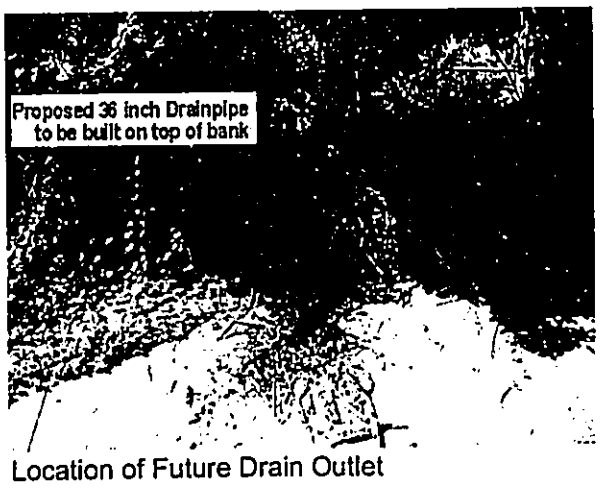
Location of Existing 18 inch outlet



Location of Future Drain Outlet



Location of Future Drain Outlet



Location of Future Drain Outlet

2.5 PROJECT SUMMARY

Table 2 contains a description of the project and applicable land-use designations.

Table 2: Project Summary

Item	Description
Project Name	Waipahu Street Drainage Improvements
Applicant	City and County of Honolulu Department of Design and Construction
Tax Map Keys	1-9-4-09: various parcels
Existing Uses of the Site	
Proposed Project	Construct new, larger drainage pipe culvert system to collect storm runoff from the mauka side of Waipahu Street at August Ahrens Elementary School and divert runoff toward the Kahu Tract Channel. The pipe culvert system will drain to Kahu Tract Channel via Peke Lane and Peke Place. Project also includes construction of several new drainage inlets on the mauka side of Waipahu Street. Most of construction work will occur on City property, with the exception of the last 75 feet prior to emptying into Kahu Tract Channel. This portion of drain line will pass through an easement over private property.
State Land Use	Urban
Central Oahu Sustainable Communities Plan	Residential and Low Density Apartments
Zoning	R-5 Residential
Flood Insurance Rate Map	Zone D (Areas of undetermined flood hazard)

3 AFFECTED ENVIRONMENT, IMPACTS AND MITIGATION

3.1 PHYSICAL ENVIRONMENT

3.1.1 Geology and Topography

Waipahu Street is relatively level along the section where the drain lines are proposed, with ground elevations between 50 and 46 feet above mean sea level. Peke Lane slopes down toward the south at about a five percent slope, with a low point approximately at 35-foot elevation near its intersection with Peke Place. Peke Place slopes up toward the east, with a high point (approximately 39-foot elevation) midway along its length. The road then slopes back down to about 35-foot elevation at the cul-de-sac at the end of the street.

3.1.2 Soils and Geotechnical Conditions

According to the U.S. Department of Agriculture Natural Resource Conservation Service, the soils along the route of the new drain line are Waipahu Silty Clay, 0 to 2% slopes (WzA) and Waipahu Silty Clay, 6 to 12% slopes (WzC). Figure 5 shows the soil designations in the project area.

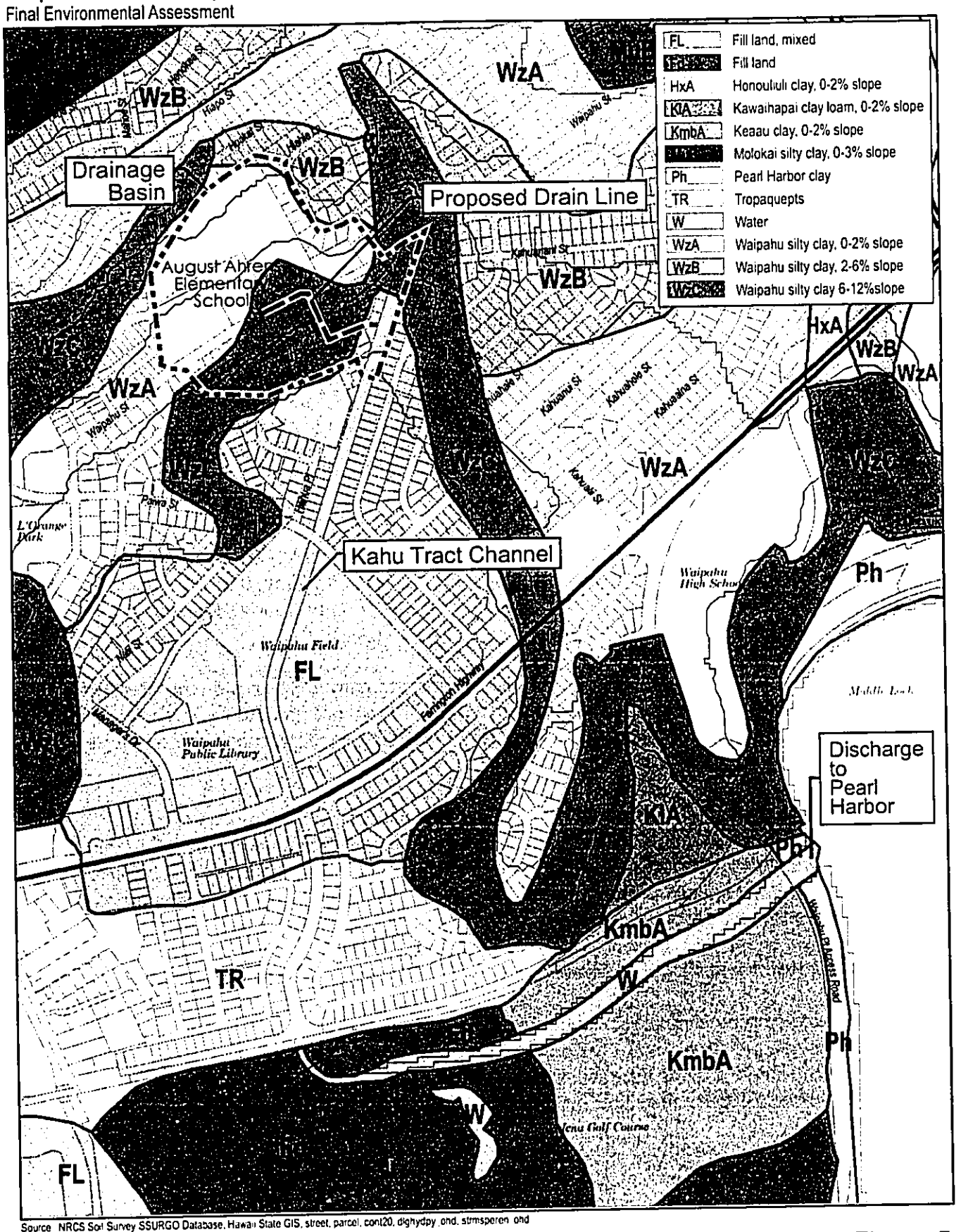
The Waipahu soil series consists of well-drained soils on marine terraces on the island of Oahu. These soils developed in old alluvium derived from basic igneous rock. They are nearly level to moderately sloping. Permeability is moderately slow, runoff is slow or very slow, and the erosion hazard is none to slight.

A subsurface geotechnical investigation report was conducted for the project (Fewell Geotechnical Engineering, Ltd. (FGE, Ltd.) 2003). Four test borings were drilled in the project area, at depths of 9 to 25 feet below the existing ground surface. The test borings reveal that the site is underlain by a surface mantle of fill, followed by relatively competent alluvial (water-deposited) clays and silts with varying amounts of sand and gravel.

Potential Impacts and Mitigation Measures

The subsurface geotechnical investigation report noted that except for the area of the Kahu Tract Channel, the alignment of the proposed drain improvements is generally underlain by soils which should provide adequate support for the proposed structures, and provide an acceptable backfill once lines and structures are installed.

Waipahu Street Drainage Improvements
Final Environmental Assessment



Source NRCS Soil Survey SSURGO Database, Hawaii State GIS, street, parcel, cont20, dighydpy, ohd, strmsperen ohd
June 2004

0 400 800 Feet

N

Figure 5
Soils

The vicinity of the Kahu Tract Channel had highly compressible organic soils, which can adversely affect the new drainage improvements. These soils were found in a limited section of the proposed alignment, and below a depth of 10.5 feet, or about 13 feet elevation. Provided the bottom of the excavation for the drain line and outlet structure near the channel is above 15 ft elevation, the geotechnical report noted that the impact of these soils on the new construction would likely be minimal.

The most significant geotechnical concern associated with construction is the close proximity of existing residential structures. Excavated trenches for the drain lines will vary, from five feet to 13 or 14 feet deep in some areas. The FGE, Ltd. study notes that care must be taken during excavation to install the drain line and structures to minimize disturbance to the surrounding residential structures. The study indicated that dwelling foundations, retaining walls, or fences within a horizontal distance equivalent to approximately 1.5 times the depth of the excavation at its nearest point could be affected by the excavations.

Mitigation includes adequate shoring and bracing of the trenches to prevent disturbance to existing structures and safeguard workers within the trenches. The design of the shoring and bracing system will be the responsibility of the contractor.

Excavations for the drain lines and their structures can likely be completed with typical earth-excavating equipment. The occasional use of rock-excavating equipment is anticipated to remove scattered boulders during the trenching.

Drainage improvements will be designed and constructed in accordance with the Standard Specifications and Standard Details for Public Works Construction of the City and County of Honolulu and Rules Relating to Storm Drainage Standards dated January 2000, as well as the recommendations in the geotechnical report.

In addition, impact of construction activities on soils will be mitigated by several measures, as outlined in the following regulations:

- Chapter 14, Articles 13-16 as related to Grading, Soil Erosion and Sediment Control, of the Revised Ordinance of Honolulu, 1990, as amended.
- Department of Planning and Permitting, Rules relating to Soil Erosion Standards and Guidelines, (1999);
- USDA Soil Conservation Services Erosion and Sediment Control Guide for Hawaii, (1968).

3.1.3 Climate and Air Quality

For most of Hawaii, there are only two seasons: "summer," between May and October, and "winter," between October and April. Most of the rain falls during winter storms from November through January while summer months are warm and dry. The climate in the

project area ranges from an average maximum of about 89 degrees Fahrenheit during the summer to an average low of about 65 degrees in winter. Average annual rainfall is approximately 25 to 30 inches, the majority of which falls in December and February. Monthly average rainfall ranges from one to three inches. Predominant winds are northeasterly trades, averaging about 10 knots.

The State Department of Health operates a network of air quality monitoring stations, including nine stations in various areas of Oahu. Each of the stations measures selected pollutants. There are no monitoring stations in Waipahu. The closest monitoring stations are Pearl City, located to the northeast, which measures particulate matter (PM_{10} and $PM_{2.5}$ and West Beach, located to the southwest, which measures nitrogen dioxide (NO_2), particulate matter (PM_{10}), carbon monoxide (CO), and sulfur dioxide (SO_2). As a whole, air quality on Oahu is good, meeting all federal and State ambient air quality standards.

In the project area, as in most urban areas on Oahu, vehicular traffic is the major source of air pollutants. However, the vehicular traffic levels near the project area are not high enough to significantly degrade air quality. Prevailing northeast trade winds also help to keep pollution levels low.

Potential Impacts and Mitigation Measures

Climatic conditions are not expected to have a significant affect on the project.

Temporary and localized negative impacts on air quality will occur in areas adjacent to the construction site. Construction related traffic disruption will be minor, and will not significantly increase vehicle emissions or air pollution. However, equipment used during the construction phase will emit exhaust and airborne particulates, and construction work will produce dust. Due to the close proximity of private residences to construction activities, the following mitigation measures will be used to reduce the potential for fugitive dust:

- Dust screen barrier will be erected during excavation and construction of the drainage improvements
- Stockpiles will be covered with appropriate materials. Construction debris will be disposed of at permitted facilities.
- The contractor will sprinkle water, as necessary, to control dust.
- The contractor will use vehicles that are properly maintained.

Construction activities will employ fugitive dust emission control measures in compliance with provisions of the State DOH Rules and Regulations (Chapter 43, Section 10), and Hawaii Administrative Rules (HAR), Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33 on Fugitive Dust.

Best construction management practices restrict stockpiling of construction material and call for proper disposal of construction debris. Regular watering will be used to reduce the amount of fugitive dust in the air.

3.1.4 Natural Hazards

Tsunami and Flood

The State of Hawaii Civil Defense Tsunami Evacuation Zone Maps indicate that the project site is not vulnerable to tsunami inundation. According to the Federal Emergency Management Agency (FEMA)–Flood Insurance Rate Map (FIRM), the proposed drain line is located in Zone D, areas with possible but undetermined flood hazards. In areas designated as Zone D, no analysis of flood hazards has been conducted. The FIRM designation for the area is shown in Figure 6.

Documented anecdotal evidence indicates the residential area across from August Ahrens Elementary School is subject to flooding during periods of heavy rain. Long-time residents have noted that flooding problems began after sugar cane fields north of the residential area was developed into a new subdivision and the extension of the August Ahrens Elementary School playground. These residents report that storm water from the school and from both directions of Waipahu Street collects in the depressed area between the school and Waipahu Street. Because the existing storm drain on Waipahu Street is too small to handle the volume of water, it overflows into their yards.

Seismic Activity

Earthquake activity in Hawaii is associated primarily with volcanic activity, and generally occurs before or during volcanic eruptions. Over the last 150 years, there have been no recorded earthquakes greater than magnitude 6.0 on the Richter scale on the Island of Oahu.

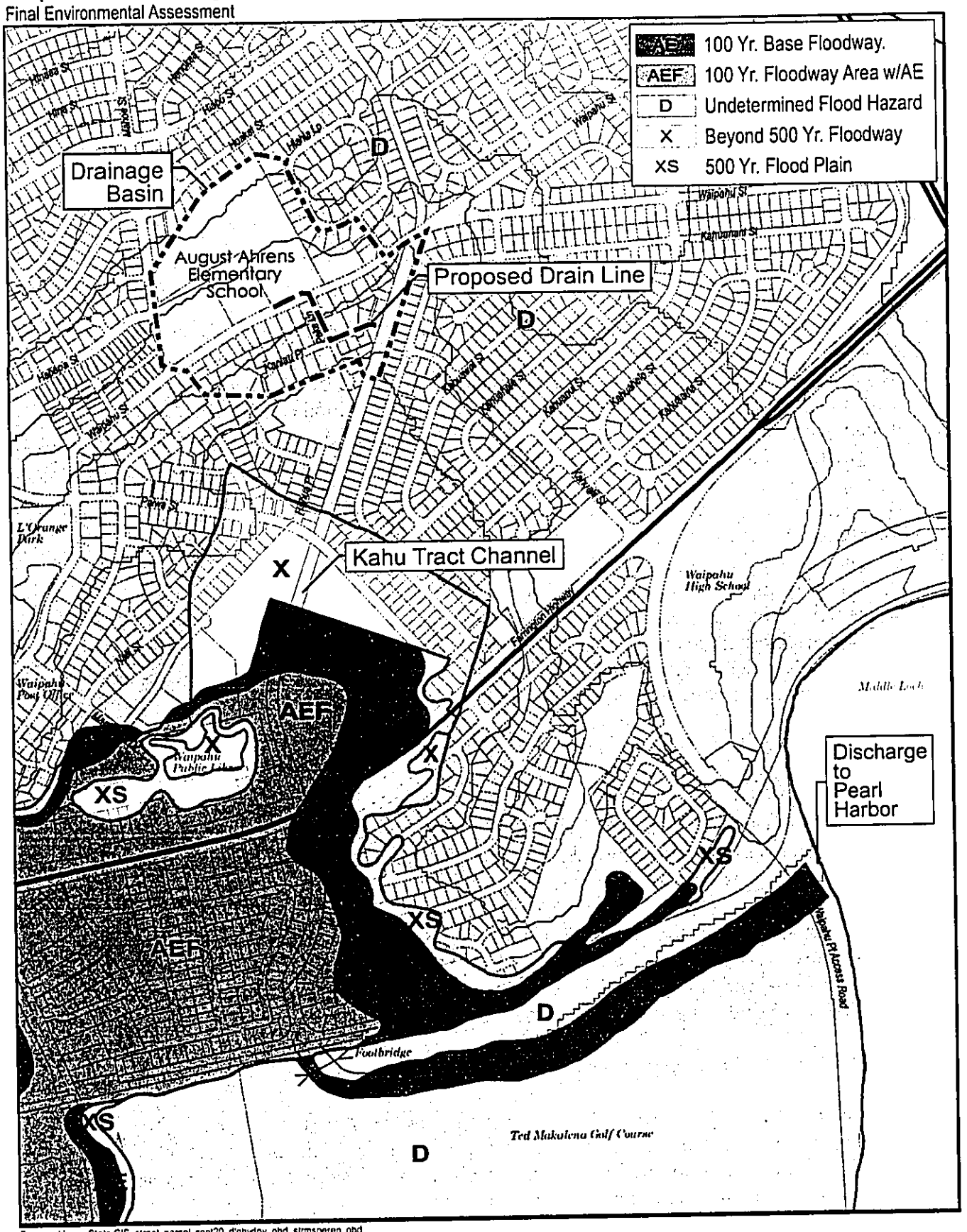
The Uniform Building Code (UBC) provides minimum design criteria to address potential for damages due to seismic disturbances. The UBC scale is rated from Seismic Zone 1 through Zone 4, with 1 the lowest level for potential seismic induced ground movement. Oahu has a Seismic Zone 2A designation.

Potential Impacts and Mitigation Measures

The proposed drainage improvements will have a positive effect on flooding in the Waipahu Street-Peke Lane area, particularly for residents on Waipahu Street across from the school. Localized flooding in this area, which has occurred for a number of years, will be reduced by the improved drainage and collection system.

RECEIVED AS FOLLOWS

Waipahu Street Drainage Improvements
Final Environmental Assessment



Source: Hawaii State GIS, street, parcel, cont20, d'ghydpy_ohd, strmsperen_ohd
June 2004

0 400 800 Feet

Figure 6
Flood Insurance Rate Map

However, drainage improvements on Waipahu Street are limited to the eastern half of the school campus. Due to funding limitations, the project does not include drainage improvements further west on Waipahu Street, near the new classroom building currently under construction. In this area, excessive storm flows from the school campus also sheet flows onto Waipahu Street and onto neighboring properties.

The proposed project will include a stub out for future extension of the drain line, if proposed in the future.

3.1.5 Hydrology

Surface Water

There are no perennial streams in the immediate project area. The perennial stream nearest the project site is Waikele Stream, and its tributary, Kapakahi Stream. These streams drain into West Loch to the southwest of the project site. Average flow is 37.6 cubic feet per second (cfs). (Hawaii Stream Assessment, 1990).

However, the lower stream areas around Pearl Harbor area include a freshwater spring complex that is one of the largest in the Pacific Islands, and represents an ecologically important and unique natural resource (Englund et al. 2000). Evidence of these freshwater springs are present around the southern end of Peke Lane, where watercress farms are located.

The manmade Kahu Tract Channel is also a surface water feature in the project area. The Kahu Tract Channel begins just south of the H-1 Freeway at two locations. The two branches meet between Hie Place and Hiahia Loop, northeast of the project area. The Kahu Tract Channel continues south of the project area and ultimately discharges into Pearl Harbor's Middle Loch.

Ground Water

The Pearl Harbor aquifer underlies most of the Pearl Harbor area, including the project site. Groundwater in the Pearl Harbor region is found in a shallow, sedimentary caprock aquifer and a deeper, basaltic aquifer. The water in the caprock aquifer has high salinity and is not a source of drinking water. However, the deeper, basaltic aquifer is a major source of drinking water for Oahu. The deep basaltic aquifer is found between 50 to 750 feet below ground surface, and has been designated a water management area that is regulated by the State of Hawaii Commission on Water Resource Management. The two aquifers are separated by sedimentary caprock that is over 1,000 feet thick in some areas.

During the subsurface geotechnical investigation (Fewell Geotechnical Engineering, Ltd., 2003), groundwater was encountered in one of the four borings at a depth of 20 feet. This depth corresponds to an elevation of about three feet above mean sea level. Groundwater

was not encountered in any of the other borings. However, the study noted that the moisture content of the soils appears to increase with increasing depth about 10 feet below existing ground surface.

Potential Impacts and Mitigation Measures

The project will not affect Waikele Stream or the freshwater spring complex in the area. The project will direct runoff from the August Ahrens Elementary School drainage basin to the Kahu Tract Channel. However, no adverse impacts are anticipated. Storm water quality control devices may be included in the project to reduce the sediment load in the runoff. Dewatering is not expected to be required.

The Kahu Tract Channel currently directs storm water runoff from areas in Waipahu south of the H-1 Freeway. The original, 1964 construction plans for the Kahu Tract Channel indicated the channel was designed to accommodate a flow a 1,440 cubic feet per second (cfs) and a drainage basin area of 953.16 acres.

Hawaii Pacific Engineers concluded that based on the Storm Drainage Standards, a drainage basin of 953.16 acres has a peak discharge of 4,000 cfs. This peak storm discharge is much larger than the 1,440 cfs capacity indicated on the original Kahu Tract Channel construction plans.

Since 1964, the original Kahu Tract Channel drainage basin has been modified by development to the north, specifically the Waikele Development and construction of the H-1 Freeway. A drainage study for the Waikele Development or H-1 Freeway were not available, and therefore it is not known whether subsequent modifications to the Kahu Tract Channel drainage basin were made.

In summary, the Kahu Tract Channel will not be adversely affected by the proposed project. Data indicates that the Kahu Tract Channel may already be inadequately sized to accommodate peak flows from its drainage basin. This project does not address the capacity of the Kahu Tract Channel or propose improvements to the channel. The drainage areas contributing to the Kahu Tract Channel will not change as the result of the project. While this project will not increase the total quantity of flow into the Kahu Tract Channel, future improvements to the channel by the City may be warranted.

3.1.6 Noise

Existing noise levels in the project area are consistent with similar urban environments. Traffic along Waipahu Street is the primary noise generator, particularly during the morning and afternoon peak hours before and after school. Outdoor school activities are also a noise generator along Waipahu Street. The neighborhood surrounding the school is primarily residential in character, and ambient noise levels on Peke Lane and Peke Place are low.

The Department of Health's (DOH) maximum permissible noise levels for construction equipment during nighttime hours in residential areas is 45 dBA and 55 dBA during daytime hours or the ambient noise level—whichever is higher.

Potential Impacts and Mitigation Measures

Excavation and construction activities will generate noise that may have a short-term impact on the August Ahrens Elementary School and nearby residences across Waipahu Street, on Peke Lane and Peke Place.

Typical ranges of construction equipment noise vary between 70 and 95 dBA. The closest existing residences along Waipahu Street, Peke Lane and Peke Place are as close as 15 feet to the area where trenching for the new drain line will occur. Houses along the west side of Peke Lane and the south side of Peke Place will be especially close to the trenching area, which will be located along the western (Ewa) side of the road. The owners of the property at the end of Peke Place, where the drainage easement is located, will also be impacted by construction noise.

Potential Impacts and Mitigation Measures

Project construction will involve demolition of existing pavement, excavation and backfilling of trenches, installation of new drainpipes and drainage structures, paving, and movement of construction vehicles. Construction will generate noise that will affect nearby residential areas. Portions of the August Ahrens Elementary School may also be impacted by construction noise. Although the school's athletic fields border most of the school's Waipahu Street boundary, there are several portable classrooms located near Waipahu Street, approximately 200 feet from the construction area.

Typical ranges of construction equipment noise vary between 70 and 95 dBA. The Department of Health's (DOH) maximum permissible noise levels for construction equipment during daytime hours is 55 dBA or the ambient noise level, whichever is higher. The nighttime maximum permissible noise level in residential areas is 45 dBA.

All project activities will comply with the DOH Administrative Rules Chapter 11-46 on Community Noise Control. In cases where construction noise exceeds, or is expected to exceed the DOH's "maximum permissible" property line noise levels, a permit will be obtained from the DOH to operate vehicles, construction equipment, power tools, etc. that emit noise levels in excess of "maximum permissible" levels. To reduce the noise impact of construction activities, all work will be conducted during the daytime hours. Construction barriers will be erected in work areas near private residences.

Required permit conditions for construction activities are:

- No permit shall allow construction activities creating excessive noise…before 7:00 am and after 6:00 pm of the same day.

- No permit shall allow construction activities which emit noise in excess of 95 dB(A)...except between 9:00 am and 5:30 pm of the same day.
- No permit shall allow construction activities which exceed the allowable noise levels on Sundays and on ...[certain] holidays. Activities exceeding 95 dB(A) shall [also] be prohibited on Saturdays.

Construction equipment and on-site vehicles that exhaust gas or air must be equipped with mufflers. Construction vehicles using roadways are also required to satisfy the DOH's vehicular noise requirements.

3.2 BIOLOGICAL ENVIRONMENT

3.2.1 Flora

The project area is a developed residential neighborhood. Vegetation along the route of the proposed drainage improvements consists primarily of introduced trees, ornamental shrubs and plants, and grass lawns. Vegetation is limited to privately owned landscaped yards. In addition, street trees, owned and maintained by the City and County of Honolulu, can be found along Waipahu Street near August Ahrens Elementary School. There are no rare, endangered, or threatened species of plants in the project corridor.

Potential Impacts and Mitigation Measures

The proposed improvements are planned along streets in a long established residential area. The area does not support native plant communities and the project will not have an impact on threatened or endangered plants. No existing trees will be impacted within the public right-of-way, although mature trees and plants will need to be removed from the private property at the end of Peke Place where the new 36-inch drain line will be installed. The landscaping in this area will be restored to its pre-construction condition or better.

3.2.2 Terrestrial Fauna

Fauna in the project area would most likely include naturalized introduced species that have adapted readily to the human environment. Among the species commonly found in residential areas are rats (*Rattus sp.*), house mice (*Mus musculus*), domesticated cats (*Felis catus*) and domesticated dogs (*Canis familiaris familiaris*). Avian species should include common Mynas (*Acridotheres tristis*), Spotted dove (*Steptopelia chinensis*) and Zebra dove (*Geopelia striata*), House finch (*Carpodacus mexicanus*), English sparrow (*Passer domesticus*), Java sparrows (*Padda oryzivora*), and pigeons (*Columba livia*).

Potential Impacts and Mitigation Measures

The project will not have an adverse impact on terrestrial fauna, or threatened or endangered species.

Although the shoreline areas of the Pearl Harbor estuary support endangered waterbirds, the project area is over one-half mile inland from the shoreline, has been developed for many years, and does not support native wildlife or threatened or endangered species or their habitats.

3.3 SOCIO-ECONOMIC ENVIRONMENT

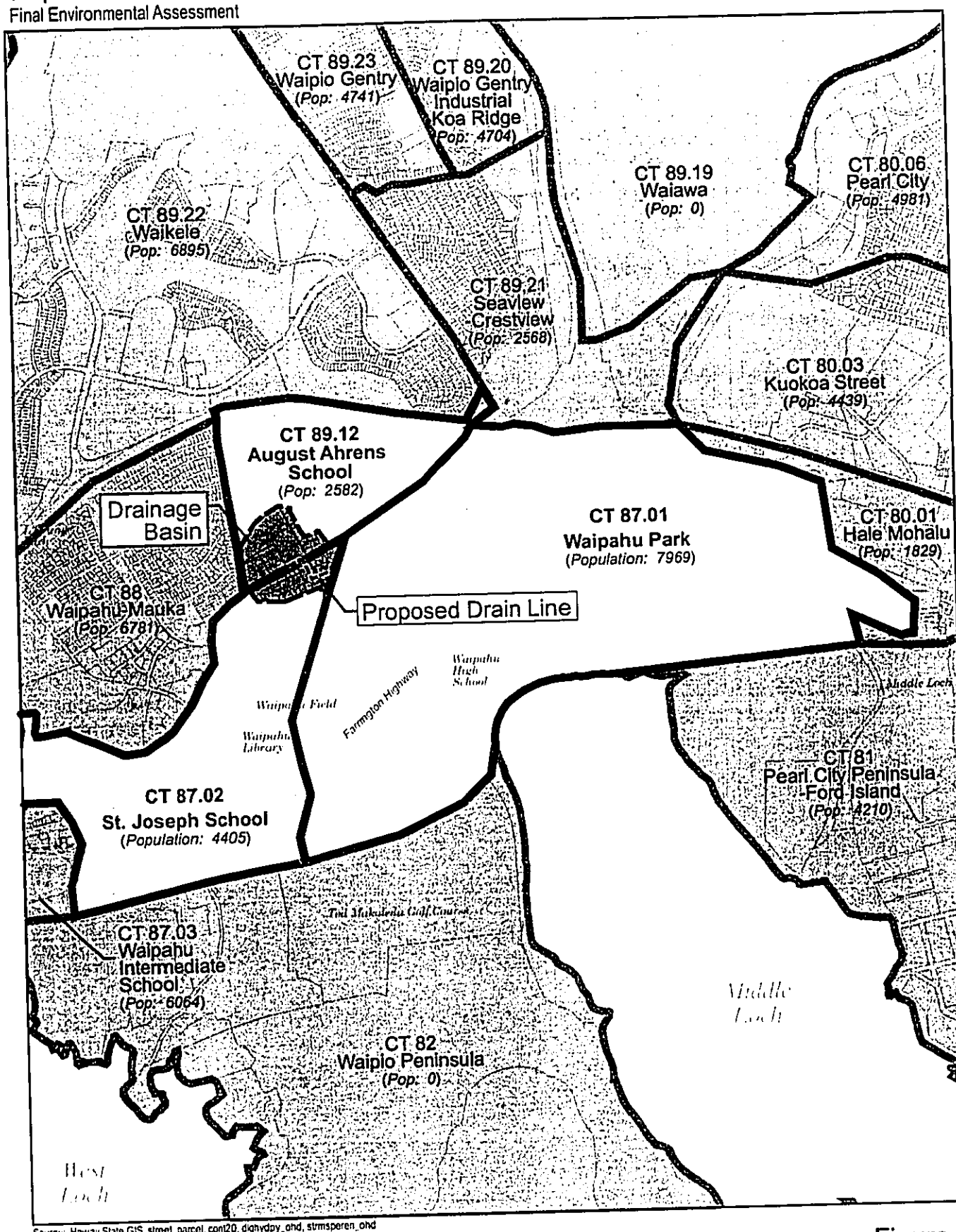
3.3.1 Population and Housing Characteristics

The area where the drainage improvements are proposed borders three census tracts: Census Tract (CT) 89.12 (August Ahrens School), CT 87.01 (Waipahu Park), and CT 87.02 (St. Joseph School).

Figure 7 shows the location and populations of these census tracts, as well as other surrounding census tracts. According to data from the 2000 U.S. Census[1], summarized in Table 3 below, all three census tracts have a lower percentage of white residents and a higher percentage of Asian residents than the County average.

Average household size in all three census tracts is larger than the County average of 2.95 persons. In CT 87.02, median household income in 1999 was lower than the County median. However, in the other two census tracts, median household income was higher than the County median. In CT 89.12, median household income in 1999 was $94,812, compared to the Honolulu median income of $51,914. This may be due to the prevalence of extended family living and multiple wage earners, which is also reflected in the larger household sizes.

[1] Data from the U.S. Census Bureau website at www.census.gov.



Source: Hawaii State GIS, street, parcel, cont20, dighydpy_ohd, strmsperen_ohd
June 2004

0 1000 2000 Feet

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Figure 7

Census Tracts 2000

Table 3: Demographic Characteristics of Census Tracts 89.12, 87.01 and 87.02

	CT 89.12 August Ahrens		CT 87.01, Waipahu Park		CT 87.02, St. Joseph School		Honolulu County	
Total Population	2,582		7,969		4,405		876,156	
Race								
--White (alone)	105	4.1%	349	4.3%	182	4.1%	186,484	21.3%
--Black (alone)	25	0.9%	57	0.7%	40	0.9%	20,619	2.4%
--Native American (alone)	6	0.2%	4	0.05%	6	0.1%	2,178	0.2%
--Asian (alone)	2,000	77.5%	6,022	75.5%	3,043	69.1%	403,371	46.0%
--Hawaiian/ Pacific Islander (alone)	112	4.3%	420	5.2%	402	9.1%	77,680	8.9%
--Other race (alone)	11	0.4%	71	0.8%	40	0.9%	11,200	1.2%
--Two or more races	323	12.5%	1,046	13.1%	692	15.7%	174,624	19.9%
Average Household Size	4.83		4.46		3.69		2.95	
1999 Median Household Income	$94,812		$59,464		$39,438		$51,914	
Housing Tenure								
Owner-occupied	78.1%		64.4%		39.3%		54.6%	
Renter-occupied	21.9%		35.3%		60.7%		45.4%	

The census data for housing tenure shows that a large majority of the residences in CT 89.12 and CT 87.01 are owner-occupied versus renter-occupied. Approximately 78% of housing units in CT 89.12 and 64% of housing units in CT 87.01 are owner occupied. However, in CT 87.02, the situation is reversed, with about 60% of housing units being renter-occupied.

Potential Impacts and Mitigation Measures

The project improvements will directly improve drainage conditions and reduce flooding in the area surrounding August Ahrens Elementary School. The new drain lines and inlets will improve flooding problems associated with heavy rains that have occurred for years

along Waipahu Street. The improvements will minimize future loss of property and property damage due to flooding in this older residential neighborhood. This will have a positive economic impact on the community.

The construction project will provide some positive economic benefits in terms of construction jobs, public construction spending, and multiplier effects on the local economy.

However, construction activities will create temporary noise and dust impacts that will affect the residents along Waipahu Street, Peke Lane and Peke Place. Traffic flow in the area will be disrupted and altered during construction. Parents picking up students from the August Ahrens Elementary School currently park or wait along Waipahu Street, Peke Lane and Peke Place. On-street parking and passenger pick-up and drop-off in the area will be affected during the construction period.

Construction-related dust will be minimized and noise levels will meet the Department of Health community noise standards at the school property line. Police officers or traffic flagmen will be available to help route traffic through affected areas. However, temporary construction noise and dust and inconvenience to nearby residents is unavoidable. There will be no long-term adverse impact on the school or surrounding residences.

3.3.2 Scenic and Visual Resources

Scenic and visual resources in the area include limited views of the Waianae mountain range. Despite its proximity, Pearl Harbor is not visible from the project site due to the surrounding topography and structures. The visual appearance of the project area is that of a typical, older residential neighborhood. There are no important view planes or scenic or visual resources in the area.

Potential Impacts and Mitigation Measures

The drainage structures will be at ground level or underground, and will not have an adverse visual impact on the surrounding area. No view planes will be obstructed. Construction activities will alter the visual environment in the immediate area, but these will be temporary and short-lived.

3.3.3 Archaeological, Historic, and Cultural Resources

The project will not impact archaeological, historic or cultural resources. Cultural Surveys Hawaii conducted an Archaeological and Cultural Assessment in support of the project (Cultural Surveys Hawaii, 2004). The report is included as Appendix B.

The purpose of the archaeological assessment was to ascertain the potential of encountering any historic properties during ground disturbance within the project area. Background research was conducted to provide historical and archaeological context. A

field inspection was conducted to identify any surface archaeological features and the potential for impact. Cultural impact issues such as impact to gathering practices, sacred sites, burials or other archaeological sites or storied places were considered.

The study concluded that the project would have no adverse impacts on archaeological or historic resources and traditional cultural practices. The entire project area was extensively modified in the past for residential and agricultural development. As noted during the field inspection, there are no surface historic properties. Past excavation and grading, preceded by decades of sugarcane cultivation would have destroyed or extensively disturbed any subsurface historic properties. No cultural practices were identified within the project area, and none that are site-specific are believed to be ongoing. No further archaeological or cultural impact study work was recommended.

In a letter dated March 23, 2004 (Log # 2004.847, Doc # 0403EJ46), the Department of Land and Natural Resources State Historic Preservation Division (DLNR-SHPD) noted that "no historic properties will be affected" by this undertaking.

The DLNR-SHPD letter stated *"There are no known historic sites in the project area. The drainage improvements will be in existing roadways except for a portion through developed private property. It is unlikely that significant historic sties would be found in this portion of Waipahu Street...In the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation Division must be contacted..."*

3.4 TRAFFIC AND CIRCULATION

3.4.1 Existing Conditions

All streets within the project area (Waipahu Street, Peke Lane, Peke Place) are owned and maintained by the City and County of Honolulu. All streets are two lane roadways.

3.4.2 Potential Impacts and Mitigation

There will be temporary traffic disruption along portions of Waipahu Street, Peke Lane and Peke Place during the construction period. A traffic control plan has been developed for road work in the various road segments. The traffic control plan will be reviewed and approved by the City and County Department of Planning and Permitting Traffic Review Branch. Work will begin on Waipahu Street near Peke Lane, then phased down Peke Lane, and then Peke Place. As a result, construction activity will be confined to a limited area at any one time.

Although project construction will occur primarily within the road shoulders, closure of one lane of traffic may be required at various times during the construction. The lane closures will be limited to a single-lane in one direction. Police officers or flagmen will control vehicles, as well as pedestrian crossings at intersections and sidewalks that are

affected by the construction. Signs visible to motorists will be posted, to notify them of road work ahead or single lane conditions. At the end of each work day, two-lane traffic will be restored.

Work on the streets will occur only between the hours of 8:30 AM and 3:30 PM. Access to all surrounding residences will be maintained during construction.

3.5 UTILITIES

The Subsurface Investigation Report (Fewell Geotechnical Engineering, Ltd. 2003) notes that a utility search prior to the subsurface exploration found that there are underground utilities, including drain and sewer lines, beneath the streets. Overhead telephone and electrical lines are on the northern side of Waipahu Street, the eastern side of Peke Lane, and on the southern side of Peke Place.

Electrical service to the August Ahrens Elementary School and surrounding residential neighborhood is provided via overhead lines from the Hawaiian Electric Company (HECo). Verizon Hawaii provides telephone service to the area, and cable television (CATV) service is by Oceanic Cablevision.

The Board of Water Supply's water mains are located within the roadways. A portion of the water main on Waipahu Street will be relocated during construction, requiring a temporary shut down in water service.

Existing wastewater service to the area is provided by the City and County of Honolulu. The immediate project area is served by an 8-inch sewer line that comes down from the school campus and runs down Peke Lane, to the back of the residential lots. This line then connects to a 15-inch diameter trunk sewer line located within the western bank of the Kahu Tract Channel. The 1965 construction plans indicate that the sewer line is located at about 18-foot elevation. Wastewater from the area is pumped to the Honouliuli Wastewater Treatment Plant.

An 18-inch diameter drain line is buried within the drainage easement between the end of Peke Place and the Kahu Tract Channel. It will be removed and replaced with a new 36-inch line.

The project will not have a long-term impact on any existing utility systems or facilities.

3.6 PUBLIC HEALTH AND SAFETY

3.6.1 Police Services

The project area is located in Police District 3, which is headquartered at 1100 Waimano Home Road in Pearl City. Based on a preliminary review of the project, the Police

Department noted that they do not anticipate any significant impact on police services to the area.

However, during construction, complaints to the Police Department regarding traffic, dust, fumes and noise may be inevitable, and will have a temporary impact on police services. During certain construction activities, through traffic on Waipahu Street, Peke Lane or Peke Place may be diverted to a single lane. The contractor will implement a traffic control plan that will include appropriate signage, cones and delineators, and the use of flaggers and/or police officers to direct vehicle and pedestrian traffic.

3.6.2 Fire and Emergency Medical Services

The City and County of Honolulu Fire Department has two fire stations serving the Waipahu area. The closest fire station is the Waikele Fire Station, at the corner of Lumiaina Street and Lumiaina Place, about a mile north of the project area. The Waipahu Fire Station is located on Leonui Street, approximately two miles southwest of the project area. In addition to the City and County facilities, the federal Manana fire station, which serves military housing and other federal facilities, is located approximately 1-1/2 miles east of the project site. Federal fire stations are also available to respond to civilian emergencies as needed.

In an April 1, 2004 letter, the City and County Fire Department noted that fire apparatus access through the construction site must be maintained, and the Fire Department's Fire Communication Center notified if there is any interruption of the existing fire hydrant system.

An Emergency Medical Services (EMS) unit is located at the Waipahu Fire Station. According to a co-response agreement between EMS and the Fire Department, the nearest fire station will also dispatch personnel in response to medical incidents.

The project will not impact fire or emergency service or access.

4 LAND USE PLANS, POLICIES, AND CONTROLS

4.1 HAWAII STATE PLAN

The Hawaii State Plan, Chapter 226, HRS, serves as a written guide for the future long-range development of the State by identifying goals, objectives, policies, and priorities and by providing a basis for determining priorities and allocating limited resources, such as public funds, services, labor, land, energy, water, and other resources. Relevant State Plan goals, objectives, policies and priority guidelines are noted below.

The proposed project would be in conformance with State Plan objectives and policies for facility systems—in general,

> "(a) Planning for the State's facility system in general shall be directed toward achievement of the objective of water, transportation, waste disposal, and energy and telecommunications systems that support statewide social, economic and physical objectives."
>
> "(b) To achieve the general facility systems objective, it shall be the policy of this State to: (1) Accommodate the needs of Hawaii's people through coordination of facility systems and capital improvement priorities in consonance with state and county plans.." (Section 226-14, HRS).

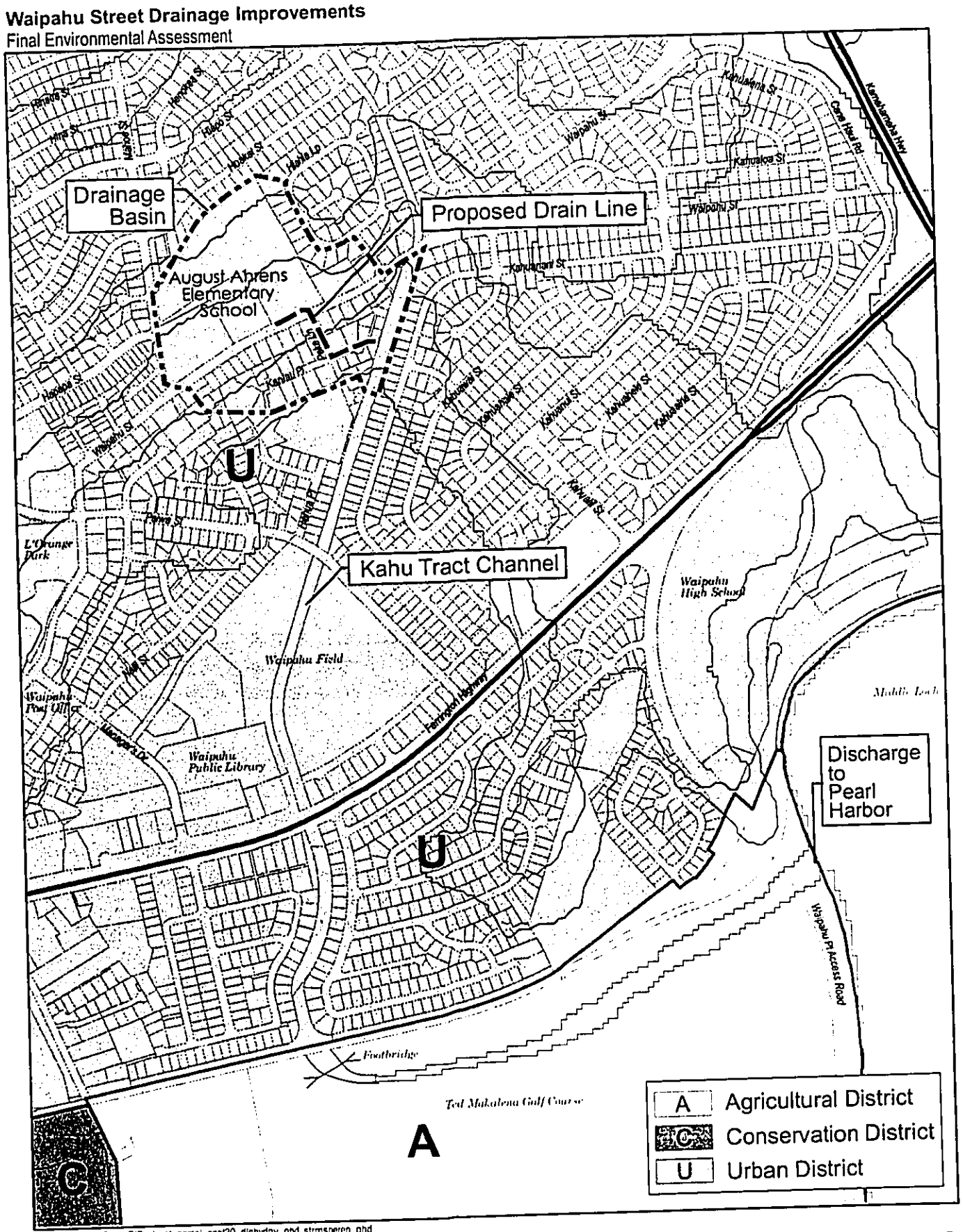
4.2 STATE LAND USE CLASSIFICATION

The State Land Use Commission, pursuant to Chapter 205 and 205A, HRS and Chapter 15-15, Hawaii Administrative Rules, is empowered to classify all lands in the State into one of four land use districts: urban, rural, agricultural and conservation. All proposed drainage improvements are located on lands within the "Urban" district (Figure 8). Activities or uses that fall within the Urban district are regulated by the City and County of Honolulu.

4.3 CITY AND COUNTY OF HONOLULU LAND USE REGULATIONS

4.3.1 General Plan

The General Plan for the City and County of Honolulu (1992) is a comprehensive statement of long-term objectives and policies for Oahu over a 20-year period. The General Plan addresses eleven areas of concern, including population; economic activity; the natural environment; housing; transportation and utilities; energy; physical development and urban design; public safety; health and education; culture and recreation; and government operations and fiscal management.



Source: Hawaii State GIS, street, parcel, cont20, dighydpy_ohd, strmsperen_ohd
June 2004

0 400 800 Feet

N

Figure 8

State Land Use Districts

The proposed project is consistent with the following policies and guidelines of the 1992 General Plan Objectives and Policies, Chapter V, Transportation and Utilities.

Objective C: To maintain a high level of service for all utilities.

Policy 1: Maintain existing utility systems in order to avoid major breakdowns.

Policy 2: Provide improvements to utilities in existing neighborhoods to reduce substandard conditions.

4.3.2 Central Oahu Sustainable Communities Plan

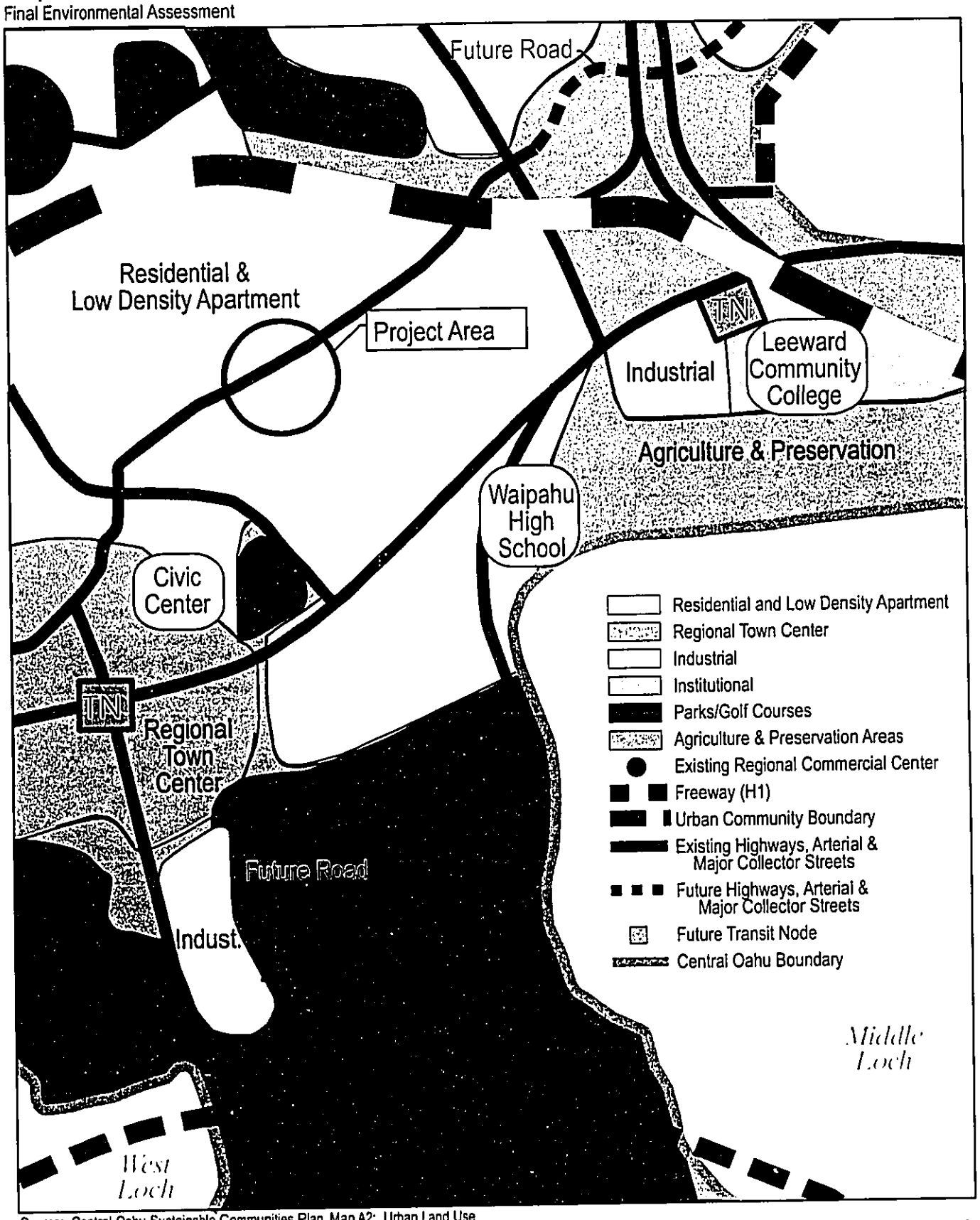
Waipahu is within the Central Oahu Sustainable Communities Plan (SCP) (February 2002) area. Figure 9 shows the Sustainable Communities Plan's land use plan. The project area and its environs is located in the area designated for Residential and Low Density Apartments.

Section 3.5 of the Central Oahu Sustainable Communities Plan entitled "Waipahu Town," discusses policies, planning principles and guidelines for development of Waipahu. Waipahu Town is envisioned as a "harmonious blend of the old and new." Major planning themes for the planning and design of Waipahu include 1) the need for economic revitalization; 2) keeping new land uses compatible with existing uses; 3) promoting and preserving Waipahu's plantation heritage; 4) improving Waipahu's visual appearance and character; 5) increasing recreational opportunities; and 6) improving vehicular, pedestrian and bicycle circulation.

Although neither the project area nor the proposed drainage improvements are specifically addressed in the Sustainable Communities Plan, the project supports and is consistent with the overall SCP goals of economic revitalization, improving Waipahu's visual appearance and social and cultural enhancements.

4.3.3 Waipahu Town Plan and Waipahu Livable Communities Initiative

A community based, special area plan for Waipahu Town was prepared by the City and County of Honolulu in December 1995 and adopted by the City Council in 1996. The purpose of the special area plan was to provide a more detailed plan for Waipahu than could be provided the Central Oahu Development Plan/Sustainable Communities Plan. The Waipahu Town Plan (December 1995) is the result of a collaborative, community effort headed by the Waipahu Town Plan Task Force, comprised of business and community groups, large landowners, area politicians, and other community stakeholders. Major components of the Waipahu Town Plan include economic development, land use, circulation, urban design, and an implementation plan.



Source: Central Oahu Sustainable Communities Plan, Map A2: Urban Land Use
November 2003

0 750 1,500 Feet

N

Figure 9

Central Oahu Sustainable Communities Plan Land Use Map

The Waipahu Livable Communities Initiative (May 1998) was intended to improve the quality of transportation facilities and promote economic revitalization in Waipahu. It was also intended to extend the Waipahu Town Plan effort by identifying specific implementation projects.

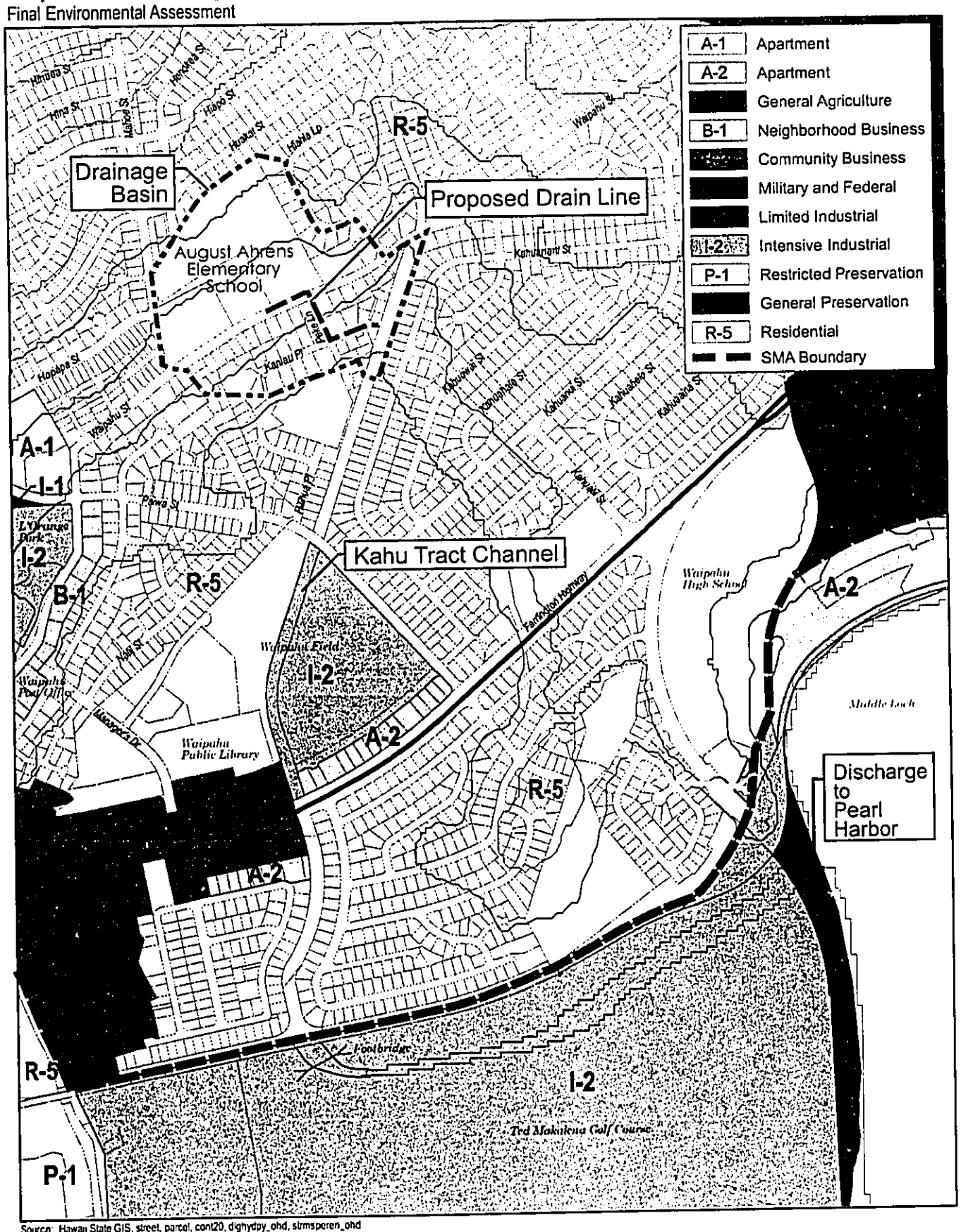
Although neither the Waipahu Town Plan nor the Waipahu Livable Communities Initiative specifically addresses drainage improvements on Waipahu Street, by reducing flooding problems in the residential area, the project is consistent with the social, economic and physical improvement goals in both planning documents.

4.3.4 Zoning

All project improvements are located in the R-5 Residential zoning district (see Figure 10). The R-5 residential zoning requires a minimum lot size of 5,000 square feet, with building heights of 25 feet. The project improvements are considered utility maintenance and repair, and compatible with this zoning designation.

4.3.5 Special Management Area

Coastal Zone Management objectives and policies (Section 205A-2, HRS) and the Special Management Area (SMA) guidelines (Section 25-3.2 ROH) have been developed to preserve, protect, and where possible, to restore the natural resources of the coastal zone of Hawaii. Figure 10 shows the location of the Special Management Area (SMA). None of the project improvements are within the SMA, and a SMA use permit is not required. The project will divert storm water runoff that is currently sheet flowing through an urbanized area into the Kahu Tract Channel, and ultimately into the Middle Loch of Pearl Harbor. Currently (i.e., without the drainage improvements), most of this storm water runoff ultimately drains into the Kahu Tract Channel via sheet flow through the residential neighborhood. Therefore, there will be a negligible net increase of storm water runoff into the coastal zone.



Source: Hawaii State GIS, street, parcel, cont20, dighydpy_ohd, strmsperen_ohd
June 2004

0 400 800 Feet

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Figure 10
Zoning / SMA

5 POSSIBLE ALTERNATIVES

Three options for improving the drainage system in the area were investigated, including the proposed action. Alternative A involves redirecting the storm water runoff toward Kahu Tract Channel via Peke Lane. Alternative B, which is the preferred alternative, involves redirecting the storm water runoff toward Kahu Tract Channel via Peke Place. Alternative C involves upgrading the existing drainage system. These alternatives, plus a no action alternative, are described below, and are shown in Figure 11.

5.1 NO ACTION

The "no action" alternative assumes the status quo. Under this alternative, no drainage improvements would be constructed. Ongoing flood problems in the area would continue during periods of heavy rain, potentially damaging public and private property.

5.2 ALTERNATIVE A: DIVERT RUNOFF VIA PEKE LANE

This alternative would construct a new relief drain inlet and culvert system to collect storm runoff from Waipahu Street and divert it down Peke Lane, to the Kahu Tract Drainage Channel outlet.

This alternative would continue to utilize the existing drainage system that includes a series of 18-inch drainage culverts and drain inlets on Waipahu Street, and that crosses private residential lots and Kaniau Place. Several new drain inlets on the mauka side of Waipahu Street would be constructed in the low area between the Waipahu Street sidewalk and the existing August Ahrens Elementary School fence line. This alternative would also include a new culvert system constructed along the length of Peke Lane. The new culvert would be sized to accommodate the storm runoff from the school area and Peke Lane drainage area

Currently, there is an existing drainage catch basin at the end of Peke Lane and an 18-inch culvert through a private residential lot (TMK 9-4-09:142). Alternative A would reconstruct the portion of the system on the private property, to increase the size of the culvert to accommodate projected storm runoff. In this area, the Kahu Tract Channel is unlined. Therefore, improvements would probably need to be made to the Kahu Tract Channel to minimize erosion due to the additional storm water discharge at the outlet.

Although most of the construction work would occur on City property, this alternative would impact a private residence at the end of Peke Lane. The lot has a large tree and wooden open shed built over the existing drain line within the drainage easement. Existing fencing, a utility pole guy and landscaping would also be disturbed by the construction. In addition to the inconvenience to the private landowner, the replacement of these items would present logistical challenges and increase the overall project costs.

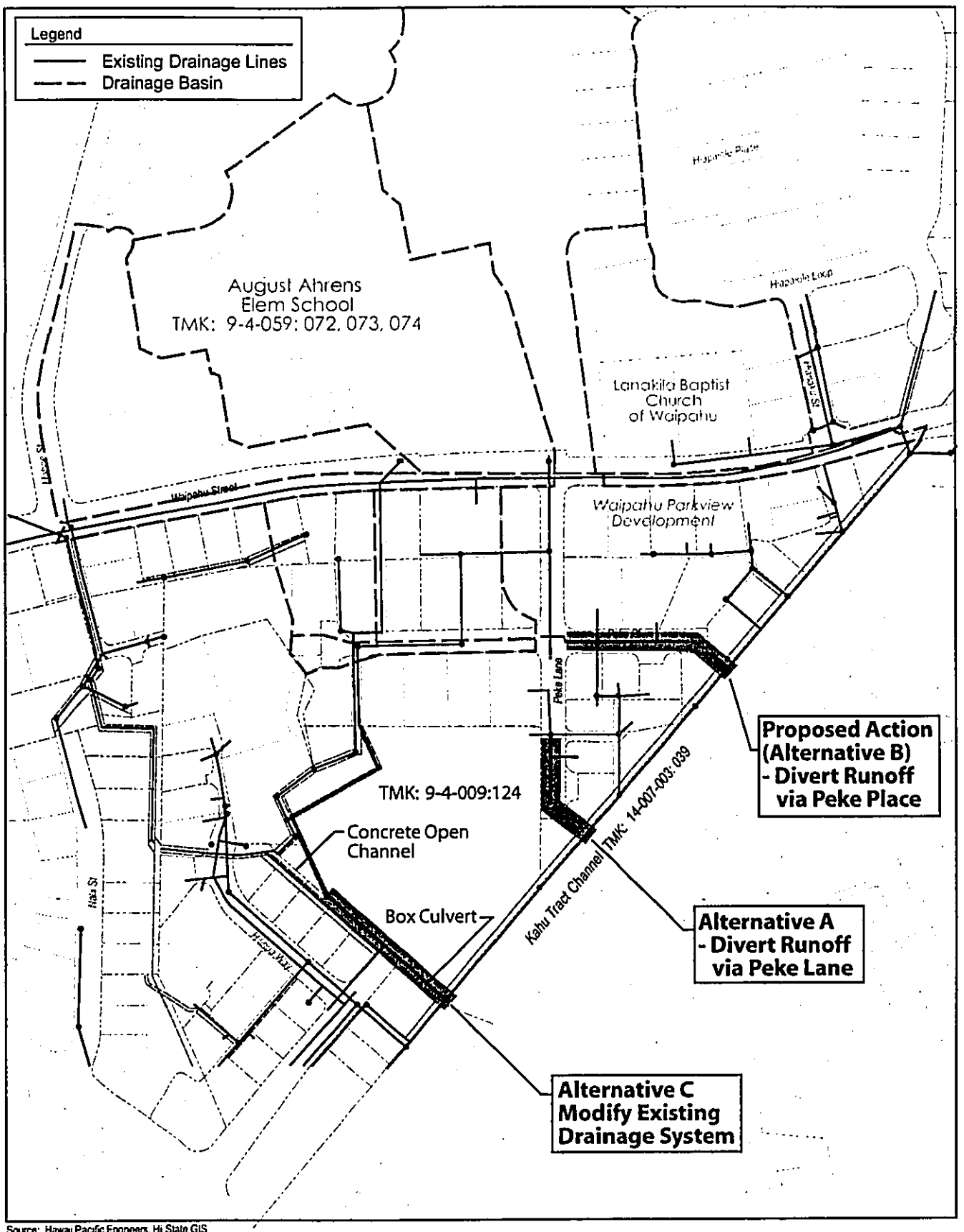

Figure 11

Location of Drainage Alternatives Considered

5.3 ALTERNATIVE B: DIVERT RUNOFF VIA PEKE PLACE (PROPOSED ACTION)

This alternative is the proposed action. It consists of a new relief drain inlet and culvert system to collect storm runoff and divert it down Peke Lane, down Peke Place, and discharge into the Kahu Tract Drainage Channel. The existing catch basin at the end of Peke Place will need to be reconstructed and the size of the outlet culvert increased.

One of the disadvantages of this alternative is that the drain culvert must cross the high point of Peke Place, which will require a deeper drain line. However, overall, this alignment has the fewest obstacles (i.e., structures) along the route, and would have the least severe impact on private property owners.

5.4 ALTERNATIVE C: MODIFY EXISTING DRAINAGE SYSTEM

This alternative would modify and upgrade the existing system for drainage from Waipahu Street to the Kahu Tract Channel. The existing system consists of an 18-inch culvert system from Waipahu Street to a concrete open channel at Hilihua Way. From there, storm water flows through the open channel, a concrete box culvert, and then is discharged into Kahu Tract Channel. Alternative C would involve reconstructing and enlarging the drainage culvert system from Waipahu Street along this route.

The primary disadvantage of this alternative is that the proposed construction corridor passes through several residential lots, is narrow, and includes a number of obstructions. Improvements would be needed within at least four private residential parcels (TMK 9-4-09: 24, 29, 30, and 124).

If this alternative were selected, the storm water capacity of the existing open concrete channel, the existing concrete box culvert at Hilihua Place, and the outlet connection to the Kahu Tract Drainage Channel would also need to be verified. If an engineering evaluation indicates that these existing structures are inadequate to handle the anticipated flow, improvements to these structures could also be required, entailing additional project costs.

Overall, selection of Alternative C would present many challenges. The primary reason it was eliminated from consideration is the severe disruption it would cause to existing residences along the route.

5.5 EVALUATION OF ALTERNATIVES

Alternative B, Divert Runoff Via Peke Lane, was selected as the most feasible and preferred alternative. Compared to Alternatives B and C, this alternative had the least adverse impact to private property owners along the drainage route. As a result, it also had the lowest overall development cost.

6 DETERMINATION

Based on the information described in this document, the proposed project is not expected to result in significant social, economic, cultural, or environmental impacts. Consequently, a finding of no significant impact is anticipated, pursuant to the provisions of Subchapter 6 of Chapter 200, Title 11, Hawaii Administrative Rules of the Department of Health.

7 FINDINGS AND REASONS SUPPORTING THE DETERMINATION

This Final Environmental Assessment, prepared in accordance with Chapter 343, HRS, as amended, has found that the potential for impacts associated with the proposed action will not be significant. Potential environmental impacts will be temporary and are not expected to adversely impact the long-term environmental quality of the area.

The potential effects of the proposed project were evaluated based on the significance criteria in Section 11-200-12 (Hawaii Administrative Rules, revised in 1996). The following is a summary of potential effects of the action.

SIGNIFICANCE CRITERIA

1. Irrevocable commitment to loss or destruction of natural or cultural resources.

The proposed project will not adversely affect natural or cultural resources. An Archaeological and Cultural Assessment of the project area (Cultural Surveys Hawaii, 2004) noted that the entire project area has been extensively modified, and there will be adverse impact to historical or cultural resources. The State Historic Preservation Division has also noted that there will be "no historic properties affected" by this undertaking.

2. Curtailment of the range of beneficial uses of the environment.

The project will not curtail the range of beneficial uses of the environment, as all drainage structures will be located within the roadway right-of-way or within an existing drainage easement. The improvement to drainage conditions near August Ahrens Elementary School will actually enhance the beneficial uses of the environment by reducing chronic flooding problems in the area.

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

The proposed project is consistent with the environmental policies, goals, and guidelines defined in Chapter 344, HRS. By improving the poor drainage conditions in this established residential neighborhood, the project is consistent with guideline (8)(D) Community life and housing, in §344-4, Guidelines. That specific guideline is to "Foster safe, sanitary and decent homes."

4. Substantially affects the economic or social welfare of the community or state.

The proposed drainage improvements will substantially improve the social welfare, health and safety of the surrounding community, which has been subjected to poor drainage and flooding conditions during periods of heavy rain for many years. This situation has resulted in private property damage as well as erosion within the August Ahrens Elementary School property.

The improvements will have a long-term positive impact on the economic and social welfare of the community. Short-term negative impacts are associated with construction noise and dust to the surrounding residents, and possibly some traffic disruption. These impacts will be temporary.

5. Substantially affects public health.

Although the elimination of flooding conditions in the area will have a significant positive impact on public health, there will be short-term construction related noise, dust and traffic disruption. The proposed project will be completed in accordance with Federal, State and City and County of Honolulu rules and regulations governing public safety and health. The contractor will be obligated to meet the environmental standards and procedures of various governmental agencies in the course of obtaining necessary permits. Potential public health impacts will be minimized or brought to negligible levels by the mitigation measures described in this document.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities.

The proposed drainage improvements will not have secondary impacts such as population change or effects on public facilities.

7. Involves substantial degradation of environmental quality.

The drainage improvements will take place within the roadway right-of-way or within an established drainage easement. These areas are already developed. Construction-related noise, dust and traffic impacts will be temporary and will be mitigated. Storm water quality control devices may be included to reduce the sediment load in the runoff. There will be no degradation of environmental quality. Upon completion of the construction, the environmental quality of the area will return to pre-construction condition.

8. Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for large actions.

The proposed project will not have a cumulative effect on the environment or involve a commitment for larger actions.

9. Substantially affects a rare, threatened, or endangered species, or its habitat.

The project area is a long-established residential community with no rare, threatened, or endangered species or their habitats. The project will not affect endangered water birds that travel and nest in various areas around the Pearl Harbor shoreline.

10. Detrimentally affects air or water quality or ambient noise levels.

There will be short-term impacts on the air quality and noise levels inside of and adjacent to the construction area. Mitigation measures will be implemented to minimize construction-related impacts. There will be no long-term impacts to air or water quality or ambient noise levels.

11. Affect or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

The project area is not at high risk for tsunami inundation or flooding, and is away from the Special Management Area and coastal resources. The project will not impact the waters of the Pearl Harbor estuary, streams, or the freshwater springs that are present in the area. The project will not affect sensitive environmental resources. Although the project will redirect storm water runoff into the Kahu Tract Channel, the overall quantity of storm water from the drainage basin into the channel will not increase.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies.

The project will not affect scenic vistas and view planes identified in public planning documents or studies. All drainage structures will be at grade or underground, and will not be visually obtrusive.

13. Requires substantial energy consumption.

Construction of the drainage improvements will require some energy consumption, but long-term operation and maintenance of the structures will not entail substantial energy consumption. The reduction of flooding conditions in the area will actually decrease energy consumption associated with post-storm clean up, repair and replacement of damaged property caused by flooding along Waipahu Street.

CONCLUSION

The analysis contained in this Environmental Assessment has determined that the project will not have significant adverse impacts. The City and County of Honolulu Department of Design and Construction anticipates filing a Finding of No Significant Impact (FONSI) with the State Office of Environmental Quality Control. Anticipated impacts will be temporary and will not adversely affect environmental quality in the area.

8 BIBLIOGRAPHY

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9 ORGANIZATIONS AND AGENCIES CONSULTED IN PREPARATION OF THE ENVIRONMENTAL ASSESSMENT

9.1 Organizations Consulted During Preparation of the Draft EA

The following agencies and organizations were sent an early consultation letter on March 9, 2004, requesting comments prior to completion of the Draft Environmental Assessment. Comments were requested by April 2, 2004.

Letters from 13 agencies and individuals were received during the early consultation period, and are reproduced in this chapter. Those responding are noted with an asterisk (*) below. The comments were incorporated into the Draft Environmental Assessment, which was published in July 2004.

Federal
Department of the Army, U.S. Army Engineer District, Honolulu

State
Department of Business, Economic Development & Tourism, Office of Planning
Department of Hawaiian Home Lands
*Department of Land and Natural Resources
*Department of Land and Natural Resources, State Historic Preservation Division
Department of Education, Facilities and Support Services Branch
Department of Education, August Ahrens Elementary School
*Department of Health, Environmental Management Division
*Office of Environmental Quality Control
*Department of Human Services
*Department of Transportation, Statewide Transportation Planning Office
Office of Hawaiian Affairs

City and County of Honolulu
*Board of Water Supply
Department of Design and Construction
*Fire Department
*Department of Planning & Permitting
*Department of Parks and Recreation
Department of Transportation Services
*Police Department
Department of Environmental Services
*Department of Facility Maintenance
Department of Budget and Fiscal Services

Utilities
Hawaiian Electric Company
*Verizon Hawaii

Other Community Organizations
Waipahu Neighborhood Board, #22

Elected Officials
Senator Cal Kawamoto, State Senate District 18
Senator Willie Espero, State Senate District 10
Representative Jon Karamatsu, State House District 41
Representative Alex Sonson, State House District 35
Representative Guy Ontai, State House District 37
Representative Tulsi Gabbard Tamayo, State House District 42
Representative Roy Takumi, State House District 36
City Councilman Nestor Garcia, District 9

9.2 Draft EA Comment Lettes and Responses

The following agencies and organizations were sent a copy of the Draft EA (July 2004), with a request for written comments. Notice of availability of the Draft EA was published in the July 23, 2004 edition of the Office of Environmental Quality Control's *The Environmental Notice*. The 30-day comment period ended on August 23, 2004.

Letters from 15 agencies and organizations were received during the comment period. Copies of the letters and the written response from the City and County of Honolulu Department of Design and Construction are reproduced at the end of this chapter. The agencies that provided comment letters are noted with a double asterisk (**) below. The comments were incorporated into this Final Environmental Assessment.

Federal
**Department of the Army, U.S. Army Engineer District, Honolulu

State
Department of Business, Economic Development & Tourism, Office of Planning
**Department of Hawaiian Home Lands
**Department of Land and Natural Resources
**Department of Land and Natural Resources, State Historic Preservation Division
Department of Education, Facilities and Support Services Branch
Department of Education, August Ahrens Elementary School
Department of Health, Environmental Management Division
**Office of Environmental Quality Control
**Department of Human Services
**Department of Transportation, Statewide Transportation Planning Office
**Office of Hawaiian Affairs

City and County of Honolulu
**Board of Water Supply
Department of Design and Construction
**Fire Department
**Department of Planning & Permitting
**Department of Parks and Recreation
Department of Transportation Services
**Police Department
Department of Environmental Services
**Department of Facility Maintenance
Department of Budget and Fiscal Services

Utilities
Hawaiian Electric Company
Verizon Hawaii

Other Community Organizations
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Senator Willie Espero, State Senate District 10
Representative Jon Karamatsu, State House District 41
Representative Alex Sonson, State House District 35
Representative Guy Ontai, State House District 37
Representative Tulsi Gabbard Tamayo, State House District 42
Representative Roy Takumi, State House District 36
City Councilman Nestor Garcia, District 9

Comments Received During the Early Consultation Period

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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HONOLULU, HAWAII 96809

April 6, 2004

WAIPAHUDRAINAGE.RCH

LD-NAV

RECEIVED
APR 08 2004

KIMURA INTERNATIONAL
GLENN T. KIMURA, PRESIDENT
1600 KAPIOLANI BLVD, SUITE 1610
HONOLULU, HAWAII 96814

Dear Mr. Kimura:

SUBJECT: Pre-Assessment Consultation for the Preparation of a Draft Environmental Assessment for the Proposed Waipahu Street Drainage Improvement Project
Kimura International/C&CoH DDC

Thank you for the opportunity to review and comment on the subject matter

A copy of your letter dated March 9, 2004(project summary) pertaining to the proposed project was transmitted or made available to the following Department of Land and Natural Resources' Divisions for their review and comment.

- Division of Aquatic Resources
- Division of Forestry and Wildlife
- Engineering Division
- Division of State Parks
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Oahu District Land Office
- Land- Planning and Development

Enclosed please find a copy of the Engineering Division, Commission on Water Resource Management and Oahu District Land Office comments.

Based on the attached responses, the Department of Land and Natural Resources has no other comment to offer on the subject matter at this time.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at(808)587-0384 or the Oahu District Land Office at (808) 587-0433.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

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

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POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2004 LD/NAV
WAIPAHUDRAINAGE.CMT Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments.

( ) Comments attached.

Date: MAR 15 '04

Signed:

Name: MICHAEL G. BUCK, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
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BOARD OF LAND AND NATURAL RESOURCES
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March 17 2004

RECEIVED
2004 MAR 19 A 10:17
LAND DIVISION

MEMORANDUM

TO: Dierdre S. Mamiya, Administrator
Land Division

FROM: Robert M. Ing, Land Agent
Oahu District Land Office

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

COMMENTS:

A portion of the proposed drainage improvements on Waipahu Street abuts the August Ahrens School campus. Portions of the campus, specifically, TMK's (1) 9-4-059:72 & 74 are State lands. The use of any portion of these parcels for access, construction, and/or storage of equipment or machinery will require a land disposition from our office, as well as the written consent of the Department of Education.

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
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POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2004 LD/NAV
WAIPAHUDRAINAGE.CMT Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

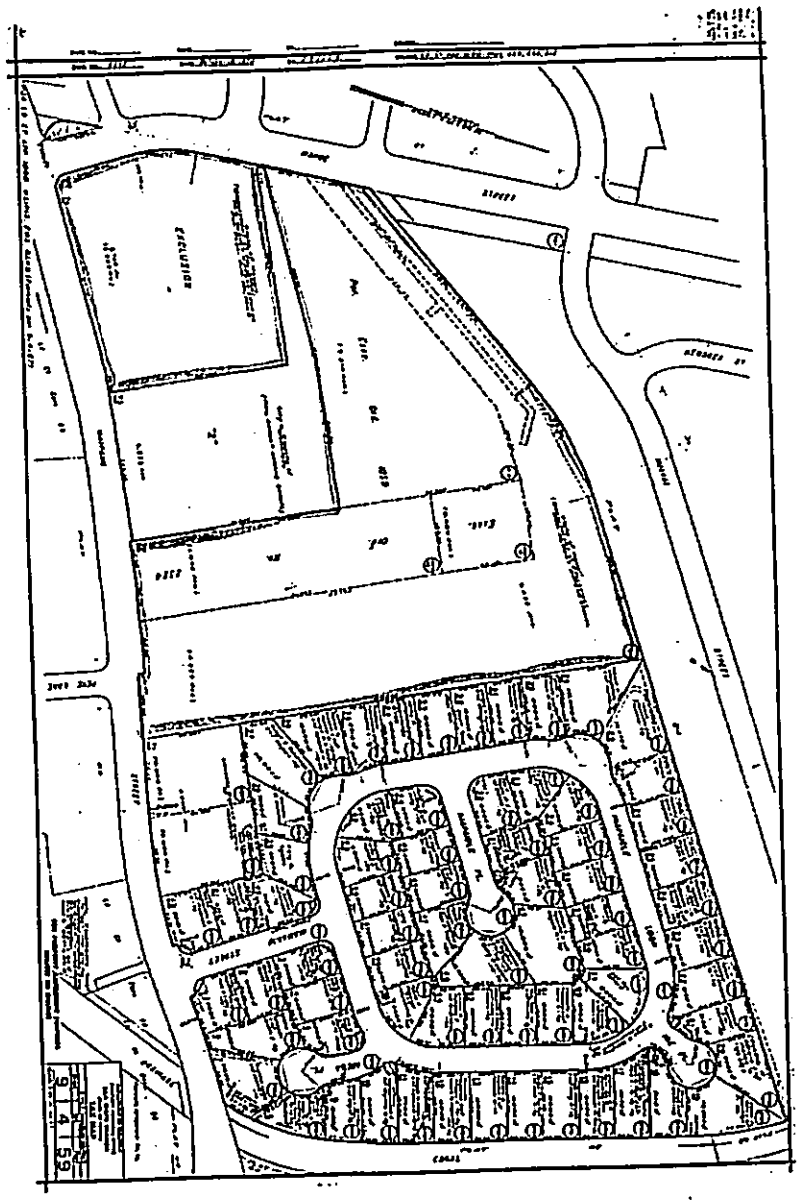
( ) We have no comments.

(✓) Comments attached.

Date: 3-17-04

Signed:

Name: Robert M. Ing



LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
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March 11, 2004 LD/NAV
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MEMORANDUM:

TO: ~~XXX Division of Aquatic Resources~~
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

RECEIVED
MAR 15 2004
AQUATIC RESOURCES

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments at this time

( ) Comments attached.

Date: 3/22/04

Signed:

Name: William S. Devick
Administrator

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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MEMORANDUM:

TO: XXX Division of Aquatic Resources
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XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Date: 3-19-04 Signed: K.C.

Name: KEITH CHUN

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
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ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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POST OFFICE BOX 621
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March 11, 2004 LD/NAV
WAIPAHUDRAINAGE.CMT Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Date: 3/24/04 Signed: Daniel S. Ornellas

Name: Daniel S. Ornellas

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
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AQUATIC RESOURCES
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March 11, 2004
WAIPAHUDRAINAGE.CMT

LD/NAV
Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&Coll DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

Date: 3/24/04

(X) Comments attached.

Signed: Eric T. Hirano

Name: ERIC T. HIRANO, CHIEF ENGINEER

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/NAV

Ref.: WAIPAHUDRAINAGE.CMT

COMMENTS

() We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone D.

() Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

() Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

() Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
() Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
() Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
() Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

() The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

() The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

() Additional Comments: _____

() Other: _____

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

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 3/24/04

APR-08-04 14:40 FROM:WATER RESOURCE MGT ID:0005070219 PAGE 1/1

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
MEREDITH J. CHING
CLAYTON W. DELA CRUZ
JAMES A. FRAZIER
CHYRONE L. FIBICH, M.D.
STEPHANIE A. WHALEN

ERNEST Y.W. LAU
ACTING DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

March 25, 2004

TO: Ms. Dierdre Mamiya, Administrator
Land Division

FROM: Ernest Y.W. Lau, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Pre-Assessment Consultation, City and County of Honolulu, Department of Design and Construction, Waipahu Street Drainage Improvements

FILE NO.: WAIPAHUDRAINAGE.CMT

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.

[ ] 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.

[ ] 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).

[x] 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 Darrel Higa at 587-0249.

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

March 11, 2004
WAIPAHUDRAINAGE.CMT

LD/NAV
Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
~~XXX Commission on Water Resource Management~~
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

(✓) Comments attached.

Date: 3/22/04

Signed: Edwin T. Sakoda

Name: Edwin T. Sakoda

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
MAR 25 2004

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

HAWAI'I HISTORIC PRESERVATION DIVISION REVIEW

MAR 23 2004

Log #: 2004.847
Doc #:0403EJ46

Applicant/Agency: Glen T. Kimura
Kimura International
Address: 1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

SUBJECT: Chapter 6E-8 Historic Preservation Review-Pre EA Comments for City & County of Honolulu, Department of Design and Construction Waipahu Street Drainage Improvements
Ahupua'a: Waipahu
District, Island: 'Ewa, O'ahu
TMK: (1) 9-4-009:various

1. We believe there are no historic properties present, because:
___ a) intensive cultivation has altered the land
__✓ b) residential development/urbanization has altered the land
___ c) previous grubbing/grading has altered the land
___ d) an acceptable archaeological assessment or inventory survey found no historic properties
__✓ e) other: There are no known historic sites within the project area. The drainage improvements will be in existing roadways except for a portion through developed private property. It is unlikely that significant historic sites would be found in this portion of Waipahu Street.

In the unlikely event that historic sites, including human burials, are uncovered during routine construction activities, all work in the vicinity must stop and the State Historic Preservation division must be contacted at 692-8015.

2. This project has already gone through the historic preservation review process, and mitigation has been completed ___.

__✓ Thus, we believe that "no historic properties will be affected" by this undertaking.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Administrator
State Historic Preservation Division

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
MAR 16 2004

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

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

In reply, please refer to
EPO-04-050

March 15, 2004

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

SUBJECT: Early Consultation Request for the Preparation of an Environmental Assessment for Waipahu Street Drainage Improvements
TMK: 1-9-004-09: various parcels

Thank you for allowing us to review and comment on the subject document. We have the enclosed standard comments to offer. If you have any questions about the standard comments please contact Ryan Davenport at 586-4346.

Sincerely,

June F. Harrigan-Lum

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Enclosures

c: CAB
EPO
SHWB
NRAIQ
CWB
WWB
HEER

Standard Comments

Environmental Planning Office Dated 3/2/04

The Environmental Planning Office (EPO) is responsible for several surface water quality management programs mandated by the federal Clean Water Act or dictated by State policy . (http://www.state.hi.us/doh/eh/epo/wqm/wqm.htm). Among these responsibilities, EPO:

- maintains the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* (http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf);
- develops and establishes Total Maximum Daily Loads (TMDLs) for listed waters (suggesting how much existing pollutant loads should be reduced in order to attain water quality standards, please see http://www.epa.gov/owow/tmdl/intro.html);
- writes TMDL Implementation Plans describing how suggested pollutant load reductions can be achieved; and
- conducts assessments of stream habitat quality and biological integrity.

To facilitate TMDL development and planning, and to assist our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses:

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (http://www.state.hi.us/doh/rules/11-54.pdf), of all potentially affected water bodies[1].

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.

3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 7 at http://www.state.hi.us/doh/eh/epo/wqm/303dpcfinal.pdf).

5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics:
   - surface permeability
   - hydrologic response of surface (timing, magnitude, and pathways)
   - receiving water hydrology
   - runoff and discharge constituents
   - pollutant concentrations and loads in receiving waters
   - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to
reducing the polluted discharge and runoff entering the receiving waters, including plans for
additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering consider the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel

modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If you have any questions about these comments or EPO programs, please contact Ryan Davenport at 586-4346.

[1]"Potentially affected waterbodies" means those in which proposed project activity would take place and any that could receive water discharged by the proposed project activity or water flowing down from the proposed project site. These waterbodies can be presented as a chain of receiving waters whose top link is at the project site upslope and whose bottom link is in the Pacific Ocean, and can be named according to conventions established by Chapter 11-54 and the *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*. For example, a recent project proposed for Nuhelewai Stream, Oahu might potentially affect Nuhelewai Stream, Kapalama Canal, and Honolulu Harbor and Shore Areas.
[OTHER EXAMPLES OR DIAGRAM??]

Solid and Hazardous Waste Branch Dated 3/2/04

1)
The OSWM recommends the development of a solid waste management plan that encompasses all project phases including demolition, construction, and occupation/operation of the completed project.

Specific examples of elements that the plan should address include:

- The recycling of green-waste during clear and grub activities;
- Recycling construction and demolition wastes, if appropriate;
- The use of locally produced compost in landscaping;
- The use of recycled content building materials;
- The provision of recycling facilities in the design of the project.

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2)
The developer shall ensure that all solid waste generated during project construction is directed to a Department of Health permitted solid waste disposal or recycling facility.

---

3)
The developer should consider providing space in the development for recycling activities. The provision of space for recycling bins for paper, glass, and food/wet waste would help to encourage the recycling of solid waste(s) generated by building occupants.

---

4)
The discussion of solid waste issues contained in the document is restricted to activities within the completed project. The OSWM recommends the development of a solid waste management plan that encompasses all project phases, from construction (and or demolition) to occupation of the project.

Specific examples of plan elements include: the recycling of green-waste during clear and grub activities; maximizing the recycling of construction and demolition wastes; the use of locally produced compost in the landscaping of the project; and the provision of recycling facilities in the design of the project.

---

5)
Hawaii Revised Statutes Chapter 103D-407 stipulates that all highway and road construction and improvement projects funded by the State or a county or roadways that are to be accepted by the State or a county as public roads shall utilize a minimum of ten per cent crushed glass aggregate as specified by the department of transportation in all base-course (treated or untreated) and sub-base when the glass is available to the quarry or contractor at a price no greater than that of the equivalent aggregate.

If you have any questions, please contact the Solid and Hazardous Waste Branch at (808) 586-4240.

Noise, Radiation & Indoor Air Quality Branch Dated 3/2/04

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-39 Air Conditioning and Ventilating.
- Chapter 11-45 Radiation Control.
- Chapter 11-46 Community Noise Control.
- Chapter 11-501 Asbestos Requirements.
- Chapter 11-502 Asbestos-Containing Materials in Schools.
- Chapter 11-503 Fees for Asbestos Removal and Certification
- Chapter 11-504 Asbestos Abatement Certification Program

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701."

Clean Water Branch Dated 3/2/04

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

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

c. Discharges of treated effluent from leaking underground storage tank remedial activities.

d. Discharges of once through cooling water less than one (1) million gallons per day.

e. Discharges of hydrotesting water.

f. Discharges of construction dewatering effluent.

g. Discharges of treated effluent from petroleum bulk stations and terminals.

h. Discharges of treated effluent from well drilling activities.

i. Discharges of treated effluent from recycled water distribution systems.

j. Discharges of storm water from a small municipal separate storm sewer system.

k. Discharges of circulation water from decorative ponds or tanks.

The CWB requires that a Notice of Intent (NOI) to be covered by a NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at http://www.state.hi.us/health/eh/cwb/forms/genl-index.html.

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

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

If you have any questions, please contact the CWB at 586-4309.

Waste Water Branch Dated 3/2/04

All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to applicable rules.

Should you have any questions, please contact the Planning & Design Section of the Wastewater Branch at 586-4294.

Clean Air Branch Dated 3/2/04

Construction/Demolition Involving Asbestos:

Since the proposed project would entail renovation/demolition activities which may involve asbestos, the applicant should contact the Asbestos Abatement Office in the Noise, Radiation and Indoor Air Quality Branch at 586-5800.

Control of Fugitive Dust:

A significant potential for fugitive dust emissions exists during all phases of construction. Proposed construction activities will occur in proximity to existing residences, businesses, public areas and thoroughfares, thereby exacerbating potential dust problems. It is recommended that a dust control management plan be developed which identifies and addresses all activities that have a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of development and construction activities is warranted.

Construction activities must comply with the provisions of Hawaii Administrative Rules, §11-60.1-33 on 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, the following:

a) Plan the different phases of construction, focusing on minimizing the amount of dust-generating materials and activities, centralizing on-site vehicular traffic routes, and locating potential dust-generating equipment in areas of the least impact;
b) Provide an adequate water source at the site prior to start-up of construction activities;
c) Landscape and provide rapid covering of bare areas, including slopes, starting from the initial grading phase;
d) Minimize dust from shoulders and access roads;
e) Provide adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and
f) Control dust from debris being hauled away from the project site.

Hazard Evaluation and Emergency Response Office(HEER) Dated 3/2/04

1. A phase I Environmental Site Assessment (ESA) should be conducted for developments or redevelopments. If the investigation shows that a release of petroleum, hazardous substance, pollutants or contaminants occurred at the site, the site should be properly characterized through an approved Hawaii State Department of Health (DOH)/Hazard Evaluation and Emergency Response Office (HEER) soil and or groundwater sampling plan. If the site is found to be contaminated, then all removal and remedial actions to clean up hazardous substance or oil releases by past and present owners/tenants must comply with chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

2. All lands formerly in the production of sugarcane should be characterized for arsenic contamination, If arsenic is detected above the US EPA Region (preliminary remediation goal (PRG) for non-cancer effects, then a removal and or remedial plan must be submitted to the Hazard Evaluation and Emergency Response (HEER) Office of the State Department of Health for approval. The plan must comply with Chapter 128D, Environmental Response Law, HRS, and Title 11, Chapter 451, HAR, State Contingency Plan.

3. If the land has a history of previous releases of petroleum, hazardous substances, pollutants, or contaminants, we recommend that the applicant request a "no further action" (NFA) letter from the Hawaii State Department of Health (DOH)/ Hazard Evaluation and Emergency Response (HEER) Office prior to the approval of the land use change or permit approval.

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

RECEIVED
MAR 16 2004

March 15, 2004

Mr. Glenn Kimura
Kimura International
1600 Kapiolani Blvd. #1610
Honolulu, HI 96814

Subject: Waipahu Street Drainage Improvements, Waipahu, Oahu

Dear Mr. Kimura,

We have reviewed the information provided for the proposed Waipahu Street Drainage Improvements. The project is located near an elementary school and residential area. Please address how you will be minimizing construction noise and traffic impacts during school hours.

We have no other comment to offer at this time, but will reserve further comments when the documents are submitted.

Should you have any questions, please feel free to call our office at 586-4185.

Sincerely,

Genevieve Salmonson

Genevieve Salmonson
Director

LINDA LINGLE
GOVERNOR

RODNEY K. HARAGA
DIRECTOR

Deputy Director
BRUCE Y. MATSUI
LINDEN H. JOESTING
BRIAN H. SEKIGUCHI

IN REPLY REFER TO:

STP 8.1066

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

MAR 30 2004

March 19, 2004

Mr. Glenn T. Kimura
President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment/Early Consultation
TMK: 1-9-4-09: various parcels

Thank you for requesting our review of the subject project.

The proposed drainage improvements that will run along roadways under the county jurisdiction will not impact our State transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

LINDA LINGLE
GOVERNOR

LILLIAN B. KOLLER, ESQ.
DIRECTOR

HENRY OLIVA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment & Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

MAR 31 2004

Refer: 04:0233

March 29, 2004

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1600
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii
Environmental Assessment
TMK 1-9-4-09: various parcels
Early Consultation

This is in response to your letter of March 09, 2004, requesting for preliminary comments on the storm drain improvements in the vicinity of August Ahrens School.

We have no preliminary comments on the construction, as we are responsible for the licensing of child care programs for ages 6 weeks to under 13 years of age on the Department of Education (DOE) sites only when DOE contracts the use of their facilities.

According to your Project Description, the planned activities do not fall under the purview of the Child Care Law, Hawaii Revised Statutes §346-151 to §346-166.

Should you have any questions regarding the Child Care Law, please contact Guy Hirata, Supervisor, at the Child Care Connection Hawaii Office II of the Benefit, Employment & Support Services Division at 675-0470.

Sincerely,

Patricia Murakami
Division Administrator

Cc: Lillian B. Koller, Esq., Director

AN EQUAL OPPORTUNITY AGENCY

BOARD OF WATER SUPPLY

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

RECEIVED
MAR 23 2004
LUSCOMB LLC

JEREMY HARRIS, Mayor

EDDIE FLORES, JR., Chairman
CHARLES A. STED, Vice-Chairman
HERBERT S.K. KAOPUA, SR.
DAROLYN H. LENDIO

RODNEY K. HARAGA, Ex-Officio
LARRY J. LEOPARDI, Ex-Officio

CLIFFORD S. JAMILE
Manager and Chief Engineer

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

March 18, 2004

Mr. Glenn T. Kimura
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Your Letter of March 9, 2004 on the Environmental Assessment for Waipahu Street Drainage Improvements, TMK: 9-4-9: Various Parcels

Thank you for the opportunity to comment on the proposed project.

The construction drawings should be submitted for our review and approval.

The construction schedule should be coordinated to minimize impact on the water system.

If you have any questions, please contact Joseph Kaakua at 748-5442.

Very truly yours,

K. Shida

for CLIFFORD S. JAMILE
Manager and Chief Engineer

Pure Water . . . our greatest need – use it wisely

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET SUITE H425 • HONOLULU, HAWAII 96819-1907
TELEPHONE: (808) 831-7700 • FAX: (808) 831-7799 • INTERNET: www.honolulufire.org

JEREMY HARRIS
Mayor

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APR 05 2004
LUSCOMB LLC

April 1, 2004

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii
Environmental Assessment
Tax Map Key: 9-4-009: Various Parcels
Early Consultation

We received your letter dated March 9, 2004, requesting our comments on the above-mentioned project.

The Honolulu Fire Department requires that the following be complied with for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.
2. Notify the Fire Communication Center at 523-4411 regarding any interruption of the existing fire hydrant system.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

Sincerely,

Attilio K. Leonardi

ATTILIO K. LEONARDI
Fire Chief

AKL/SK:bh

POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

LEE D. DONOHUE
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

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MAR 30 2004

OUR REFERENCE CS-KP

March 25, 2004

Mr. Glen T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Thank you for the opportunity to review and comment on the Environmental Assessment for the Waipahu Street Drainage Improvements project.

The project area is located in District 3, which is headquartered at 1100 Waimano Home Road in Pearl City.

Based on the information provided, we do not anticipate any significant impact on police services to the area. However, we may have concerns when more project details are known.

If there are any questions, please call Captain Stephen Kim of District 3 at 455-9055 or Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

Sincerely,

LEE D. DONOHUE
Chief of Police

By A/AC Kenneth B. Sumimoto
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

Serving and Protecting with Aloha

DEPARTMENT OF PARKS AND RECREATION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 10TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4182 • FAX: (808) 523-4142 • INTERNET: www.honolulu.gov/parks

JEREMY HARRIS
MAYOR

March 18, 2004

RECEIVED
MAR 19 2004

Mr. Glenn T. Kimura, President
Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii, 96814

Dear Mr. Kimura:

Subject: Waipahu Street Drainage Improvements Environmental Assessment
TMK 1-9-4-09 various parcels - Early Consultation

Thank you for the opportunity to review and comment on the Early Consultation Environmental Assessment relating to the Waipahu Street Drainage Improvements.

The Department of Parks and Recreation has no comments on this project.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Director

WDB:mk
(546471)

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4414 • Fax: (808) 527-6743
Web site: www.co.honolulu.hi.us

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MAR 31 2004
DEPT. OF FACILITY MAINTENANCE

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

KATHY SOKUGAWA
ACTING DEPUTY DIRECTOR

March 30, 2004

2004/ELOG-504 (df)

Mr. Glenn T. Kimura
Kimura International
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Request for Comments to Waipahu Street Drainage Improvements
Draft Environmental Assessment (Early Consultation), Waipahu
TMK: 9-4-009: Various Parcels

In response to your March 9, 2004 letter seeking preliminary comments to the subject project, we offer the following:

1. Construction plans will require a One-Time-Review from the Site Development Division. A drainage report will be required at that time.

2. A permit will be required to excavate/trench within the City's road right-of-way.

3. The drain inlet grates should be bolted down to prevent dislodging or unauthorized removal of the grates. Additionally, the slots of the grates should be oriented and/or designed in a manner that will reduce potential risk of injury to bicyclists from getting their tires caught in the openings.

If there are any questions, please contact Mr. Don Fujii of the Site Development Division at 547-7320.

Sincerely yours,

ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:ky
[287007]

DEPARTMENT OF FACILITY MAINTENANCE

CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, KAPOLEI HALE, SUITE 215, KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5654 FAX: (808) 692-5857

RECEIVED
MAR 25 2004
DEPT. OF FACILITY MAINTENANCE

JEREMY HARRIS
MAYOR

LARRY J. LEOPARDI, P.E.
DIRECTOR AND CHIEF ENGINEER

ALVIN K. C. AU
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 04-274

March 18, 2004

Mr. Glenn T. Kimura, President
Kimura International, Inc.
1600 Kapiolani Boulevard, Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Subject: **Waipahu Street Drainage Improvements**
Waipahu, Oahu, Hawaii
Environmental Assessment
TMK:1-9-4-09: Various Parcels
Early Consultation

We have reviewed the subject submittal and offer no comments.

Should you have any questions, please call Mr. Hugh Liu of the Division of Road Maintenance, at 527-5337.

Very truly yours,

LARRY LEOPARDI, P.E.
Director and Chief Engineer

verizon

Verizon Hawaii Inc.
P.O. Box 2200
Honolulu, HI 96841

March 19, 2004

Kimura International
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Attention: Glenn T. Kimura

Subject: Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii
Environmental Assessment, Early Consultation

Dear Sir:

Thank you for the opportunity to review and comment on the planned storm drainage improvements in the general vicinityof Waipahu Street near August Ahrens School. Verizon has aerial telephone facilities within the project area, along Waipahu Street, Peke Lane and Peke Place. We would like to review the detail drawings when they become available. We have no other comments at this time.

Should you have any questions, please call Garret Hayashi at 840-1438.

Sincerely,

Jill Z. Lee
Section Manager - OSP Engineering

cc: File (Waipahu)

Comments Received During the Draft EA Comment Period

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 223
FORT SHAFTER, HAWAII 96858-5440

REPLY TO ATTENTION OF: CEPOH-EC-T

August 16, 2004

Dobinchick 16
J. Pennaz, Ch
CEPOH-EC-T

cc ECR
Ramsey
200400435

ECT files

Civil Works Technical Branch

Mr. Keith Sugihara
Department of Design and Construction
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Waipahu Street Drainage Improvements Project, Oahu (TMK 9-4-9: var. parcels). 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 may be required for the activity; specifically, the portion of the proposed alignment that connects into Kahu Tract Channel - an approximately 100-foot wide channel which ultimately discharges into Pearl Harbor's Middle Loch. More detailed plans on the outline design will be needed in order to make a final determination. Please contact Ms. Connie Ramsey of our Regulatory Branch for further guidance at (808) 438-9258 and refer to file number 200400435.

b. The flood hazard information provided on page 3-5 of the DEA is correct.

Should you require additional information, please contact Ms. Jessie Dobinchick of my staff at (808) 438-8876.

Sincerely,

James Pennaz, P.E.
Chief, Civil Works
Technical Branch

TOTAL P.02

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

REPLY TO ATTENTION OF

November 19, 2004

RECEIVED
NOV 23 2004

Regulatory Branch

Leslie Kurisaki, Senior Planner
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, HI 96814

Subject: Final determination of jurisdiction for a portion of the drainage improvement project for Waipahu Street, near the August Ahrens Elementary School, Oahu, Hawaii.

Dear Ms. Kurisaki:

This office provided comments on the draft Environmental Assessment (dEA) for the above-referenced project on August 16, 2004, stating that the portion of the project that connects into Kahu Tract Channel may require a Department of the Army (DA) permit, but that additional information would be required to make a final determination.

This office has reviewed the photographs submitted from the November 8, 2004 site inspection you conducted at the Kahu Tract Channel. The photos show the approximate location of the existing drain outlet, which is obscured by vegetation and vegetative debris, and the location of the proposed thirty-six inch drain pipe, which, according to the information in the photos, will be built on top of the concrete-lined channel bank. Based on visual evidence of the approximate location of the Ordinary High Water Mark (OHWM), the proposed construction of the new outlet will not result in the discharge of dredged or fill material below the OHWM. Therefore, its construction is not subject to jurisdiction under Section 404 of the CWA, and no DA permit will be required.

This determination is valid for a period of five (5) years from the date of this letter. Should the method, scope, or location of the proposed activity be modified, your client is strongly encouraged to contact this office for a revised determination of DA jurisdiction and, if applicable, obtain the required DA authorization. Thank you for your cooperation with our regulatory program. If you have any further questions, please contact Ms. Connie Ramsey by telephone at 808-438-2039, by facsimile at 808-438-4060 or by electronic mail at Connie.L.Ramsey@usace.army.mil . Please refer to file number 200400435.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch

CF: Keith Sugihara, Dept. of Design and Construction, City & County of Honolulu

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION
BEN HENDERSON
DEPUTY TO THE CHAIRMAN
KAULANA H. PARK
EXECUTIVE ASSISTANT

DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

August 9, 2004

Ms. Rae M. Loui, Director
City and County of Honolulu
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Thank you for the opportunity to review the draft environmental assessment report for the Waipahu Street Drainage Improvements project. The Department of Hawaiian Home Lands has no comments to offer at this time.

If you have any questions, please call me at 586-3801 or call our Planning Office at 586-3836.

Aloha and mahalo,

for Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Office of Environmental Quality Control
Kimura International

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4384 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0267

December 14, 2004

Mr. Micah A. Kane, Chairperson
Hawaiian Homes Commission
Department of Hawaii Home Lands
State of Hawaii
P.O. Box 1879
Honolulu, Hawaii 96805

Dear Mr. Kane:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 9, 2004. We note you have no comments at this time.

If you have questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
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DAN DAVIDSON
DEPUTY DIRECTOR - LAND

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DEPUTY DIRECTOR - WATER

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STATE PARKS

August 16, 2004

LD-NAV

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AUG 19 2004

WAIPAHUDRAINAGEDEA.RCK2

KIMURA INTERNATIONAL
GLENN T. KIMURA, PRESIDENT
1600 KAPIOLANI BLVD, SUITE 1610
HONOLULU, HAWAII 96814

Dear Mr. Kimura:

SUBJECT: Draft Environmental Assessment for the Proposed Waipahu Street Drainage Improvement Project
Kimura International/C&CoH DDC

Thank you for the opportunity to review and comment on the subject matter

A copy of the DEA pertaining to the proposed project was transmitted or made available to the following Department of Land and Natural Resources' Divisions for their review and comment.

- Division of Forestry and Wildlife
- Engineering Division
- Commission on Water Resource Management
- Office of Conservation and Coastal Lands
- Land-Oahu District Land Office

Based on the attached responses, the Department of Land and Natural Resources has no comment to offer on the subject matter.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at (808)587-0384 or the Oahu District Land Office at (808) 587-0433.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: ODLO

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

PETER T. YOUNG
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DEPUTY DIRECTOR - WATER

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July 23, 2004
WAIPAHUDRAINAGEDEA.CMT

LD/NAV
Suspense Date: 8/09/04

MEMORANDUM:

TO:
- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- Division of State Parks
- XXX Engineering Division
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Oahu District Land Office
- Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached DEA pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no additional comments. Our previous comment (copy attached) is incorporated and attached in the Draft EA document.

( ) Comments attached.

Date: 8/6/04

Signed:

Name: ERIC T. HIRANO, CHIEF ENGINEER

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 11, 2004 LD/NAV
WAIPAHUDRAINAGE.CMT Suspense Date: 3/22/04

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
XXX Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Pre-Assessment Consultation
Waipahu Street Drainage Improvements
Kimura International/C&Coh DDC

Please review the attached letter dated March 9, 2004 (summary of project) pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at ext.: 7-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

(X) Comments attached.

Date: 3/24/04

Signed: Eric T. Hirano

Name: ERIC T. HIRANO, CHIEF ENGINEER

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LA/NAV

Ref.: WAIPAHUDRAINAGE.CMT

COMMENTS

() We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Flood Zone ___.

(X) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone D.

() Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.

() Please note that the project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

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

() Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
() Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
() Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
() Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

() The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.

() The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

() Additional Comments: _____

() Other: _____

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

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER

Date: 3/24/04

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

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04 JUL 26 A9:16

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

July 23, 2004
WAIPAHUDRAINAGEDEA.CMT

LD/NAV
Suspense Date: 8/09/04

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MEMORANDUM:

TO:
Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached DEA pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments.

( ) Comments attached.

Signed:

Date: 7/30/04

Name: GLENN R. BAUER

LINDA LINGLE
GOVERNOR OF HAWAII

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

March 17 2004

RECEIVED
AUG 19 2004

MEMORANDUM

TO: Dierdre S. Mamiya, Administrator
Land Division

FROM: Robert M. Ing, Land Agent
Oahu District Land Office

SUBJECT: Pre-Assessment Consultation
Walpahu Street Drainage Improvements
Kimura International/C&CoH DDC

COMMENTS:

A portion of the proposed drainage improvements on Waipahu Street abuts the August Ahrens School campus. Portions of the campus, specifically, TMK's (1) 9-4-059:72 & 74 are State lands. The use of any portion of these parcels for access, construction, and/or storage of equipment or machinery will require a land disposition from our office, as well as the written consent of the Department of Education.

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION
2004 JUL 27 P 3:36

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
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LAND
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July 27, 2004

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AUG 19 2004

MEMORANDUM

TO: Dierdre S. Mamiya, Administrator
Land Division

FROM: Robert M. Ing, Land Agent
Oahu District Land Office

SUBJECT: Pre-Assessment Consultation
Walpahu Street Drainage Improvements
Kimura International/C&CoH DDC

COMMENTS:

No further comment. Please refer to the attached comments submitted on March 17, 2004.

LINDA LINGLE
GOVERNOR OF HAWAII

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2004 JUL 23 P 3:36

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

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July 23, 2004
WAIPAHUDRAINAGEDEA.CMT

LD/NAV
Suspense Date: 8/09/04

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MEMORANDUM:

TO: Division of Aquatic Resources
XXX Division of Forestry & Wildlife
Division of State Parks
XXX Engineering Division
Division of Boating and Ocean Recreation
XXX Commission on Water Resource Management
XXX Office of Conservation and Coastal Lands
XXX Oahu District Land Office
Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached DEA pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments.

( ) Comments attached.

Date: JUL 26 2004

Signed:

Name: PAUL J. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

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

July 23, 2004
WAIPAHUDRAINAGEDEA.CMT

LD/NAV
Suspense Date: 8/09/04

RECEIVED
AUG 19 2004

MEMORANDUM:

TO:
- Division of Aquatic Resources
- XXX Division of Forestry & Wildlife
- Division of State Parks
- XXX Engineering Division
- Division of Boating and Ocean Recreation
- XXX Commission on Water Resource Management
- XXX Office of Conservation and Coastal Lands
- XXX Oahu District Land Office
- Land-Planning and Development

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Draft Environmental Assessment (DEA)
Waipahu Street Drainage Improvements
Kimura International/C&CoH DDC

Please review the attached DEA pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

Should you have any questions, please contact Nick Vaccaro at 587-0384.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.

(✓) Comments attached.

Signed:

Date: 7/27/04

Name: Robert m. Ing

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

DEC 13 2004

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0265

December 10, 2004

Ms. Dierdre S. Mamiya, Administrator
Land Division
Department of Land and Natural Resources
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Mamiya:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 16, 2004, which summarizes a review by the Division of Forestry and Wildlife, Engineering Division, Commission on Water Resource Management, Office of Conservation and Coastal Lands, and the Land Office. We acknowledge that the Department of Land and Natural Resources has no additional comments to offer on the project.

If you have any questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

RECEIVED
AUG 05 2004

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

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

ERNEST Y.W. LAU
DEPUTY DIRECTOR - WATER

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

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

HAWAI'I HISTORIC PRESERVATION
DIVISION REVIEW

AUG - 4 2004

Log #: 2004.2313
Doc #:0407EJ20

Applicant/Agency: Keith Sugihara
City and County of Honolulu
Address: Department of Design and Construction
650 S. King Street
Honolulu, Hawaii 96813

SUBJECT: Chapter 6E-8 Historic Preservation Review-Draft EA City & County of Honolulu, Department of Design and Construction Waipahu Street Drainage Improvements
Ahupua'a: Waipahu
District, Island: 'Ewa, O'ahu
TMK: (1) 9-4-009:various

1. ____ This project has not gone through the historic preservation review process. Please submit documentation _____

2. ✓ This project has already gone through the historic preservation preview process.
____ a. mitigation has been completed
____ b. other We provided comment during the pre-EA phase. Our complete comments that we believe that it is unlikely that significant historic sites would be found in this portion of Waipahu Street are included in the DEA (SHPD Log 2004.847/Doc 0403EJ46)

3. ____ We have not been consulted on this undertaking, however we believe there are no historic properties present, because:
____ a) intensive cultivation has altered the land
____ b) residential development/urbanization has altered the land
____ c) previous grubbing/grading has altered the land
____ d) an acceptable archaeological assessment or inventory survey found no historic properties
____ e) other:

✓ Thus, we believe that "no historic properties will be affected" by this undertaking.

Aloha,

P. Holly McEldowney

P. Holly McEldowney, Administrator
State Historic Preservation Division

C: Glen T. Kimura, Kimura International 1600 Kapiolani Blvd., Suite 1610, Honolulu, Hawaii 96814

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4566 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.hcasha.gov

RECEIVED
DEC 16 2004

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0272

December 14, 2004

Ms. P. Holly McEldowney, Administrator
State Historic Preservation Division
Department of Land and Natural Resources
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawaii 96707

Dear Ms. McEldowney:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your comments dated August 4, 2004. As stated in your written comments during the pre-EA stage, it is unlikely that significant historic sites will be found in this portion of Waipahu Street. We acknowledge the SHPD's determination that "no historic properties will be affected" by this undertaking.

If you have questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

RECEIVED
AUG 18 2004

OFFICE OF BUSINESS SERVICES

August 17, 2004

Mr. Keith Sugihara
City and County of Honolulu
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Subject: Draft Environmental Assessment for
Waipahu Street Drainage Improvements, Waipahu, Oahu

The Department of Education (DOE) has reviewed the Draft Environmental Assessment (DEA) for improvements to the drainage in the area surrounding August Ahrens Elementary School (Ahrens). The DOE welcomes the improvements to the inadequate storm drainage system.

The DOE requests that as the project proceeds, Florentina Smith, Principal of Ahrens, be kept fully informed of when parking and passenger pick-up and drop-off will be forced to change due to construction. Ms. Smith should also be informed in advance when police officers or traffic flagmen will be rerouting traffic. Since the work will be done so close to the school and there will be extreme noise and dust, it would be good to schedule work when school is not in session. The principal will be able to handle disturbances best if she is notified as far in advance as possible.

If you have any questions, please call me at 586-3444 or Heidi Meeker of the Facilities and Support Services Branch at 733-4862.

Sincerely,

Rae M. Loui
Assistant Superintendent

RML:mp

c: Karen Moriyama, CAS, Nanakuli/Pearl City/Waipahu Complex Area
Florentina Smith, Principal, August Ahrens
Genevieve Salmonson, Director, Office of Environmental Quality Control
Glenn Kimura, Kimura International, Inc.

AN AFFIRMATIVE ACTION AND EQUAL OPPORTUNITY EMPLOYER

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

RECEIVED
JAN 22 2005

MUFI HANNEMANN
MAYOR

TIMOTHY E. STEINBERGER, P.E.
ACTING DIRECTOR

WAYNE M. HASHIRO, P.E.
DEPUTY DIRECTOR

CDD-A 05-0008

January 21, 2005

Ms. Rae M. Loui
Assistant Superintendent
State Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Dear Ms. Loui:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
(TMK: 11-9-4-09: Various Parcels)
Your Letter dated August 17, 2004

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. As requested in your August 17, 2004 letter, Ms. Florentina Smith, principal of August Ahrens Elementary School, will be kept fully informed of construction work that could affect school parking and pick-up/drop-off areas. Ms. Smith will also be informed in advance of proposed traffic rerouting.

We will consider your suggestion to schedule work when school is not in session. However, the project schedule will also depend on funding availability and contractual requirements.

We appreciate your input. If you have questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

for TIMOTHY E. STEINBERGER, P.E.
Acting Director

KS:FK:pto
cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

RECEIVED
AUG 24 2004

August 23, 2004

Mr. Keith Sugihara
Department of Design and Construction – City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Ms. Leslie Kurisaki
Kimura International, Inc.
1600 Kapi'olani Boulevard, Suite 1610
Honolulu, Hawai'i 96814

Dear Mr. Sugihara and Ms. Kurisaki:

The Office of Environmental Quality Control (OEQC) has reviewed the draft environmental assessment (DEA) entitled "Waipahu Street Drainage Improvements," Tax Map Keys No. 9-4-9, various parcels, situated in the judicial district of 'Ewa. OEQC offers the following comments for your consideration and response.

1. Landscaping with native plants, photographs of proposed site: To the extent possible around the proposed structure, we recommend the use of native xerophagic plants in landscaping. We also request that photographs of the site where the proposed structures are to be placed be included in the final environmental assessment.

Thank you for the opportunity to comment. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4384 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

RECEIVED
DEC 13 2004

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0261

December 10, 2004

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

Dear Ms. Salmonson:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 23, 2004. We acknowledge your recommendation to use native xerophagic plants in landscaping to the extent possible.

As requested, photographs of the site where the proposed structures are to be placed will be included in the Final EA.

If you have any questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR

LILLIAN B. KOLLER, ESQ.
DIRECTOR

HENRY OLIVA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF HUMAN SERVICES
Benefit, Employment and Support Services Division
820 Mililani Street, Suite 606
Honolulu, Hawaii 96813

RECEIVED
AUG 31 2004

August 23, 2004

Refer to: 04:0677

Mr. Keith Sugihara
City and County of Honolulu
Department of Design and Construction
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Thank you for your letter of July 21, 2004. The Director of the Department of Human Services (DHS) has forwarded your letter to me for a response.

We currently have a licensed child care facility on the campus of August Ahrens Elementary School located in the back of the campus (away from the project area). August Ahrens Head Start is licensed for 24 children, ages 2.8 years to under 6 years, and is in operation from 7:00 a.m. to 5:00 p.m. Our concern is for the safety of the children and it appears the proposed construction will not have any effect on the operations of the preschool. We are confident that the contractor will make every effort to ensure the safety of the children who attend August Ahrens.

Should you have any questions or concerns, please contact Guy Hirata, Supervisor of the Child Care Connection Hawaii Office 2, of the Benefit, Employment & Support Services Division, at 675-0470.

Sincerely,

Patricia Murakami
Division Administrator

c: Lillian B. Koller, Esq., Director
OEQC
Kimura International

AN EQUAL OPPORTUNITY AGENCY

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

RECEIVED
DEC 16 2004

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0266

December 16, 2004

Ms. Patricia Murakami, Director
Department of Human Services
State of Hawaii
P.O. Box 339
Honolulu, Hawaii 96809-0339

Dear Ms. Chandler:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 23, 2004. We note your concern for the safety of children attending August Ahrens Elementary School. The contractor will be informed to provide for the safety of the school's children during construction.

If you have any questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

LINDA LINGLE
GOVERNOR

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

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BRUCE Y. MATSUI
LINDEN H. JOESTING
BRIAN N. SEKIGUCHI

IN REPLY REFER TO:

STP 8.1269

August 2, 2004

RECEIVED
AUG 13 2004

Mr. Keith Sugihara
Department of Design and Construction
City and County of Honolulu
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment (DEA)
TMK: 1-9-4-09: various parcels

Thank you for requesting our review of the subject project.

The proposed drainage improvements are under the City and County of Honolulu jurisdiction and will not impact our State transportation facilities.

We appreciate the opportunity to provide comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

c: Genevieve Salmonson, Office of Environmental Quality Control
Leslie Kurisaki, Kimura International

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

RECEIVED
DEC 13 2004

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0262

December 10, 2004

Mr. Rodney Haraga, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Haraga:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 2, 2004. We note your comments that the project will not impact any State transportation facilities.

If you have any questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

PHONE (808) 594-1888

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPIOLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

FAX (808) 594-1865

SEP 02 2004

HRD04/1312B

August 23, 2004

City and County of Honolulu
Department of Design and Construction
630 South Beretania Street
Honolulu, Hawai'i 96843
Contact: Mr. Keith Sugihara Phone: (808) 527-5896

RE: Draft Environmental Assessment, Waipahu Street Drainage Improvements, TMK: 1-9-4-09: various parcels

Aloha,

The Office of Hawaiian Affairs (OHA) is in receipt of your July 21, 2004 letter and appreciates the opportunity to offer comments on the above project.

We would like to note that recent redevelopment of the long "disturbed" urban core of Honolulu has resulted in repeated discovery of remains. Therefore we concur with the recommendation of the State Historic Preservation Division that if iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Dr. Jonathan Likeke Scheuer at 594-1946 or e-mail him at jonathans@oha.org.

Sincerely,

Clyde W. Nāmu'o
Administrator

CC: Office of Environmental Quality Control
State Office Tower
235 South Beretania Street, Suite 702
Honolulu, Hawai'i 96813

✓ Kimura International
1600 Kapiolani Blvd. Ste. 1610
Honolulu, Hawai'i 96814
Contact: Leslie Kurisaki

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0273

December 15, 2004

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

Dear Mr. Namu'o:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 23, 2004. We acknowledge your comment about previous discovery of human remains in the urban core of Honolulu. We reiterate that if any remains or cultural deposits are found during construction, work will cease and the appropriate agencies will be contacted.

If you have questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

DEPARTMENT OF PLANNING AND PERMITTING

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4414 • Fax: (808) 527-6743
Web site: www.honolulu.gov

RECEIVED
AUG 27 2004

JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2004/ELOG-1660 (df)

August 25, 2004

MEMORANDUM

TO: TIMOTHY STEINBERGER, PE, DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: for ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR WAIPAHU STREET DRAINAGE IMPROVEMENTS, WAIPAHU
TAX MAP KEY: 9-4-009: VARIOUS PARCELS

In response to Kimura International's July 21, 2004 letter requesting comments to the subject draft environmental assessment, we offer the following:

1. Table 1: a) A permit will be required to excavate/trench within the City's right-of-way. The Department of Design and Construction shall submit construction plans, including traffic control plans to the Site Development Division for One-Time-Review. b) Why is a grading permit required?

2. Page 3-3, Fifth Paragraph: Drainage improvements shall also be designed in accordance with the "Rules Relating to Storm Drainage Standards" dated January 2000.

3. Section 3.1.5 (Hydrology – Ground Water): Will dewatering be required? Please explain. Also, this section should state that the Kahu Tract Channel will not be adversely affected by the proposed project.

4. Section 3.4.2 (Potential Impacts and Mitigation): Our department's Traffic Review Branch reviews Traffic Control Plans.

If there are any questions, please have your staff contact Mr. Don Fujii of the Site Development Division at Extension 7320.

EGC:ky
[316837]

cc: Office of Environmental Quality Control
✓Kimura International

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0253

December 9, 2004

MEMORANDUM

TO: MR. ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your memo dated August 25, 2004, and offer the following responses to your comments:

1. Table 1: (a) Your comments will be incorporated, and (b) a grading permit may be required if swale work along the side of the roadway exceeds 50 yards of excavation.

2. Page 3-3, Fifth Paragraph: Drainage improvements will be designed in accordance with the Rules Relating to Storm Drainage Standards dated January 2000.

3. Section 3.1.5, Hydrology–Ground Water: Dewatering is not anticipated. The Final EA will state that the Kahu Tract Channel will not be adversely affected by the proposed project.

4. Section 3.4.2, Potential Impacts and Mitigation: The Final EA will note that DPP's Traffic Review Branch reviews Traffic Control Plans.

If you have any questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

BOARD OF WATER SUPPLY

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

July 29, 2004

Mr. Keith Sugihara
City and County of Honolulu
Department of Design and Construction
650. South King Street
Honolulu, Hawaii 96813

Dear Mr. Sugihara:

Subject: The Draft Environmental Assessment for the Waipahu Street Drainage Improvements, TMK: 9-4-9: Various

Thank you for the opportunity to comment on the subject document.

Our comments of March 18, 2004, which are included in the document are still applicable.

If you have any questions, please contact Joseph Kuakua at 748-5442.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Office of Environmental Quality Control
Kimura International

Pure Water . . . our greatest need – use it wisely

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0251

December 8, 2004

MEMORANDUM

TO: MR. CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER
BOARD OF WATER SUPPLY

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your memo dated July 29, 2004, referencing your earlier comments of March 18, 2004.

If you have any questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7781 • FAX: (808) 831-7750 • INTERNET: www.honolulu.fire.org

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

RECEIVED
AUG 16 2004

August 12, 2004

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTENTION: KEITH SUGIHARA, CIVIL ENGINEER
CIVIL DESIGN, SECTION A

FROM: JOHN CLARK, ACTING FIRE CHIEF

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
WAIPAHU STREET DRAINAGE IMPROVEMENTS
WAIPAHU, OAHU, HAWAII
TAX MAP KEYS: 9-4-009: VARIOUS PARCELS

We received a letter dated July 21, 2004, from Mr. Glenn Kimura of Kimura International Inc. requesting our review and comments on the above-mentioned DEA.

The Honolulu Fire Department requires that the following be complied with for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.
2. Notify the Fire Communication Center at 523-4411 regarding any interruption of the existing fire hydrant system.

Should you have any questions, please call Battalion Chief Lloyd Rogers of our Fire Prevention Bureau at 831-7778.

JOHN CLARK
Acting Fire Chief

JC/SK:bh

cc: Genevieve Salmonson, Director, Office of Environmental Quality Control
Leslie Kurisaki, Kimura International Inc.

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4566 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

RECEIVED
DEC 13 2004

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0252

December 8, 2004

MEMORANDUM

TO: MR. JOHN CLARK, ACTING FIRE CHIEF
HONOLULU FIRE DEPARTMENT

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your memo dated August 12, 2004. The project will comply with the following for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.
2. Notify the Fire Communication Center regarding any interruption of the existing fire hydrant system.

If you have any questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU
801 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96813 - AREA CODE (808) 529-3111
http://www.honolulupd.org
www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

GLEN R. KAJIYAMA
ACTING CHIEF

PAUL D. PUTZULU
DEPUTY CHIEF

OUR REFERENCE CS-KP

August 5, 2004

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTENTION: KEITH SUGIHARA, CIVIL ENGINEER V

FROM: GLEN R. KAJIYAMA, ACTING CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR THE WAIPAHU STREET DRAINAGE IMPROVEMENTS, TMK: 1-9-4-09: VARIOUS PARCELS

Thank you for the opportunity to review and comment on the subject project.

In spite of the construction-related mitigation measures stated in the document, complaints relative to traffic, dust, fumes, and noise are inevitable and will have a temporary impact on calls for police service to the area.

If there are any questions, please call Captain Randal Macadangdang of District 3 at 455-9055 or Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

GLEN R. KAJIYAMA
Acting Chief of Police

By
DANIEL HANAGAMI
Acting Assistant Chief of Police
Support Services Bureau

cc: Ms. Genevieve Salmonson (OEQC)
Ms. Leslie Kurisaki (Kimura International, Inc.)

Serving and Protecting with Aloha

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4384 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

RECEIVED
DEC 13 2004

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0259

December 9, 2004

MEMORANDUM

TO: BOISSE CORREA, CHIEF
HONOLULU POLICE DEPARTMENT

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We received comments from Acting Chief Glen R. Kajiyama dated August 5, 2004. We acknowledge the Police Department's comment that complaints regarding traffic, dust, fumes, and noise are inevitable, and will have a temporary impact on calls for police service to the area. As stated previously, all efforts will be made to minimize construction period impacts on the surrounding neighborhood.

If you have any questions or additional comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

DEPARTMENT OF FACILITY MAINTENANCE
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 215, KAPOLEI, HAWAII 96707
TELEPHONE : (808) 692-5054 FAX: (808) 692-5057

JEREMY HARRIS
MAYOR

LARRY J. LEOPARDI, P.E.
DIRECTOR AND CHIEF ENGINEER

ALVIN K. C. AU
DEPUTY DIRECTOR

IN REPLY REFER TO:
DRM 04-724

August 23, 2004

MEMORANDUM

TO TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

ATTENTION: KEITH SUGIHARA

FROM: LARRY LEOPARDI, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

SUBJECT: WAIPAHU STREET DRAINAGE IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

Thank you for the opportunity to review and comment on the DEA for the subject project.

Our only comment regarding the project at this time concerns the drainage easement through private property, TMK: 9-4-9:151, between the end of Peke Place and the Kahu Tract Channel. This easement contains an existing 18-inch drain line transporting storm water runoff from a catch basin at the end of Peke Place to the channel.

The DEA indicates that a new 36-inch drain line within this easement will replace the existing drain line. It is our understanding that the existing drainage easement is privately owned and was never granted to the City. The DEA should specify that the easement will be acquired by the City for drainage purposes and shall be of sufficient width to repair and maintain the proposed larger drain line.

Should you have any questions, please call Charles Pignataro of our Division of Road Maintenance, at 484-7697.

cc: Kimura International

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0250

December 8, 2004

MEMORANDUM

TO: MR. LARRY J. LEOPARDI, P.E., DIRECTOR AND CHIEF ENGINEER
DEPARTMENT OF FACILITY MAINTENANCE

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your memo dated August 25, 2004, regarding the drainage easement between the end of Peke Place and Kahu Tract Channel. You note that this easement, which is on private property, is privately owned and was never granted to the City. The Final EA will specify that the easement will be acquired by the City for drainage purposes and shall be of sufficient width to repair and maintain the proposed larger drain line.

If you have any questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

WAIPAHU NEIGHBORHOOD BOARD NO. 22

c/o NEIGHBORHOOD COMMISSION • 530 SOUTH KING STREET, ROOM 400 • HONOLULU, HAWAII 96813
PHONE: (808) 527-5748 • FAX: (808) 527-5160 • INTERNET: www.co.honolulu.hi.us

19 August 2004

Kimura International
1600 Kapiolani Blvd, Suite 1610
Honolulu, Hawaii 96814

City and County of Honolulu
Department of Design & Construction
650 South King Street
Honolulu, Hawaii 96813

Gentlemen:

I have completed review of the Draft Environmental Assessment (DEA) for the Waipahu Street Drainage Improvement Project and a review of earlier documents that became the foundation for this particular review. The concerns of residents in the August Ahrens Area of Waipahu have been addressed, albeit relief from storm damage remains well into the future.

Members of Waipahu Neighborhood Board No. 22 have witnessed a film presentation of problems in the August Ahrens Residential Community during heavy rains and are appreciative the problem solution is in the making.

Thank you for including our Neighborhood Board in the review process.

Sincerely,

C.O. "Andy" Anderson

C. O. "Andy" Anderson, Chair

Cc: Councilmember Nestor Garcia,
State Representative Alex Sonson,
Director, Office of Environmental Quality Control,
Waipahu Community Association

Oahu's Neighborhood Board System - Established 1973

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4566 • FAX: (808) 523-4567
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JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0271

December 16, 2004

Mr. C. O. "Andy" Anderson, Chair
Waipahu Neighborhood Board No. 22
c/o Neighborhood Commission
530 South King Street, Room 400
Honolulu, Hawaii 96813

Dear Mr. Anderson:

Subject: Waipahu Street Drainage Improvements
Draft Environmental Assessment
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated August 19, 2004. We acknowledge your comments that the concerns of residents in the August Ahrens area of Waipahu have been addressed, and appreciate your support of the project.

If you have questions or further comments, please contact Mr. Keith Sugihara at 527-5896.

Very truly yours,

TIMOTHY E. STEINBERGER, P.E.
Director

KS:FK:pto

cc: Kimura International, Inc.

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

WILLIAM D. BALFOUR, JR.
DIRECTOR

EDWARD T. "SKIPPY" DIAZ
DEPUTY DIRECTOR

RECEIVED
AUG 0 2 2004
OEQC

July 28, 2004

Mr. Glenn Kimura
Kimura International, Inc.
1600 Kapiolani Blvd., Suite 1610
Honolulu, Hawaii 96814

Dear Mr. Kimura:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Waipahu Street Drainage Improvements.

The Department of Parks and Recreation has no comment on this project.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Director

WDB:mk
(70041)

cc: Office of Environmental Quality Control

RECEIVED
AUG 19 2004
OEQC

August 17, 2004

TO: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT
WAIPAHU STREET DRAINAGE IMPROVEMENTS

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Waipahu Street Drainage Improvements.

The Department of Parks and Recreation has no comments on this project.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Director

WDB:mk
(72198)

cc: Director, Office of Environmental Quality Control
Leslie Kurisaki, Kimura International

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564 • FAX: (808) 523-4567
WEB SITE ADDRESS: www.honolulu.gov

JEREMY HARRIS
MAYOR

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

CDD-A 04-0258

December 9, 2004

MEMORANDUM

TO: MR. WILLIAM D. BALFOUR, JR., DIRECTOR
DEPARTMENT OF PARKS AND RECREATION

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR
DEPARTMENT OF DESIGN AND CONSTRUCTION

SUBJECT: WAIPAHU STREET DRAIN IMPROVEMENTS
DRAFT ENVIRONMENTAL ASSESSMENT (EA)
TMK: 9-4-09

Thank you for your review of the Waipahu Street Drainage Improvements Draft EA. We have received your letter dated July 28, 2004, stating that your department has no comments on this project.

If you have any questions or comments, please contact Mr. Keith Sugihara at 527-5896.

KS:FK:pto

cc: Kimura International, Inc.

Appendix A

Subsurface Investigation Report
Waipahu Street Drainage Improvements

Fewell Geotechnical Engineering, Ltd.
December 18, 2003

FEWELL
GEOTECHNICAL
ENGINEERING, LTD.

Oahu Office
99-1418 Iwaena Place
Pearl City, Hawaii 96782-1973
(808) 455-6569
FAX (808) 456-7062
E-mail: fge@lava.net

Maui Office
363 Papa Place, Suite 107
Kahului, Hawaii 96732-2464
(808) 873-0110
FAX (808) 873-0155

SUBSURFACE INVESTIGATION REPORT

WAIPAHU STREET
DRAINAGE IMPROVEMENTS
WAIPAHU, OAHU, HAWAII

for

HAWAII PACIFIC ENGINEERS, INC.

by

FEWELL GEOTECHNICAL ENGINEERING, LTD.

DECEMBER 18, 2003

FEWELL
GEOTECHNICAL
ENGINEERING, LTD.

File 2381.01
December 18, 2003

Hawaii Pacific Engineers, Inc.
1132 Bishop Street, Suite 1003
Honolulu, Hawaii 96813-2830

Attention: Mr. Lester Fukuda
Principal Engineer

Subject: **Subsurface Investigation Report**
Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii

We have completed a subsurface investigation for the alignment of the proposed Waipahu Street Drainage Improvements in Waipahu, Oahu, Hawaii. This report summarizes our findings and conclusions, and presents geotechnical recommendations for the design and construction of the new improvements.

Project Considerations – The November 21, 2003 Preliminary Plans by Hawaii Pacific Engineers, Inc. (HPE) indicate that new drain lines and drainage structures will be installed along Waipahu Street, Peke Lane and Peke Place in Waipahu, Hawaii. The general area of the improvements is shown on the attached Project Location Map, Figure 1.

The section of Waipahu Street where the new improvements start is aligned in a general east-west direction and is immediately south of the August Ahrens School. The new lines will be installed along the northern shoulder of Waipahu Street, turn south down Peke Lane, and then east along Peke Place, terminating in the Kahu Tract Channel near the end of Peke Place. The last 75 feet of the drain line will pass through an easement within Lot 165, and adjacent to Lot 164, both lots are between the channel and the end of Peke Place. The general alignment of the new drain lines and their appurtenant structures are shown on the attached Site and Boring Location Plan, Figure 2.

Waipahu Street is a busy 2-lane street, which appears to be a major collector for the subdivisions in this area and the adjacent areas of Waipahu. Wide shoulders are included on its northern side with asphalt concrete sidewalks and large trees on its southern side. Peke Lane and Peke Place are narrow residential streets with the lots immediately adjacent to the road right-of-ways. Peke Street has relatively wide shoulders of about 7 to 8 feet beyond the travel lanes but has no sidewalks, curbs, or gutters. Peke Place appears more recently constructed with concrete curbs, gutters, and sidewalks along the sides of the travel lanes.

The residents along both Peke Lane and Peke Place have constructed fences, fence walls, and some retaining walls along their property lines at the edge of the streets and have landscaped their lots. Similar improvements are on both sides of the easement between the

end of Peke Place and the Kahu Tract Channel. A retaining wall has been constructed along the property line of Lot 164, on the eastern side of the easement, and the dwelling on Lot 165 is within approximately 10 feet of the easement.

The Kahu Tract Channel at the end of the drain line is a concrete-lined trapezoidal channel with side slopes estimated at between 1.5 Horizontal to 1.0 Vertical (1.5H:1V) and 2H:1V. The bottom of the channel is about 12 feet wide and about 8 feet below the adjacent grade. The area along the top of the channel slope includes cleared vegetation and debris. Vegetable gardens, likely cultivated by the owners of the adjacent properties, are also in scattered locations along the top of the channel.

Waipahu Street is relatively level along the section where the drain lines are proposed, with ground surface elevations between about Elev. 50 and Elev. 46. Peke Lane slopes down toward the south at a slope estimated at about 5 percent with a low point at approximately Elev. 35 near the intersection of Peke Lane and Peke Place. Peke Place slopes up toward the east at the intersection of Peke Lane and Peke Place to a high point at about Elev. 39 about midway along its length, and then slopes back down to about Elev. 35 toward the end of the street.

The ground surface within the drainage easement continues to slope down to approximately Elev. 25 at the property line between the channel easement and the residence near top of the drainage channel. The ground between the channel and the residential lot slopes down to about Elev. 23 near the top of the channel wall. The bottom of the drainage channel is estimated at about Elev. 15. Total relief over the length of the drain lines is about 25 feet from Waipahu Street down to the top of the drainage channel.

A utility search prior to the subsurface exploration indicates that there are underground utilities, including drain and sewer lines, beneath the streets. Overhead telephone and electrical lines are on the northern side of Waipahu Street, the eastern side of Peke Lane and on the southern side of Peke Place. An 18-inch diameter drain line is buried within the drainage easement between the end of Peke Place and the Kahu Tract Channel, and a 15-inch diameter trunk sewer line is within the western bank of the Kahu Tract Channel. The 1965 construction plans provided by HPE indicate that the invert of the sewer line is at about Elev. 18.4 and the top of the pipe is at about Elev. 19.6 where it passes below the existing drain line within the drainage easement.

The preliminary plans indicate that the new drain lines will total about 915 feet in length. Although the sizes of the pipes have not been finalized, we understand that they will likely vary from 18 to 36 inches in diameter. The lengths and anticipated diameters of each section are summarized below:

Street or Location	Drain Line Diameter in Inches	Approximate Length of line in Feet
Waipahu Street	18	295
Peke Lane	30	280
Peke Place	36	265
Property Easement	36	75
	Total:	915

Other than the general alignment, the profiles for the new drainage improvements have not been developed at this time. It is anticipated that the depth of the invert of the drain line at its outlet to the channel will be restricted somewhat by the existing sewer line below the bank. We have assumed that the depth of the drain line where it crosses the sewer line will be at least 18 inches above the top of the sewer line, and that the lines along Waipahu Street and Peke Lane will be relatively shallow at depths of less than 7 feet. It is anticipated that the depth of the line through the high point of Peke Place may approach depths of 10 feet. Other than the excavation and backfill to install the lines, no grading is anticipated along the alignment of the new drain lines.

Subsurface Investigation – A total of 4 test borings were drilled during the period of November 10 through November 13, 2003 at the approximate locations shown on the attached Site and Boring Location Plan, Figure 2. The borings were extended to depths of 9 to 25 feet below the existing ground surface. Three borings were drilled with a truck-mounted Mobile B-53 drilling rig advancing 4-inch diameter continuous flight augers. A portable Concore drilling rig was used to drill the boring adjacent to the Kahu Tract Channel, due to the lack of truck access.

Relatively undisturbed samples of the subsurface soils were obtained with 3.0-inch O.D. split-spoon sampler driven by a 140-pound hammer falling 30 inches. The number of blows required to advance the sampler the final 12 inches into the soil was recorded and is included on the attached Boring Logs, Figures 3 through 6. A Boring Log Legend is included as Figure 7.

Laboratory tests were completed on selected subsurface samples to determine their pertinent engineering characteristics including in-situ moisture content, dry density, expansion and consolidation. Shear tests were completed on selected samples of the subsurface soils. Atterberg Limits tests were performed on representative samples to aid in their classification. The results of the laboratory tests are shown on the Boring Logs where appropriate, with selected tests graphically exhibited in Figures 8 through 10. The laboratory test results are summarized in the attached Table I.

General Subsurface Conditions – The test borings revealed that the alignment of the new drain lines and their appurtenant structures is generally underlain by a surface mantle of fill, followed by relatively competent alluvial (water-deposited) clays and silts with varying amounts of sand and gravel. The alluvium extended to the bottom of Borings 1, 2 and 4 at depths of 9 to 25 feet below the existing ground surface.

The alluvium in the area of Boring 3 extended to a depth of 10.5 feet below the existing ground surface, at which point a lagoonal (still-water) deposit of highly organic silt with decayed organics was encountered. The lagoon deposit extended to the bottom of the boring at a depth of 25 feet, although the last 3 feet of the deposit graded to a medium stiff to stiff, gray clayey silt with fine sand.

Boring 2, which was drilled in Peke Place encountered a pavement section consisting of 2 inches of Asphalt Concrete Paving (ACP) over about 22 inches of medium dense to dense silty coral and basalt gravel-sized aggregate, classified as GM under the Unified Soil Classification (USC). The fill beneath the pavement in Boring 2 and at the surface in the other borings consists of very stiff to hard, highly plastic silts and clays designated as CH and MH under the USC. The fills generally appear compacted.

The alluvium beneath the fills consists of highly plastic silts and low plasticity clays designated as MH, CL and ML-CL under the USC. They exhibit very stiff to hard consistencies, and moderate to high in-situ densities and moisture contents. Below a depth of about 10 feet the alluvial soils exhibit relatively high moisture contents with correspondingly lower densities. Laboratory tests indicate that the alluvial silts and clays exhibit low expansion under their in-situ moisture contents, and low to moderate shear strengths, with friction angles ranging from 15 to 24 degrees for the soils above 10 feet.

The alluvium extended to the bottom of all of the borings except for Boring 3, where it extends to a depth of 10.5 feet below the existing ground surface, or to about Elev. 13. The alluvium is underlain by a soft highly organic silt with decayed organics, which is designated as OH under the USC.

The organic soils exhibit extraordinarily high moisture contents of 313 to 414 percent and low in-situ dry densities of 12 to 16 pounds per cubic foot (p.c.f.). The soils possess low shear strengths and are highly compressible. A consolidation test performed on one of the samples of this soil exhibited a compression index of 51 percent per cycle with a preconsolidation pressure slightly above its overburden pressure. The soils appear to be normally consolidated.

Groundwater – Groundwater was encountered in Boring 3 at a depth of 20 feet, which corresponds to about Elev. 3, based on the topographic information provided by HPE. Groundwater was not encountered in any of the other borings, although the moisture contents of the soils appear to increase with increasing depth below about 10 feet of the existing ground surface.

Discussion and Recommendations – We believe that the alignment of the proposed drainage improvements can be adequately developed to support the proposed drain lines and their related structures provided the recommendations of this report are followed. However, the close proximity of the existing structures to the alignment of the drain line will likely necessitate some special considerations in the design and construction of the improvements, and subsequently higher than normal costs.

The highly compressible organic soils found in the vicinity of the Kahu Tract Channel can adversely affect the new drainage improvements. Due to their limited extent and depth, however, their impact on the new construction will likely be minimal, depending on the inverts of the drain lines and structures. These soils and their potential impact on the new construction are addressed separately at the end of this section.

The investigation has revealed that except for the area of the Kahu Tract Channel, the alignment of the new improvements is generally underlain by relatively competent alluvial silts and clays, which should provide adequate support for the proposed structures and provide an acceptable backfill once lines and structures are installed. The most significant geotechnical concern associated with the new construction is the close proximity of the proposed construction to the existing residential structures.

Care must be taken during the excavation to install the drain line and its related structures to minimize any disturbance to the existing residential structures. Dwelling foundations, retaining walls, fences, etc. which are within a horizontal distance equivalent to

approximately 1.5 times the depth of the excavation at its nearest adjacent point, can be affected by the excavations. We believe that it would be prudent to perform a crack survey for any existing structures which are within approximately 10 feet of the edge of the trench excavation, assuming that the bottom of the trench does not extend more than 7 feet below the ground supporting the adjacent structure.

Adequate shoring and bracing should be installed by the contractor to prevent disturbance to the existing structures and to safeguard the workers within the trenches. The shoring and bracing system should be designed for at-rest lateral earth pressures to reflect the unyielding condition and must include the surcharge loads of the adjacent structures. The design of the shoring and bracing system should be the responsibility of the contractor.

Wherever practical, the drain lines should be located outside the zone of foundation stresses of the existing foundations. This area is defined by a 1.5H:1V slope starting at the bottom edges of the existing footing and extending downward. Drain lines or structures, which will be located within the stress influence zone, should be designed to withstand the additional foundation surcharges. Where this occurs, FGE, Ltd. should be notified so that the surcharge loads can be evaluated.

In general, the new drainage improvements should be designed and constructed in accordance with the applicable sections and details of the Standard Specifications and Standard Details for Public Works Construction of the City and County of Honolulu and the recommendations of this report. Areas designated for construction should be cleared and grubbed in accordance with Section 10 of the Standard Specifications prior to the start of the site excavations.

The installation and construction of the drainage improvements should be completed in accordance with Section 11 and the pertinent sections of the Standard Specifications. Backfills should be placed and compacted utilizing the appropriate mechanical compactors around and above the pipes. Jetting or flooding of the backfill with water as a method to achieve compaction should not be allowed.

Excavations for the drain lines and their structures can likely be completed with typical earth-excavating equipment. The occasional use of rock-excavating equipment should be anticipated to remove scattered boulders during the trenching, as boulders are not uncommon in alluvial formations. Where encountered, boulders should be removed in their entirety, or broken out in-place to at least 6 inches below the bottom of the pipes or structures to minimize point loads to the structures. The resulting depression should be backfilled and compacted in accordance with the Standard Specifications.

The very stiff to hard alluvial soils should provide adequate support for the new drain lines and the drainage structures. The alluvial soils should provide an allowable bearing capacity of 3,000 pounds per square foot (p.s.f.) provided the structure foundations are at least 12 inches in width and embedded at least 24 inches below the lowest adjacent compacted subgrade on level ground. Foundations on slopes or within 5 feet of the top of slopes should be embedded such that they maintain at least 5 feet of horizontal set-back from the bottom outside edge of the footing to the slope face. The above bearing capacity may be increased by 1/3 to accommodate short-term transient loads.

The bottom of the excavations for the structure foundations should be cleaned of loosened materials and compacted to at least 90 percent relative compaction as determined by Laboratory Compaction Test ASTM D1557 prior to the placement of the reinforcing steel. Any soft spots should be removed and backfilled in accordance with the Standard Specifications.

Should pre-cast structures or foundations be used, the bottom of the foundation excavation may be leveled with an approximate 6-inch layer of ASTM C-33 No. 67 crushed rock, compacted such that it is a firm unyielding layer, prior to setting the foundations on the supportive layer. The subgrade below the leveling course should be compacted to at least 90 percent relative compaction.

Walls for the drainage structures should be designed for an at-rest lateral earth pressure of 75 p.c.f. for the level backfill consisting of the on-site alluvial silts and clays. For yielding walls such as the headwall for the drainage outlet, an active lateral earth pressure of 85 p.c.f. may be used for the 1.5H:1V sloping backfill condition consisting of the on-site alluvial silts and clays.

These pressures are given in terms of equivalent fluid pressure and do not include surcharge, foundation or hydrostatic pressures which must be added where appropriate. Weepholes should be provided for the walls of the new catch basins or drainage inlets, which are constructed adjacent to the existing pavements to drain the granular materials beneath the pavement and prevent the accumulation of water against the walls.

A friction factor of 0.35 against sliding and an adhesion of 250 p.s.f. may be used between the bottom of the wall foundations and the supportive alluvial silts and clays to resist sliding. For yielding retaining walls, a passive resistance of 220 p.c.f. equivalent fluid pressure may be used for their design, provided they are founded on level ground. Passive resistance should be disregarded for unyielding walls, walls founded on slopes, and in the upper 18 inches of embedment for wall founded on level ground unless the ground surface is protected from moisture changes by a concrete or asphalt covering.

The on-site silts and clays may be used for backfill of the drain line and its structures provided any organics and other deleterious materials, and rocks and soil clods larger than 2 inches in maximum size are removed. The backfill should be placed in relatively level lifts of no more than 8 inches in loose thickness, moisture-conditioned to within 3 percent of their optimum moisture content, and compacted to at least 90 percent relative compaction as determined by Laboratory Compaction Test ASTM D1557. The final 2 feet of the backfill in the pavement areas should match the adjacent existing pavement sections.

The installation of the drainage improvements should be observed by FGE, Ltd. to determine whether the anticipated subsurface conditions are encountered. Field density tests should be taken in the backfills to determine whether the specified levels of compaction and moisture-conditioning are consistently obtained. Foundation excavations should be observed by FGE, Ltd. prior to the installation of the reinforcing steel to determine whether the anticipated supportive soils have been encountered. The recommendations given herein are contingent on adequate construction monitoring of the geotechnical aspects of the construction by FGE, Ltd.

Soft Compressible Organic Soils - The soft, highly compressible soils encountered in the area of the Kalia Tract Channel can adversely affect the proposed construction depending on the invert of the pipe and outlet structure in this area. The compressible soils are anticipated in a limited section of the alignment and below a depth of 10.5 feet, or at about Elev. 13, based on the boring and the topographic information. Provided the bottom of the excavation for the drain line and outlet structure near the channel is above about Elev. 15, we believe that the impact of the soft compressible soils on the new construction should be minimal.

The actual invert of the new drain line and the excavation for its installation will depend on the size of the pipe and the existing utilities in the area, particularly the 15-inch diameter trunk sewer line which is parallel to, and on the western side of the channel. We understand through our discussions with HPE that the new drain line would be founded well above the top of the sewer line, or the sewer line may be jacketed to minimize the impact of the new drain line on the existing sewer line. Should the pipe sizes and minimal cover requirements result in a deepening of the drain line, it is anticipated that the line may encounter the soft soils. FGE, Ltd, should be notified, once the invert and pipe sizes of this section of the line has been determined so that supplemental recommendations can be provided, if necessary.

Limitations - This report has been prepared for the exclusive use of Hawaii Pacific Engineers, Inc. for the proposed Waipahu Street Drainage Improvements, in Waipahu, Oahu, Hawaii. In the completion of the investigation and the preparation of this report, FGE, Ltd. has strived to perform its services in a manner consistent with that level of care and skill ordinarily exercised by members of the geotechnical profession practicing under similar conditions in Hawaii. No other warranty, either expressed or implied, is made.

The analysis, conclusions, and recommendations of this report are based in part upon the data obtained in the test borings and available topographic plans, and upon the assumption that the soil conditions do not deviate from those observed. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that planned at the present time, FGE, Ltd. should be notified so that supplemental recommendations can be given. The conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed and the conclusions of this report modified or verified in writing.

Unanticipated soil conditions are commonly encountered and cannot be fully determined by soil samples, test borings, or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. Some contingency funds are recommended to accommodate such potential extra costs.

The site investigation for this report may not have disclosed the presence of underground structures, such as cesspools, drywells, storage tanks, etc. that may be present at the site. Should these items be encountered during construction, FGE, Ltd. should be notified to provide recommendations for their disposition. The cost for these services was not included within the fee for this investigation.

The scope of work for this investigation was limited to conventional geotechnical services and did not include environmental assessments or evaluations. Silence in the report

regarding any environmental aspects of the site does not indicate the absence of potential environmental problems.

The boring locations were staked out in the field based on the visible physical references. Their ground surface levels were estimated from the November 10, 2003 Preliminary Topographic Plans provided by HPE. The locations and elevations of the borings should be considered accurate only to the degree implied by the methods used.

Groundwater was not encountered within the depths of Borings 1, 2 and 4 during this investigation. Groundwater was encountered at the depth and time indicated on the log of Boring 3. It must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall, tides, and other factors not present at the time the measurements were made.

FGE, Ltd. should be provided the opportunity for general review of the final design drawings and specification to verify that the earthwork and foundation recommendations have been properly interpreted and implemented in the design and specification. If FGE, Ltd. is not accorded the privilege of making this recommended review, it can assume no responsibility for misinterpretations of the recommendations.

FGE, Ltd. should also be retained to provide periodic soil engineering services during construction. This is to observe compliance of the design concepts, specifications, and recommendations and to allow design changes in the event the subsurface conditions differ from that anticipated prior to construction. The recommendations contained herein are contingent upon adequate construction monitoring of the geotechnical phases of the construction by FGE, Ltd.

We appreciate the opportunity to be of service and look forward to continuing our work with you on this project. Should you have any questions pertaining to any aspect of the this report or any services we provide, please do not hesitate to contact us.

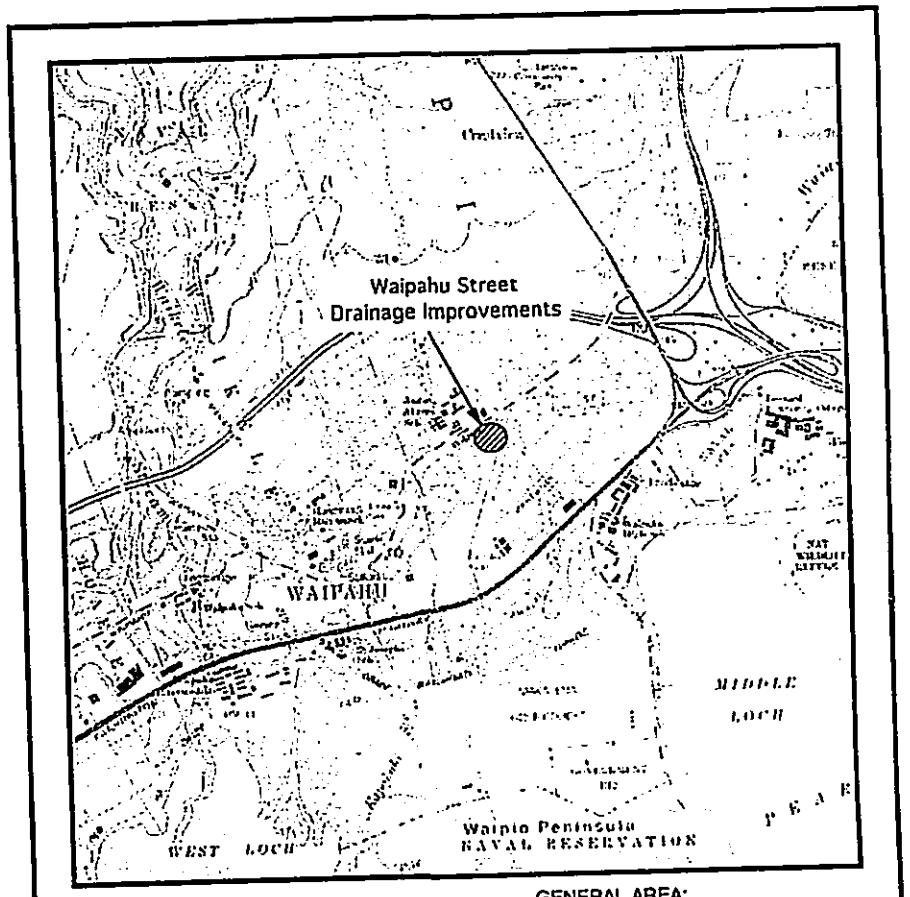
Respectfully submitted,

FEWELL GEOTECHNICAL ENGINEERING, LTD.

By Alan J. Shimamoto, P.E.

/ajs:rbf:fse

Attachments



LEGEND:
PROJECT LOCATION

SCALE: 1:24000

GENERAL AREA:
WAIPAHU, OAHU, HAWAII

REFERENCE:
WAIPAHU QUADRANGLE
U.S.G.S. TOPOGRAPHIC MAP

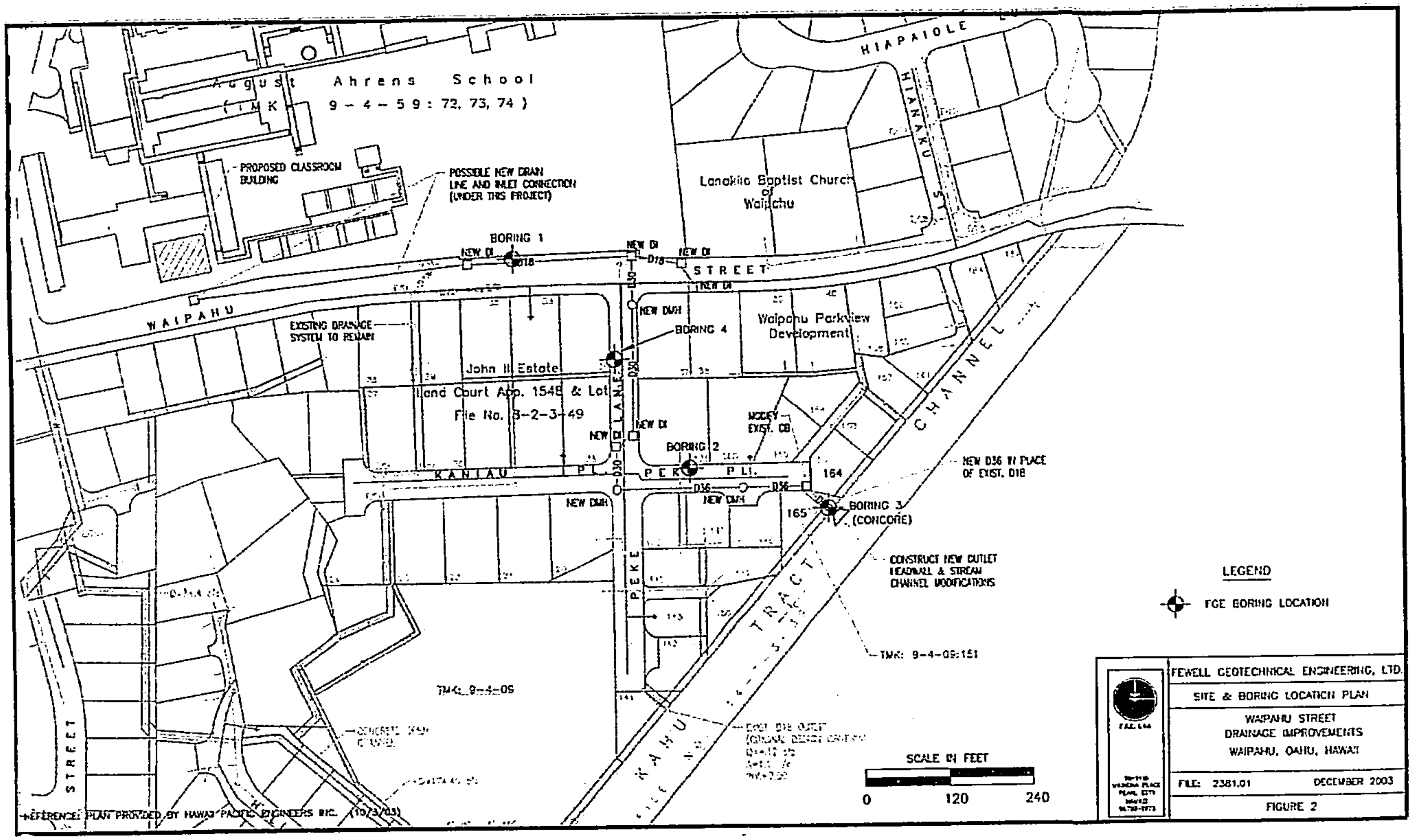
F.G.E. Ltd.

PROJECT LOCATION MAP
Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii

File: 2381.01

December 2003

Figure 1


August Ahrens School
(TMK 9-4-59: 72, 73, 74)
PROPOSED CLASSROOM BUILDING
POSSIBLE NEW DRAIN LINE AND INLET CONNECTION (UNDER THIS PROJECT)
BORING 1
NEW DI
D18
Lanakila Baptist Church of Waipahu
HIAPAIOLE
HIANAKU ST
WAIPAHU STREET
EXISTING DRAINAGE SYSTEM TO REMAIN
NEW DMH
BORING 4
Waipahu Parkview Development
John II Estate
Land Court App. 1545 & Lot
File No. 3-2-3-49
D30
MODIFY EXIST. CB
BORING 2
KANIAU PL.
PEKE PL.
PEKE LANE
D36
164
165
BORING 3 (CONCORE)
NEW D36 IN PLACE OF EXIST. D18
CHANNEL
CONSTRUCT NEW OUTLET HEADWALL & STREAM CHANNEL MODIFICATIONS
KAHU TRACT
TMK: 9-4-09:151
TMK: 9-4-05
STREET
REFERENCE: PLAN PROVIDED BY HAWAII PACIFIC ENGINEERS INC. (10/3/03)
SCALE IN FEET
0
120
240
LEGEND
FGE BORING LOCATION

FEWELL GEOTECHNICAL ENGINEERING, LTD.

SITE & BORING LOCATION PLAN

WAIPAHU STREET
DRAINAGE IMPROVEMENTS
WAIPAHU, OAHU, HAWAII

FILE: 2381.01 | DECEMBER 2003

FIGURE 2

F.G.E. Ltd.
95-1416 Waikoa Place
Pearl City, Hawaii

Boring: 1
Project: Waipahu Street Drainage Improvements
Location: Waipahu, Oahu, Hawaii
Surface Elevation: 49' +/-
Depth to Water: None Encountered
Date Completed: 11-12-03

File: 2381.01
Project Engineer: AS
Field Engineer: EDM
Drafted by: CPD
Date of Drawing: December 2003

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
	12	94	76	1		Brown Clayey SILT (MH), hard, dry (FILL)
						Gray Silty Basalt GRAVEL (GM), dense, dry (FILL)
LL=46, PI=20 Direct Shear: Phi=15 C=700psf Swell=1.4%	21	82	26	2	5	Brown Silty CLAY (CL) with black inclusions, very stiff, dry to damp
	21		53	3		At 6.0', grades to hard
	24	101	68	4	10	(ALLUVIAL) BOH @ 10.0'

Figure 3

F.G.E. Ltd.
95-1416 Waikoa Place
Pearl City, Hawaii

Boring: 2
Project: Waipahu Street Drainage Improvements
Location: Waipahu, Oahu, Hawaii
Surface Elevation: 39' +/-
Depth to Water: None Encountered
Date Completed: 11-10-03

File: 2381.01
Project Engineer: AS
Field Engineer: EDM
Drafted by: CPD
Date of Drawing: December 2003

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
						ACP over
	31	92	23	1		Tan Silty Coral GRAVEL (GM) with sand, dense, damp (FILL)
						Gray Silty Basalt GRAVEL (GM), medium dense, wet (FILL)
LL=45, PI=18 Direct Shear: phi=24 C=1,320psf Swell=0.9%	28	92	100	2	5	Brown Silty CLAY (CH), very stiff to hard, moist to wet (FILL)
	27	95	100/5"	3		Brown Clayey SILT (ML-CL) with some coral sand, hard, dry to damp (ALLUVIAL)
LL=58, PI=16 Swell=0.5%	38	81	100	4	10	Gray Multi-colored Clayey SILT (MH), hard, damp
Direct Shear: phi=25 C=1,030psf Swell=0%	58	66	31	5	15	At 14.0', grades to very stiff to hard, moist (ALLUVIAL)
	53	68	31	6	20	Brown Multi-colored Clayey SILT (MH-ML) with some fine sand and black inclusions, very stiff, moist
	54	71	48	7	25	At 24.0', grades to hard BOH @ 25.0'

Figure 4

F.G.E. Ltd.
96-1416 Waikena Place
Pearl City, Hawaii

Boring: 3
Project: Waipahu Street Drainage Improvements
Location: Waipahu, Oahu, Hawaii
Surface Elevation: 23' +-
Depth to Water: 20.0' (11-14-03)
Date Completed: 11-13-03

File: 2381.01
Project Engineer: AS
Field Engineer: EDM
Drafted by: CPD
Date of Drawing: December 2003

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
	24	95	72	1		Brown Clayey SILT (MH) with some coral and basalt gravel, medium dense, damp (FILL)
	24	97	62	2		Brown Silty CLAY (CH) with some coral sand, hard, damp
LL=55, PI=27 Direct Shear: phi=17 C=700psf	25	84	44	3	5	
	31	78	20	4		(ALLUVIAL) Black Organic SILT (OH) with decayed vegetation, soil, wet
Consol.	313	16	11	5	10	
					15	
LL=398, PI=146	414	12	8	6		At 19.0', grades saturated
					20	(LAGOONAL) Dark Gray Clayey SILT (MH) with fine sand, medium stiff to stiff, wet
	49	74	15	7		(LAGOONAL)
					25	BOH @ 25.0'

Figure 5

F.G.E. Ltd.
96-1416 Waikena Place
Pearl City, Hawaii

Boring: 4
Project: Waipahu Street Drainage Improvements
Location: Waipahu, Oahu, Hawaii
Surface Elevation: 43' +-
Depth to Water: None Encountered
Date Completed: 11-12-03

File: 2381.01
Project Engineer: AS
Field Engineer: EDM
Drafted by: CPD
Date of Drawing: December 2003

LAB TEST RESULTS	MOIST CONT. %	DRY DEN. PCF	BLOWS PER FT.	SAMPLE	DEPTH	CLASSIFICATION
	22	88	30	1		Gray Silty Basalt GRAVEL (GM), dense, dry (FILL)
			43	2		Brown Clayey SILT (MH) with some basalt sand, very stiff, damp (FILL)
	23	103	80	3	5	Brown Clayey SILT (MH) with black organic inclusions, hard, damp
			100/6"	4		(ALLUVIAL)
					10	BOH @ 9.0'
					15	
					20	
					25	
					30	

Figure 6

MAJOR ROCK TYPES

- BASALT
- TUFF
- DECOMPOSED ROCK
- CORAL

MAJOR SOIL TYPES

- GRAVEL
- SAND
- SILT
- CLAY
- PEAT/ORGANICS

SECONDARY CLASSIFICATION

- GRAVELLY
- SANDY
- SILTY
- CLAYEY

SAMPLING SYMBOLS

- 3" O.D. UNDISTURBED SAMPLE
- 3" O.D. DISTURBED SAMPLE
- 2" O.D. STANDARD PENETRATION SAMPLE
- NO RECOVERY
- SHELBY TUBE
- BAG SAMPLE
- NX-CORE
- WATER LEVEL

F.G.E. Ltd.

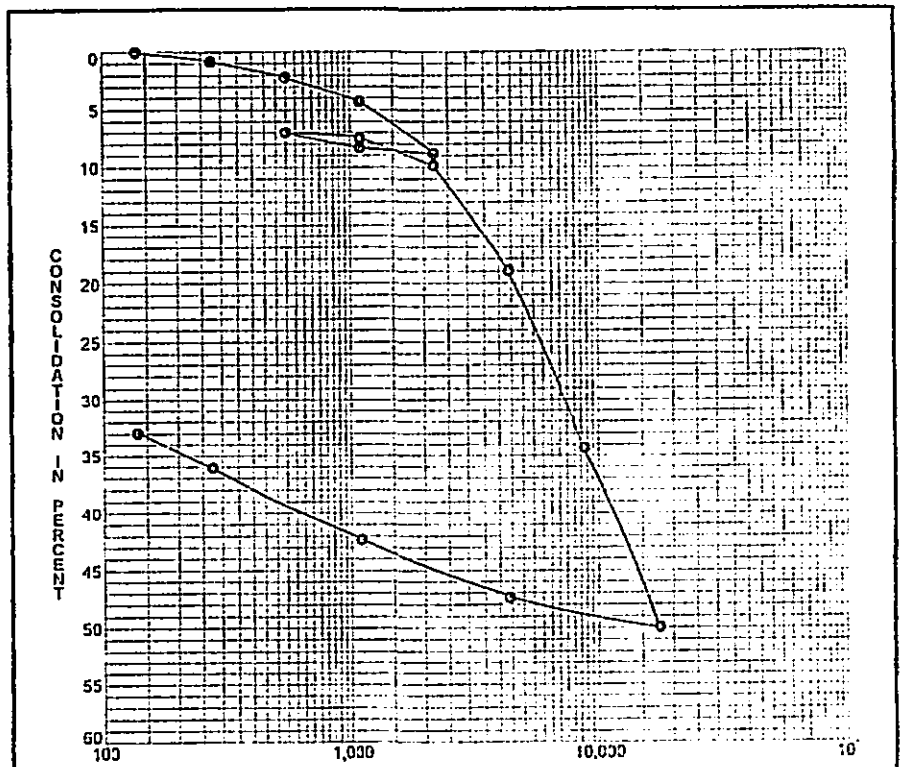
BORING LOG LEGEND

Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii

File: 2381.01

December 2003

Figure 7



Sample Identification	Depth (Feet)	Classification	LL	PI
B-5	12.5	Black Organic SILT (OH)		

F.G.E. Ltd.

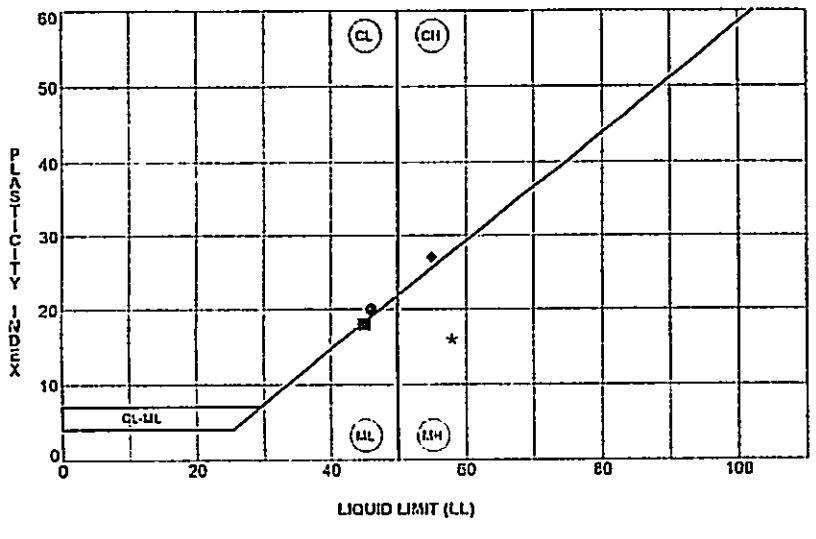
CONSOLIDATION CURVE

Waipahu Street Drainage Improvements
Waipahu, Oahu, Hawaii

File: 2381.01

December 2003

Figure 8



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	1 - 2	3.0	45	26	20	Brown Clayey SILT (CL)
■	2 - 2	3.0	45	27	18	Brown Silty CLAY (ML-CL)
▲	2 - 4	8.5	58	42	16	Gray Multi-Colored Clayey SILT (MH)
◆	3 - 3	5.5	55	28	27	Brown Silty CLAY (CH)

F.G.E. Ltd.

PLASTICITY INDEX CHART

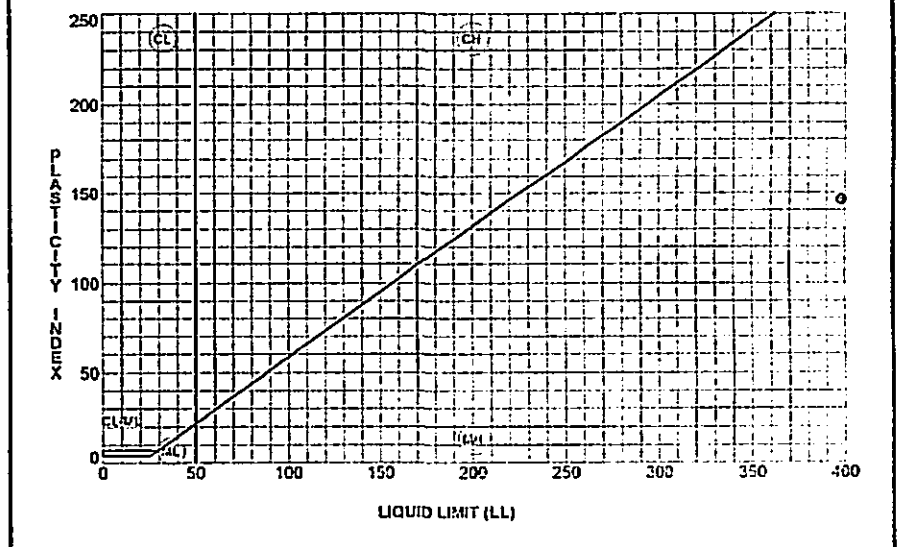
Waipahu Street Drainage Improvements

Waipahu, Oahu, Hawaii

File: 2381.01

December 2003

Figure 9



	Sample ID	Depth (ft)	LL	PL	PI	Classification
●	3 - 6	18.5	358	262	146	Black Organic SILT (OH)

F.G.E. Ltd.

PLASTICITY INDEX CHART

Waipahu Street Drainage Improvements

Waipahu, Oahu, Hawaii

File: 2381.01

December 2003

Figure 10

TABLE I

Summary of Laboratory Test Results

Sample No.	Depth (ft.)	Moisture Content (%)	Dry Density (pcf)	Direct Shear C (psf)	Direct Shear Ø (Degrees)	Liquid Limit	Plasticity Index	Torvane (psf)	Swell (%)	Swell Index
1-1	1.0	12	94							
1-2	3.0	21	82	700	15°	46	20		1.4	0.08
1-3	5.5	21	---							
1-4	8.5	24	101							
2-1	1.0	31	92							
2-2	3.0	28	92	1,320	21°	45	18		0.9	0.3-4
2-3	5.5	27	96							
2-4	8.5	38	81			58	16		0.5	0.14
2-5	13.5	58	66	1,030	26°				0.0	0.00
2-6	18.5	53	68							
2-7	23.5	54	71							
3-1	1.0	24	95							
3-2	3.0	24	97							
3-3	5.5	25	84	700	17°	55	27		1.4	0.14
3-4	8.5	31	78							
3-5	13.5	313	16							
3-6	18.5	414	12			398	146			
3-7	23.5	49	74							
4-1	1.0	22	88							
4-3	5.5	23	103							

File 2381.01
December 18, 2003
Table I

Appendix B

Archaeological and Cultural Assessment in Support of Waipahu Street Drainage Improvements Project

Cultural Surveys Hawaii, Inc.

March 2004

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

October 18, 2004

Dave Shideler
Cultural Surveys Hawaii, Inc.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

Log No: 2004.3078
Doc No: 0410EJ05

Dear Mr. Shideler:

SUBJECT: **Chapter 6E-8 Historic Preservation Review**
Revisions to an Archaeological and Cultural Assessment in Support of the Waipahu Street Drainage Improvements Project
Waipahu, 'Ewa, O'ahu
TMK: (1) 9-4-009; 9-4-09:072 through 074

Thank you for the submission of a replacement page (pg. 5) to the report *Archaeological and Cultural Assessment in Support of the Waipahu Street Drainage Improvements Project, Waipahu, Waipi'o Ahupua'a, 'Ewa District, Oahu.* (Hammatt, Freeman & Shideler, 2004) The revisions were sent in response to our earlier review (SHPD Log 2004.2513, dated August 17, 2004).

The revisions are acceptable and we can now accept the report as final. We shall place the report in our library where it will be available for public use.

Should you have any archaeological questions, please feel free to call Sara Collins at (808) 692-8026 or Elaine Jourdane at (808) 692-8027.

Aloha,

Melanie A. Chinen, Administrator
State Historic Preservation Division

Archaeological and Cultural Assessment
in Support of the Waipahu Street Drainage Improvements Project
Waipahu, Waipi'o Ahupua'a, 'Ewa District, O'ahu

TMK 9-4-09 and 9-4-59: 72, 73, 74

by

Hallett H. Hammatt, Ph.D.
Sallie D.M. Freeman, B.A.
and
David W Shideler, M.A.

Prepared for

Kimura International, Inc.

by

Cultural Surveys Hawai'i, Inc.
March 2004

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I. INTRODUCTION

A. Project Background

At the request of Kimura International, Inc., Cultural Surveys Hawai'i, Inc. (CSH) conducted an archaeological assessment and cultural impact evaluation of the subject area (in TMK 9-4-09 & 9-4-59) in support of the proposed Waipahu Street Drainage Improvements project (Figures 1-3). While the project area is fully developed, this study nevertheless is a good faith attempt to address any historic preservation or cultural impact issues that might be raised by the proposed Waipahu Street Drainage Improvements project.

The Waipahu Street Drainage Improvements project is administered by the City and County of Honolulu. The project has been initiated based on complaints from homeowners across from August Ahrens Elementary School (Figure 3). The homeowners report drainage and flooding problems whenever the area experiences rain exceeding approximately 2 inches. Upon investigation, Hawai'i Pacific Engineers (HPE) found that the August Ahrens school drainage basin is rather large, and water runoff from the entire area is allowed to flow down towards Waipahu Street. At the low point above Waipahu Street, there is only one small field inlet. According to the HPE Project Scoping Evaluation, "...the existing drain inlet and pipe culvert system is inadequate and is not able to handle the entire design storm flow."

HPE evaluated three options for improving the storm drainage system for the immediate area. Alternative B is their recommendation and involves the incorporation of additional drainage structures to divert the projected storm water runoff toward the Kahu Tract Channel via Peke Lane and Peke Place (see Figures 3 and 9-12). The Kahu Tract Channel directs storm water runoff from the areas in Waipahu south of the H-1 Freeway and discharges to the Middle Loch of Pearl Harbor. The proposed connection to the Kahu Tract Channel will cross through one section of private property (see Figure 11).

The project area is fully developed as part of a residential neighborhood, with evidence of commercial sugar cane cultivation and housing development in the southeast corner as early as 1919 (Fire Control Map, see Figure 6). While there are currently no ongoing traditional cultural practices within the project area, the present cultural impact evaluation provides data for understanding past activities.

B. Scope of Work

The purpose of this archaeological assessment was to ascertain the potential of encountering any historic properties during ground disturbance within the project area. Additionally, background research was conducted to provide the historical and archaeological context from which project area land use could be synthesized. The scope of work includes:

1) Historical research to include study of archival sources, historic maps, Land Commission Awards, and previous archaeological studies to construct a history of land use and to determine if archaeological sites have been recorded on or near this property.

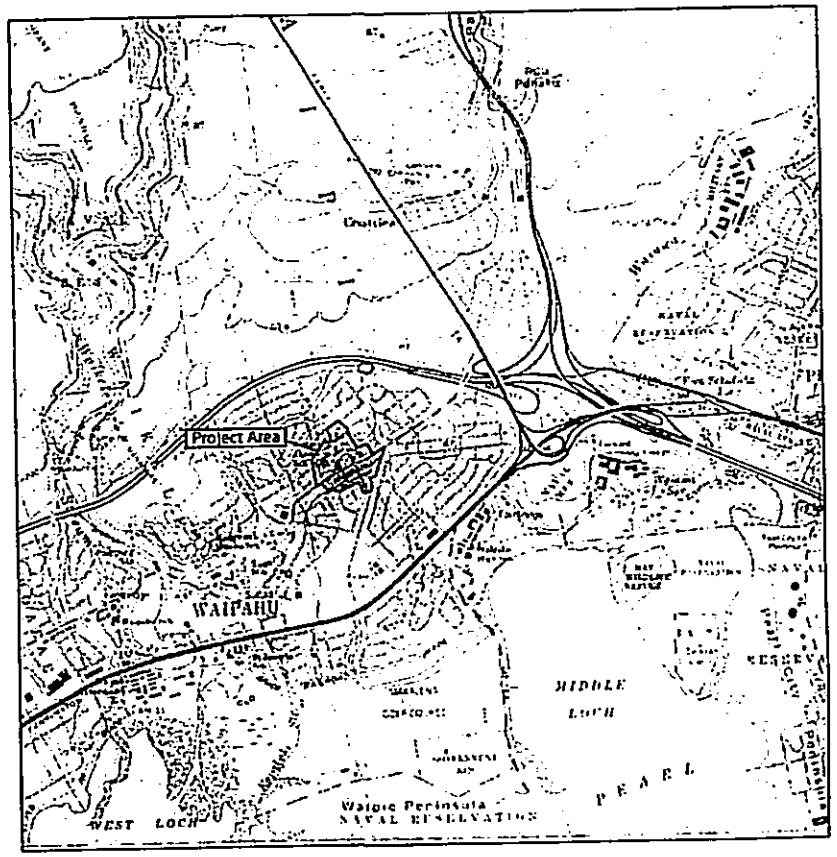

Figure 1. Portion of U.S. Geological Survey Maps, Waipahu and Schofield Barracks Quadrangles (1983)

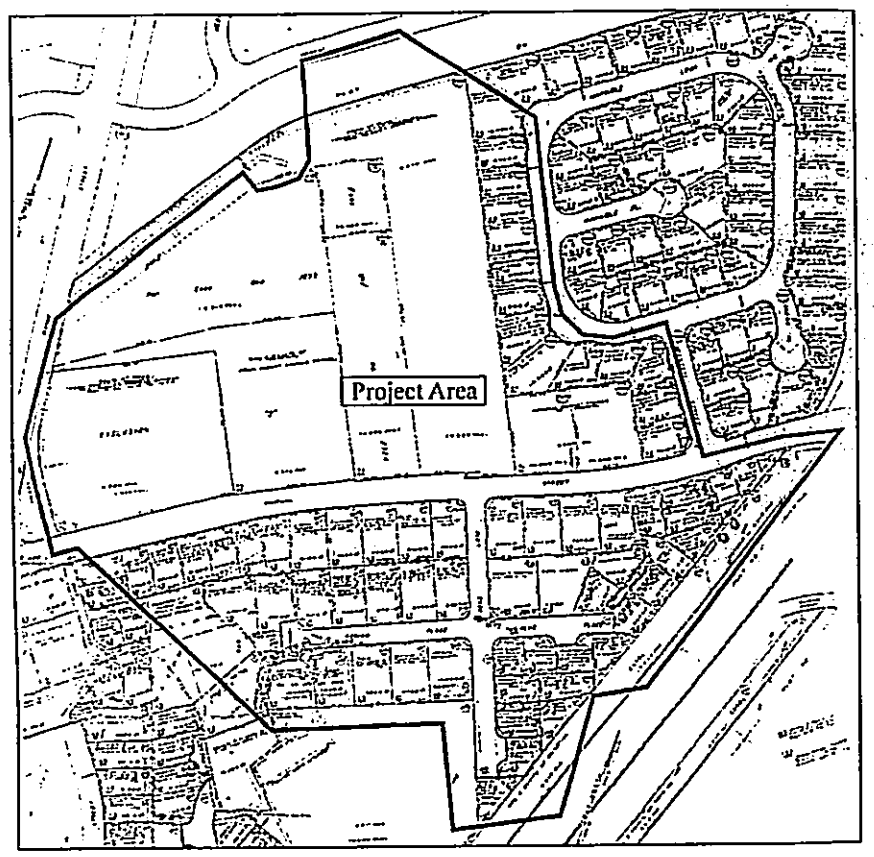

Figure 2. Portions of TMKs 9-4-09 and 9-4-59, showing location of project area

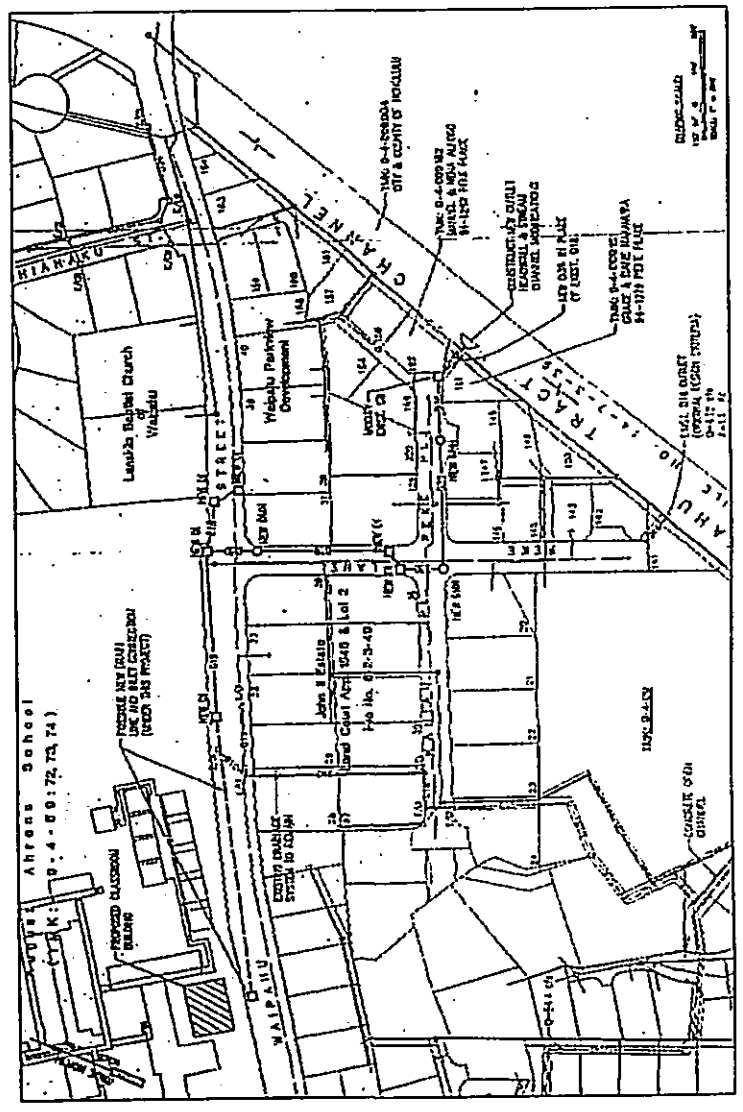

Figure 3. Portion of Waipahu Street Drainage Improvements Project Map showing proposed drainage changes

2) Field inspection of the project area to identify any surface archaeological features and to investigate and assess the potential for impact to such sites and any subsurface archaeological resources. This assessment will identify any sensitive areas that may require further investigation or mitigation before future development projects proceed.

3) Evaluation of any cultural impact issues such as possible adverse impact to trails, hunting and gathering practices, sacred sites, burials, or other archaeological sites, storied places, etc.

4) Preparation of a report to include the results of the historical research and the field inspection with an assessment of archaeological and cultural impact potential based on that research and including recommendations for further archaeological and/or cultural impact assessment work, if appropriate. This report will also provide mitigation recommendations if there are archaeologically and/or culturally sensitive areas that need to be taken into consideration.

C. Methodology

1. Background Research

Background research included: a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; and a review of documents and historic maps in the library of Cultural Surveys Hawai'i, Inc.

2. Field Methods

The Waipahu Street Drainage Improvements project area was inspected on December 15, 2003 by archaeologists from Cultural Surveys Hawai'i. Field notes and photographs were taken.

D. Project Area Description

The project area is located in the environs of urban Waipahu Town in the immediate vicinity of the August Ahrens School on Waipahu Street. The proposed remedial action is most likely to focus on the vicinity of Waipahu Street seaward of the school, and the adjacent Peke Lane and Peke Place. The general project area is bounded by the Kahu Tract Channel to the east, Mahoe Street to the west, Hunkai Street to the north, and the southern edge of private property on Kaniau Place to the south (Figures 1-3).

The project area is located in Waipi'o Ahupua'a, 'Ewa district of O'ahu, on the coastal plain south of Schofield Plateau and northwest of the Middle Loch of Pearl Harbor. Elevations within the project area (Figures 1-3) range from approximately 20 feet AMSL at the southern boundary to 80 feet at the north. Annual rainfall ranges from 24 to 31 inches (Giambelluca et al. 1986). Soils within the project area consist primarily of Waipahu silty clays (WzA, WzB, WzC) on 0-2% to 6-12% slopes with a small area of "Fill land, mixed" (FL) adjacent to the Kahu Tract Channel (Foote et al. 1972). The Waipahu silty clay soil series are characterized as well-drained soils developed from old alluvium from basic igneous rock on marine terraces.

II. CULTURAL AND HISTORICAL BACKGROUND

A. Folklore and Mythological Traditions Pertaining to Waipi'o

Many of the legends of Waipi'o pertain to lands *makai* of the project area in the vicinity of modern day Pearl Harbor. In Waipi'o, 'Ewa, 'Ai'ai was said to have established a *pōhaku i'a* (fish stone) at Hanapouli and a *ku'ula* named Ahu'ena (Kawaharada 1992).

In the legend of Nāmakaokapao'o, several place names in 'Ewa are mentioned including Līhu'e, Honouliuli, Hō'ae'ae and *kula o* Keahumoa (Fornander 1919: Vol.V). Fornander describes the location of Keahumoa as the "plain before reaching Kipapa gulch" (Fornander, 1919 V:274). Nāmakaokapao'o is described as a small, brave child who took a dislike to his stepfather Puali'i and pulled up the sweet potatoes Puali'i had planted at their home in Keahumoa. When Puali'i came after Nāmakaokapao'o with an axe, Nāmakaokapao'o delivered his death prayer and slew Puali'i hurling his head to a cave named Waipouli, near the beach at Honouliuli.

Between the West Loch of Pearl Harbor and Loko Eo, the lowlands were filled with terraces that extended for over a mile up into the flats of Waikele Stream (Figure 4). The lower terraces were formerly irrigated partly from Waipahu Stream, which Hawaiians believe came all the way through the mountains from Kahuku. It is said that terraces formerly existed on the flats in Kīpapa Gulch for at least 2 miles upstream above its junction with Waikele.

In the *mauka* regions of Waipi'o, legend speaks of Kalelealuaka, who lived during the reign of the O'ahu chief, Kūkuhihewa (Emerson 1894). Kalelealuaka was the son of Kaopele, who was born in Waipi'o, Hawai'i. Kaopele had a tendency to fall into deep trances for months at a time. While awake, he would plant plantations of supernatural proportions. However, he was never able to enjoy the fruits of his labors because he would fall into another of his deep sleeps. Once, during a deep slumber, he was mistaken for dead and taken to Wailua, Kaua'i to be offered as a sacrifice. Upon awakening, he created a life on Kaua'i and married. On Kaua'i, he had a son Kalelealuaka who he reared in his image. His son was also blessed with supernatural powers and Kaopele instructed the boy in the arts of war and combat, which Kalelealuaka exhibited during two challenges with kings of Kaua'i. One day, Kalelealuaka decided to travel to O'ahu. He took with him a boy, Kaluhe and paddled to Wai'anae. There, he met another companion who he later named Keinoho'omanawanui, the sloven. They settle in an old plantation in the *mauka* regions of Waipi'o, formerly planted by Kaopele. This place is called Keahumoe and here they build their mountain house, named Lelepua after Kalelealuaka's magic arrows.

B. Pre-Contact to 1800 Waipi'o Ahupua'a

Waipi'o Ahupua'a was a focus of Hawaiian settlement and activity on O'ahu during the centuries preceding western contact. "The populous dwelling place of the *ali'i* was formerly located on an east point of Waipi'o Peninsula known as Lēpau" (McAllister 1933:106). The *ali'i* at Waipi'o were no doubt attracted to the great abundance the region offered. "The primary reason for 'Ewa's prominence in history and as an *ali'i* stronghold was undoubtedly the existence of the great number of fishponds at different points around Pearl Harbor, which was 'Ewa territory. Two of the largest were on the peninsula, and another was at its northwest corner"

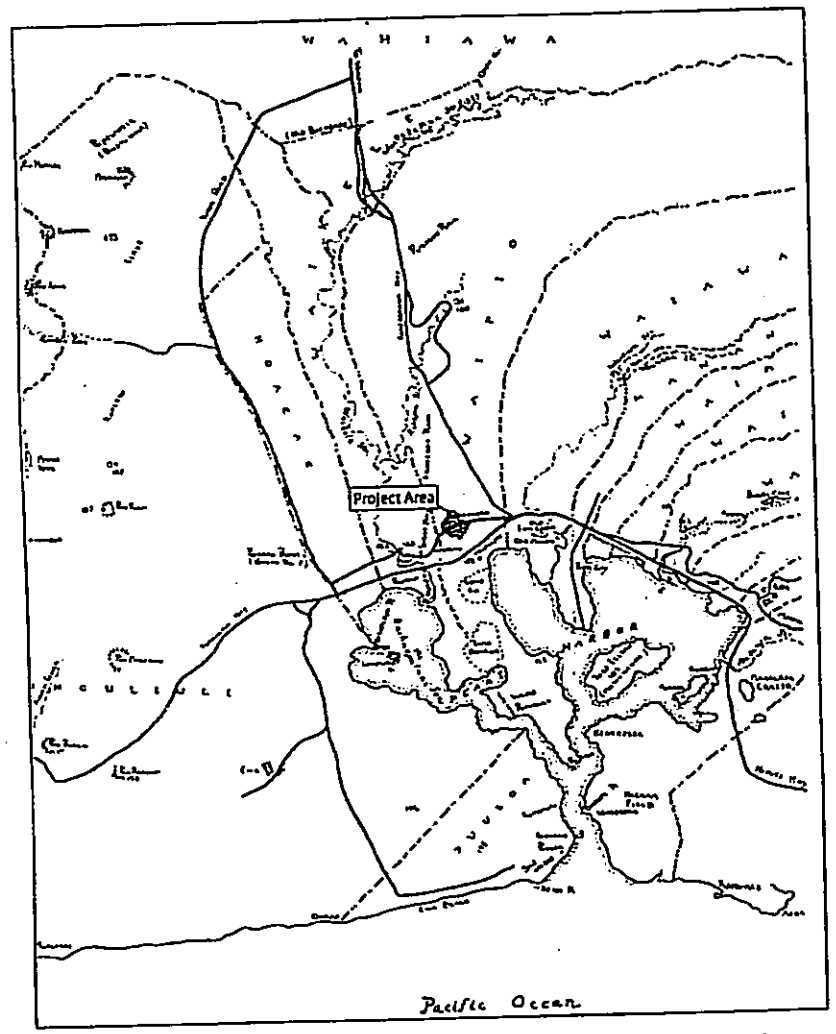

Figure 4. Portion of Bishop Museum Map of 'Ewa District, 1959, showing location of project area (adapted from Sterling and Summers 1978)

(Handy and Handy 1972:470). There were other resources within the district of 'Ewa as well that were attractive to an expanding population:

> The lowlands, bisected by ample streams, were ideal terrain for the cultivation of irrigated taro. The hinterland consisted of deep valleys running far back into the Ko'olau range. Between the valleys were ridges, with steep sides, but a very gradual increase of altitude. The lower parts of the valley sides were excellent for the culture of yams and bananas. Farther inland grew the *'awa* for which the area was famous. The length or depth of the valleys and the gradual slope of the ridges made the inhabited lowlands much more distant from the *wao*, or upland jungle, than was the case on the windward coast. Yet the *wao* here was more extensive, giving greater opportunity to forage for wild foods in famine time [Handy and Handy 1972:469].

The Handys characterize Waipi'o and its peninsula as "an ali'i stronghold" and it is known as the scene of many battles between local and invading *ali'i* for political control of O'ahu. Several accounts relate the "Battle of Kīpapa" during the reign of the fifteenth century *mō'ī*, Ma'ilikūkāhi, explaining how the gulch and stream in Waipi'o got their name. According to Abraham Fornander (1969:II:89):

> I have before referred to the expedition by some Hawai'i chiefs, Hilo-a-Lakapu, Hilo-a Hilo-Kapuhi, and Punalu'u, joined by Luakoa of Maui, which invaded O'ahu during the reign of Ma'ilikūkāhi. It cannot be considered as a war between the two islands, but rather as a raid by some restless and turbulent Hawai'i chiefs, whom the pacific temper of Ma'ilikūkāhi and the wealthy condition of his island had emboldened to attempt the enterprise, as well as the éclat that would attend them if successful...The invading force landed at first at Waikīkī, but, for reasons not stated in the legend, altered their mind, and proceeded up the 'Ewa lagoon and marched inland. At Waikakalaua they met Ma'ilikūkahi with his forces, and a sanguinary battle ensued. The fight continued from there to Kīpapa gulch. The invaders were thoroughly defeated, and the gulch is said to have been literally paved with the corpses of the slain, and received its name, "Kīpapa", from this circumstance. Punalu'u was slain on the plain which bears his name, the fugitives were pursued as far as Waimano, and the head of Hilo was cut off and carried in triumph to Honouliuli, and stuck up at a place still called Po'o-Hilo.

During the second half of the eighteenth century, Waipi'o again became a focus of political intrigue and warfare on O'ahu. In 1783, the forces of the Maui chief Kahekili gained control of the island of O'ahu by defeating the *mō'ī*, Kahahana, "from the powerful 'Ewa chiefs' line" (Cordy 1981:207). According to the nineteenth-century Hawaiian historian Samuel Kamakau, the defeated O'ahu chiefs plotted to kill the Maui chiefs. Waipi'o was given the name Waipi'o kīmopō, "Waipi'o of secret rebellion," as it became the stage for the plotting (Kamakau 1992:138). After the failure of this plot, Kahekili took revenge on the 'Ewa and Kona districts:

> ...and when Ka-hekili learned that Elani of 'Ewa was one of the plotters, the districts of Kona and 'Ewa were attacked and men, women, and children were massacred, until the streams of Makaho and Niuhelewai in Kona and of Kahoa'ai'ai in 'Ewa were choked with the bodies of the dead, and their waters became bitter to the taste, as eyewitnesses say, from the brains that turned the water bitter. All the O'ahu chiefs were killed and the chiefesses tortured (Kamakau, 1992:138).

If Kamakau is correct, the population of Waipi'o would have been decimated during the 1780s. "The O'ahu society never rose again" (Cordy 1981:208).

Kahekili and the Maui chiefs retained control of O'ahu until the 1790s. Kahekili died at Waikīkī in 1794. His son, Kalanikūpule, was defeated the following year at the battle of Nu'uanu by Kamehameha, who distributed the O'ahu lands - including Waipi'o Ahupua'a - among his favorite followers: "...land belonging to the old chiefs was given to strange chiefs and that of old residents on the land to their companies of soldiers, leaving the old settled families destitute" (Kamakau 1992:376-377).

C. B. 1800s to 1850

Native Hawaiian activity and habitation at the middle of the nineteenth century continued to be clustered in the *makai* lowlands and the fishponds near the coast (Figure 5). The further inland *makai* landscape of the *ahupua'a* was dominated by an extensive network of taro *lo'i* as indicated by Land Commission Award (LCA) documents from the mid-nineteenth century Mahele.

The end of the eighteenth century and beginning of the nineteenth century marked Hawai'i's entry into world trade networks. One of the chief exports at this time was sandalwood (*Santalum sp.*) or *'iliahi*, which was prized in China for its unique fragrance and used there in the manufacture of household items, as incense, as perfume, and as medicine (St. John 1947). The central plains of 'Ewa (*mauka* of present project area) supplied the Hawaiian Kingdom with *'iliahi*. One of the first generation missionaries, Sereno Bishop, described his memories of the central O'ahu region in the 1830s:

> Our family made repeated trips to the home of Rev. John S. Emerson at Waialua during those years. There was then no road save a foot path across the generally smooth upland. We forded the streams. Beyond Kīpapa gulch the upland was dotted with occasional groves of Koa trees. On the high plains the *ii* plant abounded, often so high as to intercept the view. No cattle then existed to destroy its succulent foliage. According to the statements of the natives, a forest formerly covered the whole of the then nearly naked plains. It was burned off by the natives in search of sandalwood, which they detected by its odor burning [Bishop in Sterling and Summers 1978: 89].

The dry forests formerly covering this region probably never came back, particularly considering the harm done to the *'iliahi* seedlings with the introduction of cattle soon thereafter (Judd 1933).

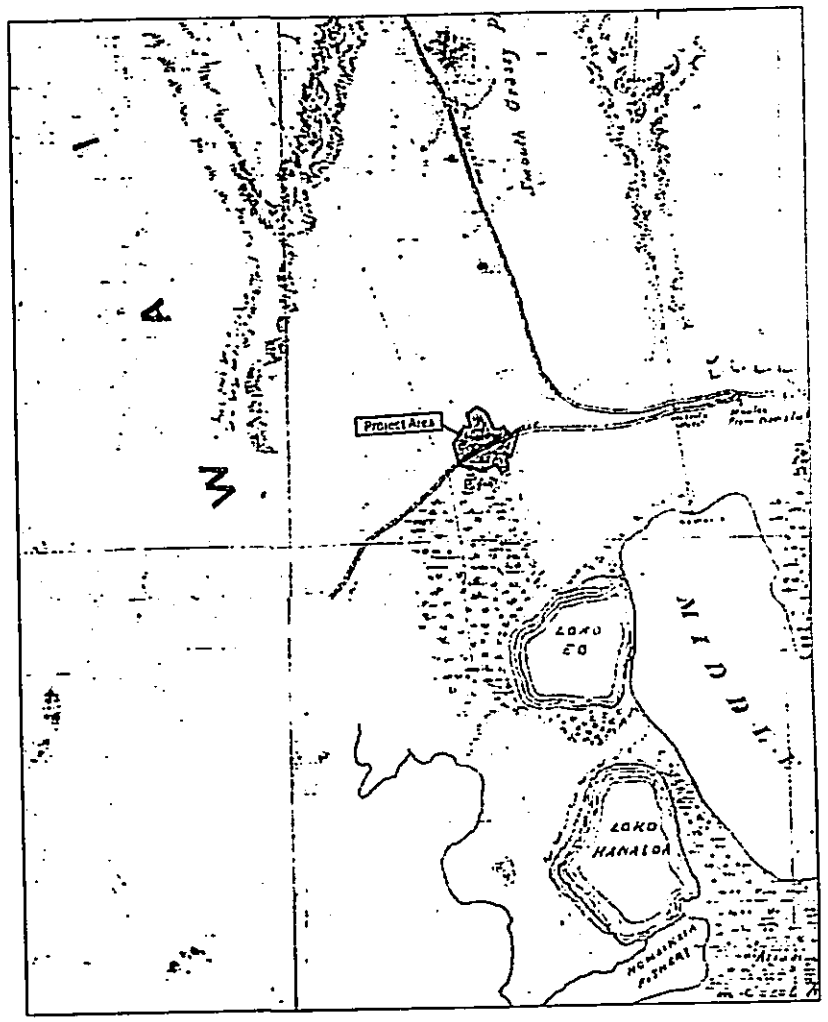

Figure 5. Portion of S.E. Bishop's Map of Waipi'o Ahupua'a, 1877, showing location of project area

During much of the nineteenth century, Waipi'o Ahupua'a was associated with John Papa 'I'I, a significant figure and chronicler of the Hawaiian Kingdom. In an account of his birth, 'I'I records the establishment of his family at Waipi'o after the ascendancy of Kamehameha on O'ahu:

> John Papa 'I'I was born in Kumelewai, Waipi'o, in 'Ewa, O'ahu, on the third day of August (*Hilinehu* in the Hawaiian calendar) in 1800, on the land of Papa 'I'I, whose namesake he was. Papa ('I'I's uncle) was the owner of the pond of Hanaloa and two other pieces of property, all of which he had received from Kamehameha, as did others who lived on that *ahupua'a*, or land division, after the battle of Nu'uanu. He gave the property to his *kaikuahine*, or cousin, who was the mother of the aforementioned boy ['I'I 1959:20].

'I'I's writings, collected in *Fragments of Hawaiian History*, provide glimpses of life within Waipi'o Ahupua'a during 'I'I's lifetime. 'I'I mentions the "family [going] to Kīpapa from Kumelewai by way of upper Waipi'o to make ditches for the farms" ('I'I 1959:28) and recalls that, during the visit to O'ahu by the Kaua'i chief Kaumuali'i and his entourage, the chief's attendants were provided with gifts: "from Waipi'o in 'Ewa and from some lands of Hawai'i came *tapa* made of *mamaki* bark" ('I'I 1959:83). 'I'I notes how a period of famine was managed in Waipi'o and what resources were available during the famine:

> Here is a wonderful thing about the land of Waipi'o. After a famine had raged in that land, the removal of new crops from the taro patches and gardens was prohibited until all of the people had gathered and the farmers had joined in thanks to the gods. This prohibition was called *kapu 'ohi'a* because, while the famine was upon the land, the people had lived on mountain apples (*'Ohi'a 'ai*), *tīs*, yams, and other upland foods. On the morning of Kane an offering of taro greens and other things was made to remove the 'Ohi'a prohibition, after which each farmer took of his own crops for the needs of his family ['I'I 1959:77].

D. Waipi'o and the Mahele

The Organic Acts of 1845 and 1846 initiated the process of the Mahele, the division of Hawaiian lands, which introduced private property into Hawaiian society. In 1848, the crown and the *ali'i* (royalty) received their land titles. The common people received their *kuleana* awards (individual land parcels) in 1850. It is through records for Land Commission Awards (LCAs) generated during the Mahele that the first specific documentation of life in Waipi'o Ahupua'a, as it had evolved up to the mid-nineteenth century, come to light.

The great majority of the awarded land parcels were located in the *makai* portions of Waipi'o, at or just above the peninsula. Located within the present project area are LCA parcels 8241, 10613, and 5371. John Papa 'I'I was awarded most of the *ahupua'a* of Waipi'o in LCA 8241 comprising approximately 20,540 acres. Included in the documentation for 'I'I's award is a list of "the people living on the land of Waipi'o 'Ewa" in 1848 (Native Register vol.5: 512-517).

Also extending into a corner of the project area, a substantial award within the *ahupua'a* went to Abenera Pākī, the father of Bernice Pauahi Bishop. Part of LCA 10613 given to Pākī comprised the 350 acres of the *'ili* of Hanaloa. Also receiving a land award (LCA 2937) in Waipi'o was William Harbottle, who claimed 2 acres at Hanapouli'ili.

The remaining land claims documented in the records, totaling 99 (not all of which were awarded), are for *kuleana* worked and lived upon by the Hawaiians of Waipi'o. Predominant among the claimed land usages in Waipi'o are 312 *lo'i*, irrigated taro patches, of various sizes; and 43 *mo'o*, or fields comprising indeterminate numbers of *lo'i*. Clearly, wetland taro cultivation was the primary agricultural pursuit within the *ahupua'a* at the mid-nineteenth century, likely reflecting a long history of taro farming. Extending into the current project area is one of these claims. In LCA 5371, Ehu claimed 1.25 acres, including 11 *lo'i* , one *kula*, and a house lot. At the coast, 4 fishponds are claimed. In the more *mauka* reaches of Waipi'o, 53 claims were made for portions of *kula* (pasture land) and 25 for "*okipu*" or *'okipu'u* (forest clearing). The fact that several claims were made in the *mauka* regions suggests that Waipi'o residents had particular locales that they traveled to repeatedly. *Kula* land is a general term for open fields, pastures, uncultivated fields, or fields for cultivation, and upland (drier) in distinction from meadow or wetland (Lucas 1995:60). *Kula* lands were often used for opportunistic plantings that did not depend heavily on a consistent source of water such as bananas, sugar cane, sweet potatoes, dry land taro, etc. *Okipu'u* is defined as a forest clearing (Lucas 1995:82), a place presumably used to gather forest products and medicinal herbs and for pasturage.

In contrast to the well-populated *makai* lands of Waipi'o, the *mauka* regions were often described in nineteenth-century accounts as virtually uninhabited. The missionary William Ellis describes the interior regions of 'Ewa in 1823-24:

> The plain of Eva is nearly twenty miles in length, from the Pearl River to Waialua, and in some parts nine or ten miles across. The soil is fertile, and watered by a number of rivulets, which wind their way along the deep water-courses that intersect its surface, and empty themselves into the sea. Though capable of a high state of improvement, a very small portion of it is enclosed or under any kind of culture, and in traveling across it, scarce a habitation is to be seen [Ellis 1963:7].

Despite Ellis' impression of desuetude and absence of people in the more *mauka* reaches of 'Ewa, there is evidence that the population of Waipi'o during the early nineteenth century was not focused solely on the fertile coast. Kamakau notes, in an inventory of advances in education during the reign of Kamehameha III (from 1825 to 1854), "Schools were built in the mountains and in the crowded settlements. Waipi'o had school houses near the coast and in the uplands" (Kamakau 1992:424). The placement of a school "in the uplands" of Waipi'o suggests that some portion of the *ahupua'a* population was settled there.

Around the 1830s cattle grazing began in the *mauka* regions of Waipi'o (Bishop 1901:87). In 1847, residents of more *makai* land petitioned the Minister of the Interior, John Young, to resolve the problem of stray animals. These stray animals may have been from herds of cattle and goats grazing on the *kula* lands of Waipi'o. In addition to damage from stray animals on the lands of Waipi'o, the impact of grazing animals was noted several kilometers away at Pearl Harbor, near the present project area. Stray cattle probably continued to be a problem until large-scale agriculture was introduced in the early part of the twentieth century.

The subsequent occupation of the uplands by cattle denuded the country of ground cover, and caused vast quantities of earth to be washed down by storms into the lagoons, shoaling the water for a long distance seaward (Bishop 1901:87).

E. 1850s to 1900

During the later 1800s, taro fields were converted to rice fields as Chinese immigrants began to lease and purchase land. An 1877 map of Waipi'o Ahupua'a shows *makai* lands, including portions of the present study parcel, as swamplands suitable for rice cultivation (Figure 5).

After John Papa 'Ī'ī 's death in 1870, his estate -including the Waipi'o lands - was inherited by his daughter Irene 'Ī'ī Brown. Shortly after, small parcels within the *ahupua'a* were sold off, "including a portion to James Robinson and Co. in September 1871" (Riford and Cleghorn 1986:22). It would not be until the late 1890s that large tracts of Waipi'o land would be leased for large-scale commercial agriculture.

In 1897, the newly organized Oahu Sugar Company leased 3,400 acres of Waipi'o from the 'Ī'ī estate (Condé and Best 1973:313). A few years earlier, the Oahu Railway and Land Co. (O. R. & L.) had leased a tract through Kīpapa Gulch to transport sugar and pineapple from Wahiawā to Honolulu. The growth of sugarcane in Waipi'o would comprise the major transformation of the present study parcel during the twentieth century (Figure 6).

F. 1900s to Present

By the early decades of the twentieth century, rice farming in the area (as in the rest of the Hawaiian Islands) was in decline, beset by crop diseases and cheaper prices for rice from the mainland. Commercial agriculture became dominated by sugar, particularly with the founding and development of the Oahu Sugar Company (Figures 6 and 7).

Early in the twentieth century, the U.S. Government began acquiring the coastal lands of 'Ewa for the development of a naval base at Pearl Harbor. In 1909 the government appropriated the Waipi'o peninsula from the 'Ī'ī estate. The land was valued at $10,000 for purposes of fair compensation. At the same time, lands in *mauka* Waipi'o were being acquired for pineapple cultivation. A lease from the John 'Ī'ī Estate, Ltd. to Yoshisuke Tanimoto and Kintaro Izumi in 1908 led to the formation of the Waipi'o Pineapple Company, which cleared and cultivated approximately 223 acres in portions of Kīpapa Gulch (Department of Land and Natural Resources Land Record Books:228-235). In 1915, Libby McNeill & Libby took over Waipi'o Pineapple Company's leases and continued to cultivate pineapple in the area. A 1922 Oahu Sugar Company map shows commercial cultivation (field # 11) within the project area (Figure 7). By the late 1920's, Dole was cultivating pineapple on thousands of acres in the *mauka* area of Waipi'o.

Meanwhile, the Oahu Sugar Company was dealing with the problem of obtaining sufficient water to cultivate sugar. In 1913 a project began to transport water from the windward side of O'ahu through the Ko'olau Range to irrigate the fields and mill of the Oahu Sugar Company in 'Ewa. The Waiāhole Water Company, a subsidiary of Oahu Sugar, created the Waiāhole Ditch System that was "an engineering feat of epic proportion for those times" (Condé and Best 1973:37). The ditch system was completed in 1916, and with some modifications is still in use.

During the 1930s, use of Waipi'o by the U.S. military extended well *mauka* of the peninsula at Pearl Harbor. The military began the appropriation of Kīpapa Gulch around 1938 and during World War II used the rail system (visible in Figure 8) to "haul large quantities of ammunition" (Condé and Best 1973:315). World War II, however, had little impact on the present project area.

During the second half of the twentieth century, growth in Waipi'o Ahupua'a focused on the development of Mililani Town by Castle & Cooke, Inc. through its subsidiary, Oceanic Properties, Inc. In 1964, the state Land Use Commission re-designated 705 acres of agricultural land in Waipi'o for urban use. The first section of Mililani Town opened in June 1968. In 1973 construction began on the H-2 freeway across Waipi'o, connecting Mililani to the H-1 freeway. The current Town Center of Mililani is a relatively recent construction dating to the 1990s.

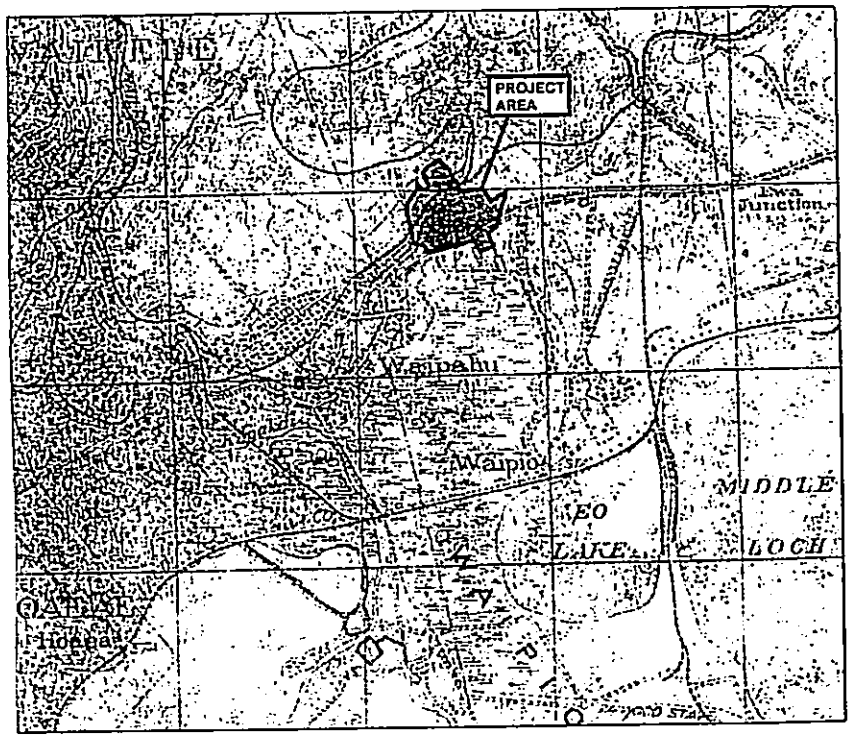

Figure 6. Portion of 1919 Fire Control Map showing sugar cane cultivation within present project area

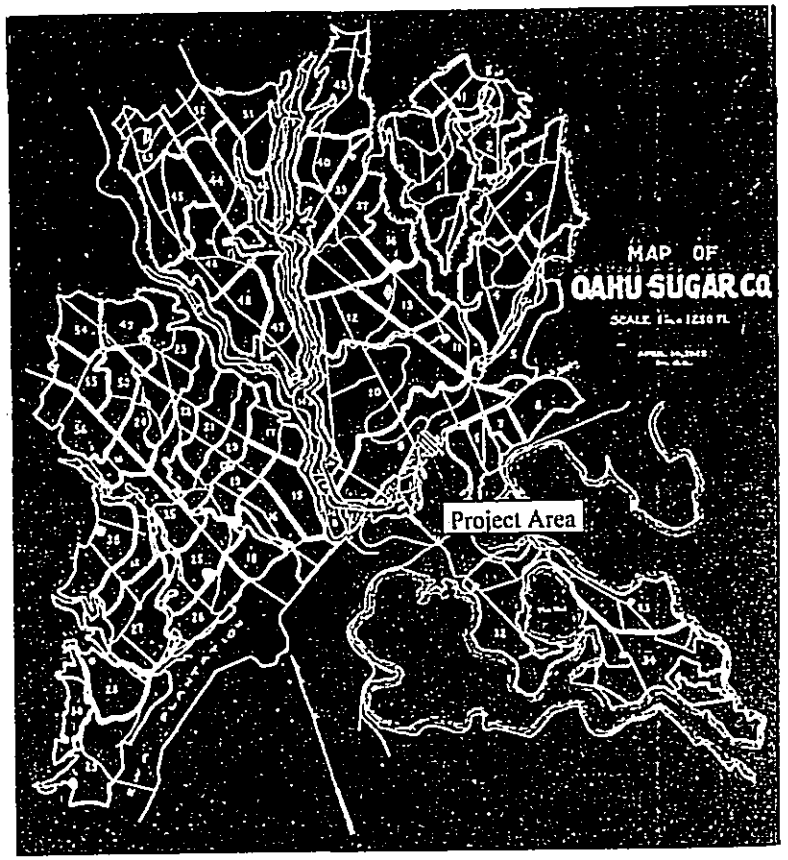

Figure 7. Portion of O'ahu Sugar Company Map, 1922, Showing Location of Project Area in Field 11

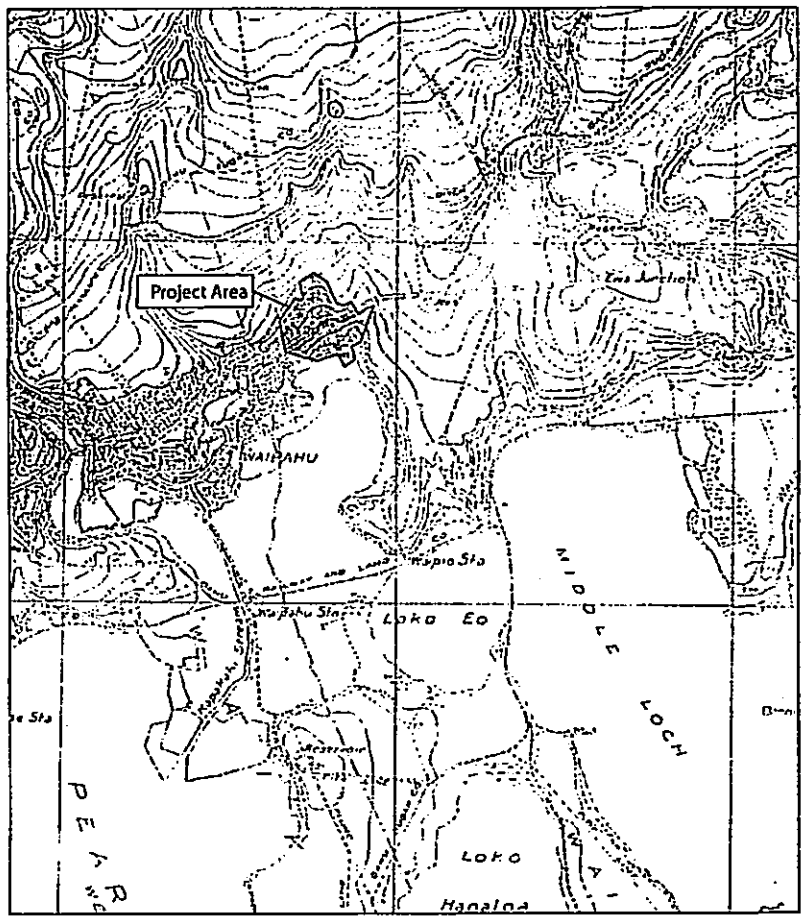

Figure 8. Portion of USGS Waipahu Quadrangle Map, 1928-1930, showing location of project area

III. PREVIOUS ARCHAEOLOGICAL STUDIES

The earliest archaeological work in Waipi'o Ahupua'a was conducted by J. Gilbert McAllister in the 1930s. He described several sites in Waipi'o, most of them located near the marine resources and the fishponds of Pu'uloa or on the wide coastal plain with the excellent taro lands in proximity to the Waipi'o Peninsula. Those archaeological sites recorded closest to the project area include Site 122, located in Waipi'o Ahupua'a, and sites 127, 128 and 129, located in the adjacent Waikele Ahupua'a(McAllister 1933:106). Site 122 is the Ahuena Heiau located just northwest of the *pā* (fence or enclosure) between Loko Eo and Middle Loch. Site 127, Mokoula Heiau, "has been completely destroyed for building purposes of the neighborhood" (McAllister 1933:106). Site 128 is listed as being Waipahu Stream, famous for being the site of the tapa mallet's reappearance after having been lost in Kahuku. Site 129 is Hapupu Heiau, although nothing remains of the site.

Four other sites located in Waipi'o Ahupua'a are McAllister's numbers 130, 131, 132 and 204. Two *heiau*, sites 130 and 131, are located *mauka* of the present project area along Kīpapa Gulch. Site 130, Mo'aula Heiau, is located on the east side of Kīpapa Gulch and described as being a companion *heiau* to Heiau o Umi (Site 131), located at the bottom of Kīpapa Gulch (McAllister 1933:107). McAllister claimed both *heiau* were covered in cane during the time of his survey. In a reconnaissance survey of military lands in Kīpapa Gulch conducted by the Bishop Museum, both *heiau* were documented as located inside Kīpapa Gulch and were listed as destroyed sites (Rosendahl 1977). During a reconnaissance survey and sub-surface testing in Kīpapa Gulch in 1988, Cultural Surveys Hawaii searched for the Moa'ula Heiau and Heiau o Umi. No structures were observed, but a fairly level area with some *ki* plants was noted. (Hammatt and Borthwick 1988).

Site 132 is described as Waikakalaua and Kīpapa Gulches, which were made famous by a battle between Hawai'i and the chief of O'ahu, Mailikākahi (McAllister 1933:107). Site 204 is named O'ahunui and is described as a stone "whose outline is said to resemble that of O'ahu" (McAllister 1933:132). The location of the O'ahunui stone (by traditional accounts) is in the gulch near the 'Ewa-Waialua District boundary, presumably Waikakalaua Gulch.

No archaeological resources were documented in the area for many years. In 1983, an archaeological reconnaissance survey of 300 acres was conducted for the proposed Hawai'i High Technology Park (Hommon and Ahlo 1983). One archaeological site was identified during the survey (State Site 50-80-09-3401). This site consisted of a terrace measuring 17 m long, 2-4 m wide, and 0.3-0.6 m high with one stacked retaining wall. One interpretation of the terrace was an agricultural plot used for non-irrigated crops. No further archaeological work was recommended based on the small size of the site, its simple form, and the lack of surface artifacts encountered.

The archaeological inventory survey for the final phase of Mililani Town [Mililani Mauka] was completed in 1985 (Barrera 1985). The fieldwork consisted of a brief inspection of the fields, which were under pineapple cultivation, and two shallow gulches in the study parcel. It was concluded that if any structural remains of an archaeological or historical nature ever existed on the subject property, pineapple cultivation had long since erased any such evidence (Barrera 1985). No further archaeological work was recommended.

One site was identified during a 70-acre reconnaissance survey of the Waikakalaua Gulch (Kennedy 1985). This site was described as "an unirrigated terrace-most likely for the cultivation of dry taro or sweet potato" (Kennedy 1985:4). Subsurface testing produced one small piece of *kukui* nut, too small for radiocarbon testing. It was concluded the property needed no additional archaeological work. In 1990, a reassessment of the 70 acres was undertaken because the original survey was considered deficient and failed to "meet the minimum guidelines set by the Historic Preservation Program of the State Department of Land and Natural Resources" (Sinoto 1990:1). Due to lack of site location map, the single terrace recorded during the first survey was not relocated. During the 1990 resurvey, four areas of structural remains were located including areas of historic habitation platforms, retaining walls, water catchments, bridge remains, historic roadbeds and associated retaining walls. Areas 1 and 2 were assigned State site numbers 50-80-08-4662 and 50-80-08-4663, respectively. The structures of Area 2 including historic habitation platforms, retaining walls and excavated catchments were associated with Japanese plantation workers who probably lived at the Pine Spur Camp, a plantation camp functional in the early part of the twentieth century. Recommendations included possible preservation of some features of Site 50-80-08-4662 and further archaeological work on this site.

A survey of the Waikele Branch of the Lualualei Naval Magazine documented five archaeological sites, 50-80-08-2919 to 50-80-08-2923 (Riford and Cleghorn 1986). This study area consisted of 264 acres along Kīpapa and Waikakalaua streams near their confluence. Twenty-one overhang caves and crawl spaces were identified in Waikakalaua Gulch including one modified cave and eleven with pre-contact material. Several historic features were also recorded (though not deemed archaeological sites) in Waikakalaua Valley including cement boulders, portions of an old roadbed, boulder and cobble paving associated with an abandoned railroad berm, scattered boulder mounds and facings connected to historic agricultural clearing activities and boulder rock tailings associated with road construction or ammunition storage facility excavation. In Kīpapa Gulch, three rock shelters were observed as well as segments of a railroad berm, remains of a railroad cane-hauling car, and rock tailings. The rock shelters along Waikakalaua Gulch are suggested as temporary habitation sites for a possible travel route from Pu'uloa over Kolekole Pass and into Wai'anae. Many historic references point to a transportation route between the south coast and central and western O'ahu. Site 50-80-08-2922, situated on an intermittent tributary of Waikakalaua Stream, was recorded as a historic basalt rock quarry, but may have been used in pre-contact times. Further archaeological testing was recommended for only one site, Site 50-80-08-2919.

An archaeological reconnaissance survey was conducted for a 2.75-acre parcel of land in Mililani Town, west of Mililani High School (Rosendahl 1987). No archaeological resources were identified and no further archaeological work was recommended.

422 acres of the Waikakalaua Gulch were surveyed during an archaeological reconnaissance of Waikakalaua Ammunition Storage Tunnels Site (Hammatt and Borthwick 1988). Two small agricultural terraces were recorded situated parallel to the stream. The terraces were 12 m long and 0.3 m wide. The two terraces were associated with sugar cane cultivation based on their low height and their location in a former cane field. The land within the study area had been heavily modified due to the grading and filling required during the construction of the 1905 railroad line and with the excavation of the ammunition storage tunnels during the Second World War. No further archaeological work was recommended for the area.

The proposed stream clearing of Melemanu Woodlands Phase III was given archaeological clearance in a letter by Joseph Kennedy (March 16, 1992) who stated "it was in our opinion that no further work was necessary on the subject property or, by extrapolation, any lands *mauka* here due to topographic conditions" (Kennedy, 1992:1). Kennedy also based his decision on a field inspection of the study parcel by Dr. Dye from the State Historic Preservation Division who maintained "the depositional environment is inhospitable to the preservation of historic deposits...there is no reason to conduct an archaeological survey for this project" (in Kennedy, 1992:1). No map was included in the letter report and the exact location of the subject property is unknown.

An archaeological inventory survey of the proposed Mililani Summit project area produced three sites (50-80-08-4436 to -4438) consisting of two historic charcoal ovens linked to Japanese pineapple workers and a complex of World War II military structures (Cleghorn et al. 1992). Large-scale land modifications were noted in the subject property commencing with pineapple cultivation, continuing with the military construction of storage facilities during World War II, and most recently with lime and lychee orchard activities. The two historic charcoal ovens were considered significant under Criteria A and D of the National Register and would be avoided during development. No further archaeological work was recommended for the study area.

In June 1993, two members of the Waipi'o-Wahiawā communities contacted the State Historic Preservation Division Office and offered to take the SHPD staff archaeologist to the O'ahunui Stone as part of the Waikakalaua Stream Realignment Project blessing ceremony in order for SHPD to record and map its location (Dagher 1993). During the site visit, the informant was vague about the actual location of the stone and would not disclose its whereabouts. The informant stated he believed the area was sacred and had spiritual significance and he was told by SHPD that this claim must be substantiated by the kūpuna in order for the site to be given protection status (Dagher 1993:2). The second informant also offered to show the SHPD staff archaeologist the O'ahunui Stone, but cancelled when he did not receive permission from the kūpuna.

An archaeological inventory survey conducted for the proposed drainage of the Mililani Mauka Subdivision produced no archaeological finds (Stride and Hammatt 1993). The location of the project area was in a tributary gully of Kīpapa Gulch, which showed no signs of habitation or agricultural modification in the pre-contact period and seemed to have been utilized only as a drainage for the pineapple fields. No further archaeological work was recommended.

Archaeological investigations were carried out for the Launani Valley Townhouse Development in 1994 (Moore and Kennedy 1994). This development is situated inside the Waikakalaua Gulch, *mauka* of the project area. The objective of the study was to gather more information on two documented archaeological sites (Sites 50-80-08-4812 and -4813) before construction began in the development. Site 50-80-08-4812 consists of 19 *ahu* and a capped stone flume and terrace. The capped stone flume is associated with historic agricultural modifications. After test excavation in the terrace revealed no cultural material, it was suggested this feature was a historic modification from an old foot trail, which led up the Waikakalaua Stream to a horse crossing. The complex of *ahu*, were interpreted as possible historic growing mounds for sweet potatoes and gourds due to their positioning in the ravine optimizing water catchment and soil retention. Site 50-80-08-4813 consists of the collapsed structures and walls associated with a former nursery, which is known to have been in use until the 1960s. In addition to the archaeological excavations conducted during this study, this study briefly

Table 1. Previous Archaeological Investigations in Waipi'o Ahupua'a

Reference	Location	Nature of study	Findings
McAllister (1933)	Island of O'ahu	Island Archaeological Survey	Identifies Ahuena Heiau (site 122), Mokoula Heiau (Site 127), Mo'aula Heiau (site130), Heiau o Umi (Site 131), and O'ahunui Stone (site 204)
Rosendahl (1977)	Kīpapa Gulch	Archaeological Reconnaissance Survey	Documents Mo'aula Heiau (site130), Heiau o Umi (Site 131) as located inside Kīpapa Gulch and listed as destroyed sites
Hommon and Ahlo (1983)	Hawai'i High Technology Park	Archaeological Reconnaissance Survey of 300 acres	Identifies terrace with one stacked retaining wall identified as site 50-80-09-3401
Barrera (1985)	Mililani Town (Mililani Mauka)	Archaeological Inventory Survey	No evidence of structural remains of an archaeological or historical nature. No further archaeological work was recommended
Kennedy (1985)	Waikakalaua Gulch	Archaeological Reconnaissance Survey of 70 acres	One site identified, an unirrigated terrace and 1 small piece of *kukui* nut, too small for radiocarbon testing. No additional archaeological work recommended.
Sinoto (1990)	Waikakalaua Gulch	Archaeological Reassessment Survey of above (Kennedy 1985)	Identifies sites 50-80-08-4662 and 50-80-08-4663, historic habitation platforms, retaining walls and excavated enclements associated with Japanese plantation workers. Recommendations included possible preservation of some features.
Rifford and Cleghorn (1986)	Waikele Branch of the Lualualei Naval Magazine	Archaeological Inventory Survey	Documents five archaeological sites (50-80-08-2919 to -2923) Twenty-one overhung caves and crawl spaces were identified in Waikakalaua Gulch including one modified cave and eleven with pre-contact material. Further archaeological testing was recommended for only one site, Site 50-80-08-2919.
Rosendahl (1987)	Mililani Town	Archaeological Reconnaissance Survey of 2.75 acres	No archaeological resources were identified and no further archaeological work recommended.
Hammatt and Borthwick (1988)	Waikakalaua Gulch	Archaeological Reconnaissance Survey of 422 acres.	Two small agricultural terraces were recorded, associated with sugar cane cultivation. No further archaeological work recommended for the area.

addressed community members' concerns regarding the O'ahunui Stone. According to this study, members of the community claimed all or portions of Site 50-80-08-4812 constituted the "O'ahunui Stone" (Moore and Kennedy 1994:1). It was concluded that because none of the *ahu* in Site 50-80-08-4812 resembled the shape of O'ahu and the two referenced maps depicted the location of the O'ahunui Stone outside of Waikakalaua Gulch that the O'ahunui Stone was probably never located within the Waikakalaua Gulch.

In 1996, an archaeological inventory survey was completed for 1339 acres of Castle and Cooke lands slated for residential development in the *mauka* areas of Waipi'o and Waiawa Ahupua'a (Hammatt et al. 1996). No evidence of historic settlement was found. This was attributed to the fact that the majority of the project area lands had been cultivated in pineapple in the historic to modern periods. A portion of the Waiāhole Ditch System (Site 50-80-09-2268) was identified as traversing a part of the project area. Recommendations were made to take appropriate mitigative measures if the site was to be impacted during development. Also, the Kīpapa Ditch Site (50-80-098-9529) is located *mauka* of the current project area.

During an archaeological inventory survey of 162 acres located between H-2 Freeway and Kamehameha Highway on the west side of Waikakalaua Gulch in Waikele Ahupua'a, three features were documented (Hammatt et al. 2002). These include a boulder structure which may have served as a possible trestle footing for the O.R. & L. rail line, a road cut and a discontinuous basalt boulder retaining wall which were associated with historic period railway construction and erosion control. The three features were considered sufficiently documented and no further archaeological work was recommended for the study parcel.

IV. FIELD INSPECTION

The Waipahu Street Drainage Improvements project area was inspected on December 15, 2003. Field notes and photographs were taken (Figures 9 to 12). During the field inspection, no surface archaeological sites associated with traditional Hawaiian occupation were observed in any portion of the project area. The entire project area has undergone extensive land modification and urbanization. The modern activities associated with Waipahu Town have eliminated any remnant of surface sites. Additionally, subsurface evidence of traditional Hawaiian agricultural activities would have been severely impacted by agricultural and residential development. Based on the above factors, no traditional gathering activities would be anticipated or were observed during the field visit.

Because the project area has been extensively developed, the usual traditional and cultural practices studied in an assessment such as this one (i.e., gathering rights for cultural and religious purposes, plant resources, water rights, access issues related to gathering) were found to be virtually non-existent.

The pre-contact environment of the area was that of a coastal marsh/wetlands. Traditional Hawaiian cultural practices in this vicinity would include: the burial of the deceased in coastal sand deposits; the construction of coastal trails; the construction and maintenance of fishponds; the practice of religious rituals in sacred areas; the harvesting of stream resources; the harvesting of marine resources; and the construction of agricultural fields and cultivation of taro.

References	Location	Nature of Study	Findings/Recommendations
Cleghorn et al. (1992)	Mililani Summit	Archaeological Inventory Survey	Identifies three sites (50-80-08-4436 to -4438). A complex of World War II military structures and two historic charcoal ovens linked to Japanese pineapple workers, considered significant under Criteria A and D of the National Register–to be avoided during development. No further archaeological work was recommended.
Stride and Hammatt (1993)	A tributary of Kipapa Gulch	Archaeological Inventory Survey	No archaeological finds, no further archaeological work recommended.
Moore and Kennedy (1994)	Waikakalaua Gulch	Archaeological Test Excavations, and Reconnaissance Survey	Information gathered on two documented archaeological sites (Sites 50-80-08-4812-4813), findings suggest sites are historic. Members of the community claimed all or portions of Site -4812 constituted the O'ahunui Stone. It was concluded that the O'ahunui Stone was probably never located within the Waikakalaua Gulch. No further archaeological work recommended.
Hammatt et al. (1996)	mauka areas of Waipi'o and Waiawa Ahupua'a	Archaeological Inventory Survey of 1339 acres	No evidence of historic settlement was found. A portion of the Waiahole Ditch System (Site 50-80-09-2268) was identified within project area. Recommendations made to take appropriate mitigative measures if the site was to be impacted during development. of area. No further archaeological work recommended.
Hammatt et al. (2002)	Mililani Transit Center	Archaeological and Cultural Impact Assessment	Study concludes that Mililani Transit Center project would have no adverse impact to historical or cultural resources. No further archaeological work recommended.

Figure 9. Kahu Tract Channel, From Waipahu Street, view to South

Figure 10. Mahoe Street, Western Border of project area, August Ahrens School to left, view to east-southeast

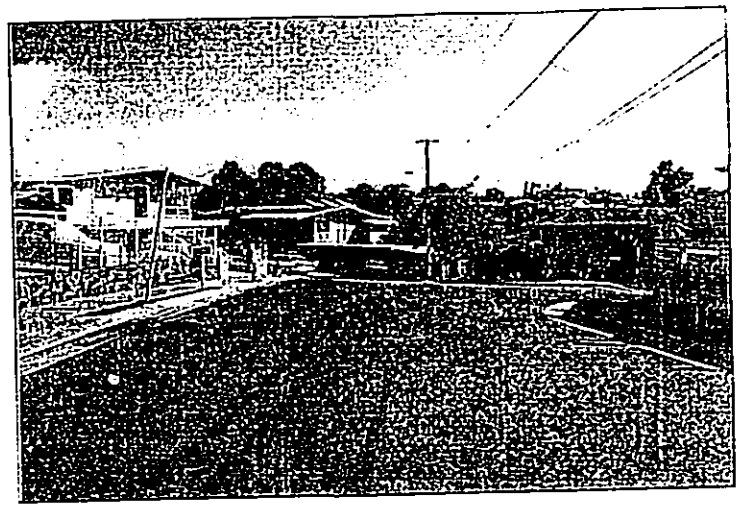

Figure 11. Peke Place, private property to be modified on right (blue house),view toward Kahu Tract Channel, east-northeast

Figure 12. Peke Place, showing existing drainage outlet to be modified, view toward Kahu Tract Channel, east-northeast

V. TRADITIONAL CULTURAL PRACTICES AND THE PROJECT AREA

Because the project area has been totally developed as a modern residential area, ongoing cultural practices were not expected to be present. Although the urban nature of the project area argues against ongoing cultural practices, it still seems appropriate to briefly summarize potential cultural impacts.

A. Archaeological Sites

There are no historic properties within the project area. The field inspection indicated modern housing developments have modified the entire project area.

B. Hawaiian Trails

In the vicinity of the project area, the Kamehameha Highway follows the general route of a well documented traditional trail, which formerly connected 'Ewa to the Waialua District through the Central O'ahu Plains, as well as to Wai'anae over Kolekole Pass. The Kamehameha Highway is approximately 1 km east northeast of the project area and thus the 'Ewa-Waialua Trail was probably about that distance from the study parcel.

No documentation pertaining to any other trails in the project area has been identified, though as in the case of the burials, any preexisting trails would have been obliterated with sugarcane cultivation practices.

C. Native Hunting Practices

Due to the residential development of the project area, there are no current hunting practices.

D. Native Gathering Practices for Plant Resources

The project area has been heavily modified and the only plants present are remnants of landscaping and exotic weeds. No gathering practices are believed to exist within the project area although gathering of flowers for *lei* making exists well *mauka* of the project area.

E. Cultural Sites

The decades-long commercial agriculture and modern urban development within the present project area have disturbed and altered the original landscape. No surface cultural sites or properties are present.

VI. SUMMARY AND CONCLUSION

This study has been a good-faith attempt to evaluate the potential impacts to archaeological/historic resources and traditional cultural practices of the proposed plans for the project area. On the basis of historical and archaeological data, this study concludes that there will be no further adverse impacts. The entire project area was extensively modified in the past for residential and agricultural development. No traditional cultural practices have been identified within the project area and none are believed to be on-going that are in any way site specific.

As noted during the field inspection, there are no surface historic properties on the parcel. Additionally, excavation and grading of the project area during construction in the area, preceded by the decades of sugarcane cultivation, would have destroyed or extensively disturbed any subsurface historic properties.

Based on the above findings, this study concludes that there will be no adverse impact to historical or cultural resources by the proposed Waipahu Street Drainage Improvements project. No further archaeological or cultural impact study work is recommended.

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