DEPARTMENT OF COMMUNITY SERVICES
CITY AND COUNTY OF HONOLULU
715 SOUTH KING STREET, SUITE 311 ● HONOLULU, HAWAII 96813 ● AREA CODE 808 ● PHONE: 527-5311 ● FAX: 527-5498

MUFI HANNEMANN
MAYOR

DEBORAH K. MORIKAWA
DIRECTOR

January 9, 2006

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

Dear Ms. Salmonson:

Chapter 343, HRS and NEPA
Final Environmental Assessment (FEA) and
Finding of No Significant Impact (FONSI)
Nanakuli Community Center

Applicant	:	Nanakuli Community Center
Landowner	:	Department of Hawaiian Home Lands
Agent	:	Wilson Okamoto Corporation
Location	:	Nanakuli, Oahu, Hawaii
Tax Map Key	:	8-9-02: 01 and 67
Request	:	Use of federal and county funds (Community Development Block Grant)
Proposal	:	Construct Nanakuli Community Center and Future Boys & Girls Club, and Future Commercial Center/Kupuna Housing

Enclosed, please find four (4) copies of the above-referenced Final Environmental Assessment (FEA) and Finding of No Significant Impact (FONSI), which are being filed pursuant to Chapter 343, HRS and NEPA (24 CFR 58 for U.S. Housing and Urban Development – funded proposals). Also enclosed are a completed *OEQC Bulletin Publication Form* for the document, and its related project summary on both disk (Word) and hard copy.

We request publication of a notice of this document in the January 22, 2006 issue of The Environmental Notice. The Department of Community Services has accepted the FEA and FONSI determination.

If you have any questions, please contact Mr. Thomas Atou at 523-4495.

Sincerely,

Deborah Kim Morikawa
Director

cc: Mr. Kali Watson, Nanakuli Homestead Association
Mr. Earl Matsukawa, Wilson Okamoto Corporation

Attachments

Final Environmental Assessment and Finding of No Significant Impact

Nanakuli Community Center

Nanakuli, Oahu, Hawaii

Prepared for:
Nanakuli Hawaiian Homestead Community Association
1188 Bishop Street, Suite 909
Honolulu, Hawaii 96813

Prepared by:
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

January 2006

FINAL ENVIRONMENTAL ASSESSMENT
AND
FINDING OF NO SIGNIFICANT IMPACT

NANAKULI COMMUNITY CENTER

Prepared for:
Nanakuli Homestead Association
Century Square
1188 Bishop Street, Suite 909
Honolulu, Hawaii 96813

Prepared by:
Wilson Okamoto Corporation
Engineers and Planners
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

January 2006

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PREFACE

This Draft Environmental Assessment (EA) was prepared pursuant to Chapter 343, Hawaii Revised Statutes, and Title 11, Chapter 200, Hawaii Administrative Rules, Department of Health, as well as 24 Code of Federal Regulations Part 58 regarding the U.S. Housing and Urban Development's environmental review procedures for Community Development Block Grant (CDBG) programs. The accepting agency is the City and County of Honolulu Department of Community Services in conjunction with the use of federal and city funds for the proposed project.

Proposed is the phased development of a "village center" concept for the Nanakuli community. The initial phase would construct the Nanakuli Community Center, including an assembly hall, pre-school, meeting facilities, kitchen and offices. A subsequent phase would construct a Boys and Girls Club of Hawaii "Clubhouse" facility, including a gym, swimming pool, classrooms and offices. The final phase envisions construction of a Commercial Center/Kupuna Housing complex, including ground floor retail space with elderly housing above.

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SUMMARY

APPLICANT:	Nanakuli Homestead Association, pursuant to a license agreement with the Department of Hawaiian Home Lands (DHHL)
ACCEPTING AUTHORITY:	City & County of Honolulu Department of Community Services
PROJECT LOCATION:	Nanakuli, Oahu, Hawaii
TAX MAP KEY:	8-9-02:01 and 67
AREA:	13.57 Acres
LANDOWNER:	State of Hawaii (DHHL)
EXISTING USE:	Mostly vacant land. Two wooden structures remain on the site, including the Nanakuli Cultural Center and the former Head Start building.
STATE LAND USE DESIGNATION:	Urban
CITY & COUNTY OF HONOLULU WAI'ANAE SUSTAINABLE COMMUNITY PLAN LAND USE MAP DESIGNATION:	Rural Community Commercial Center
ZONING DESIGNATION:	Residential (R-5)
PROPOSED ACTION:	Phased construction of the Nanakuli Community Center, Boys and Girls Club of Hawaii "Clubhouse" facility and Commercial Center/Kupuna Housing complex
ANTICIPATED DETERMINATION:	Finding of No Significant Impact (FONSI)

IMPACTS:

No significant impacts are anticipated during construction and subsequent occupation of the proposed project. Construction activities are anticipated to have short-term noise, traffic, and air quality impacts in the surrounding area. Construction noise and air quality impacts will be minimized by compliance with applicable State Department of Health rules. No significant long-term environmental or community impacts in the vicinity of the project site are anticipated.

PARTIES PREVIOUSLY CONSULTED:

State
Department of Hawaiian Home Lands
Department of Land and Natural Resources, Historic Preservation Division
Department of Transportation, Highways Division

County
Department of Planning and Permitting
Board of Water Supply

1. PROJECT SITE

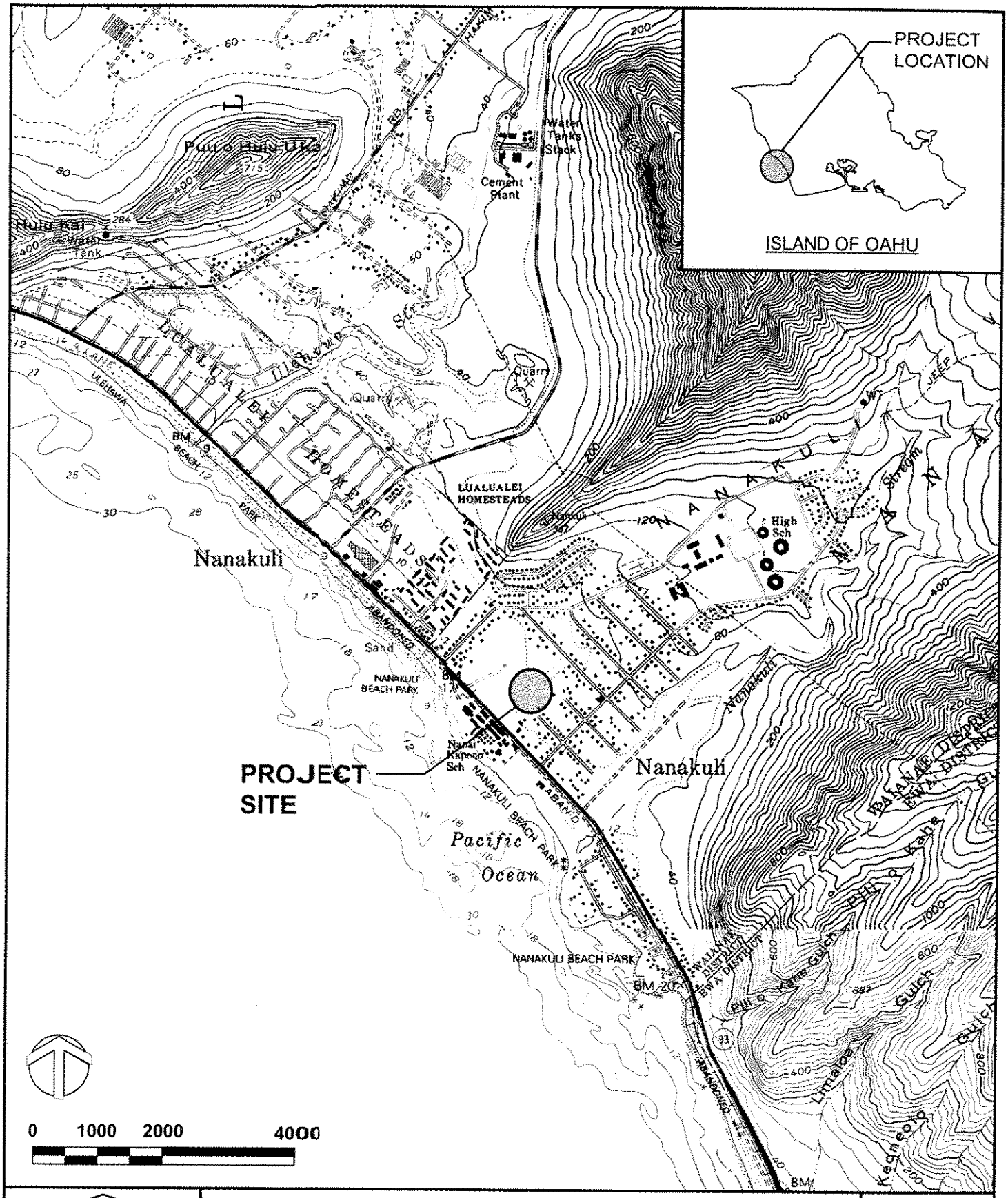
1.1 Project Location

The Nanakuli Homestead Association proposes to construct the Nanakuli Community Center, Boys and Girls Club of Hawaii "Clubhouse" facility, and Commercial Center/Kupuna Housing on an approximately 13.6-acre portion of state-owned (Department of Hawaiian Home Lands) land known as Camp Andrews in Nanakuli, Oahu, Hawaii (see Figure 1-1).

The proposed project site and the neighboring Nanaikapono Elementary School are on land formerly known as Camp Andrews. Camp Andrews encompassed approximately 30 acres and was used as a recreational facility for military personnel. The site was turned over to the State in 1952 and subdivided among the Department of Hawaiian Home Lands, Department of Education, and City and County of Honolulu.

The proposed project site includes two parcels separated by a drainage channel. The larger parcel is identified as Tax Map Key (TMK) 8-9-02: 01 and encompasses approximately 12 acres on the Kahe-side (south and southeast) of the drainage channel. Two wooden structures occupy a small portion of the parcel near Farrington Highway. One of the structures is occupied by the Nanakuli Cultural Center while the other vacant structure formerly housed the Head Start program. The smaller parcel is identified as TMK 8-9-02: 67 and encompass approximately 1.6 acres on the Waianae-side (north) of the drainage channel (see Figure 1-2).

The larger parcel fronts Farrington Highway on the makai-side (southwest), faces the new Nanaikapono Elementary School across the drainage channel on the Waianae-side (north), and abuts single-family residences on the mauka-side (northeast) and Kahe-side (southeast). The smaller parcel is bordered by Nanaikapono Elementary School on the makai-side (southwest) and Waianae-side (northwest), single-family residences on the mauka-side (northeast) and faces the larger parcel across the drainage channel on the Kahe-side (southeast) (see Figure 1-2). A charter school and Nanakuli Beach Park are located on the makai-side (southwest) of Farrington Highway. Further toward the Kahe-side (south) along Farrington Highway are the Leeward Head Start facility and a satellite office of the Waianae Comprehensive Health Center.



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NANAKULI COMMUNITY CENTER

LOCATION MAP

FIGURE 1-1

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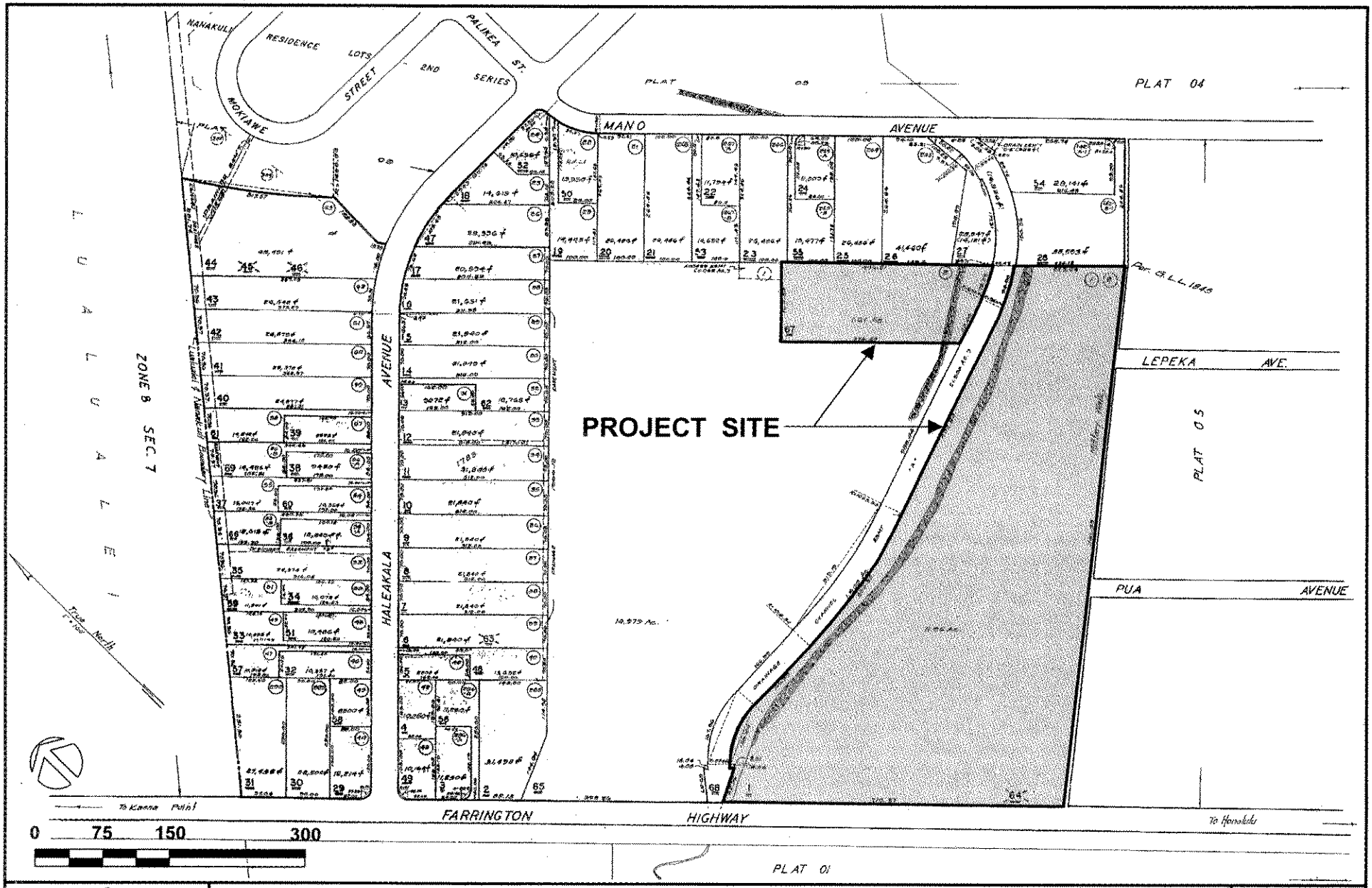

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ENGINEERS - PLANNERS

NANAKULI COMMUNITY CENTER

TAX MAP KEY 8-9-02: 01 AND 67

FIGURE 1-2

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2. PROJECT NEED

2.1 Nanakuli Community Center

The proposed community center is intended to serve as a gathering area and focal point for the Nanakuli community. Nanakuli presently lacks a place where activities and educational programs can be provided for the young and old. The location of the proposed community center adjacent to the new Nanakuli Elementary School will complement and reinforce the "village center" concept envisioned by the City and County of Honolulu Waianae Sustainable Communities Plan. The community center will provide a space to hold enrichment activities on a regular basis, including academic, extracurricular, physical activity programs, pre-school and community meeting facilities. It will incorporate the function of the existing Nanakuli Cultural Center, which is located in a structure in the makai (southeastern) portion of the project site.

2.2 Boys and Girls Club of Hawaii

The Boys and Girls Club of Hawaii is a 501(c)3 not-for-profit youth guidance organization that governs, administers, and operates an expanding network of Island-based Club operations designated "Clubhouses" for the past 28 years. The Boys and Girls Club of Hawaii has determined the need for a Boys & Girls Club Program within the Nanakuli community to support programs addressing primary prevention needs of youth in the community. The "Clubhouse" will provide after-school and weekend programs for children 7 to 17 years old and will serve 300-400 youths daily and 1,000 youths annually. The youth population is vulnerable between the hours of 3:00 pm and 6:00 pm, "when kids will smoke, drink or use drugs or will experiment with those substances; teens will be more apt to commit crimes; innocent youngsters become victims of criminal acts; 16- and 17- year olds are more prone to be in, or be the cause of auto accidents; and teens are likely to be sexually active." (http://www.bgch.com). The proposed "Clubhouse" will complement and reinforce the "village center" concept by providing social services and a gathering area for youth in the community.

2.3 Commercial Center/Kupuna Housing

The proposed Commercial/Kupuna Housing will complete the "village center" concept at the project site by providing retail space at ground level and elderly housing on upper floors. This pattern of development, together with the other components of the proposed project will, pursuant to the Waianae Sustainable Communities Plan, "provide for a stronger local community identity, encourage more pedestrian traffic and less dependence on cars, support small local businesses, and potentially alleviate the strong 'strip commercial' development pattern that presently exists along Farrington Highway."

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3. PROJECT DESCRIPTION

The proposed project is a phased development consisting of the Nanakuli Community Center, a Boys and Girls Club of Hawaii "Clubhouse" facility, and the Commercial Center/Kupuna Housing complex (see Figure 3-1). This development will become the gathering place, the "village center", for the Nanakuli community.

3.1 Nanakuli Community Center

The proposed community center will be comprised of a two-story building, including an assembly hall; pre-school facility; meeting facilities; lobby; offices; classrooms; kitchen; vehicular access, circulation and on-grade parking, utility connections and service for water, electricity, wastewater, and communications; on-site drainage improvements; and, landscaping (see Figure 3-1). Table 3-1, shows the proposed floor area. Vehicular access to the parking areas serving the community center will be provided via Pua Avenue and Lepeka Avenue on the Kahe-side (southeast) of the project site. Both of these streets intersect Nanakuli Avenue, which runs in the mauka-makai (northeast-southwest) direction from Farrington Highway into Nanakuli Valley. Pedestrian access will also be provided from Pua Avenue, Lepeka Avenue and from Farrington Highway, as well as from Mano Avenue through the proposed Boys & Girls Club site and over a proposed pedestrian bridge crossing the drainage channel dividing the project site.

The community center would be operated by the Nanakuli Hawaiian Homestead Association, a non-profit organization. Offices, boardrooms, multi-purpose rooms will be offered for rental use. Other services would be offered by various tenants, which may include Alu Like, Inc., Kamehameha Schools or charter schools, Hawaiian Homestead Technology, Inc., or Papa ola Lokahi.

3.2 Boys and Girls Club of Hawaii "Clubhouse"

The proposed Boys and Girls Club of Hawaii "Clubhouse" facility will be comprised of a two-story building, including administrative offices; classrooms; gym/exercise room; swimming pool; utility connections and service to provide water, electricity, wastewater, and communications service; on-site drainage improvements; and, landscaping. Since the "Clubhouse" serves youth after school hours and on weekends, it will share use of the adjoining Nanakuli Elementary School parking lot, which is accessed from Mano Avenue. The proposed pedestrian bridge over the drainage channel will provide pedestrian access through the Nanakuli Community Center site from Pua Avenue, Lepeka Avenue and Farrington Highway.

The "Clubhouse" will house and support programs that would address the primary prevention needs of the youth of the community. The "Clubhouse" will

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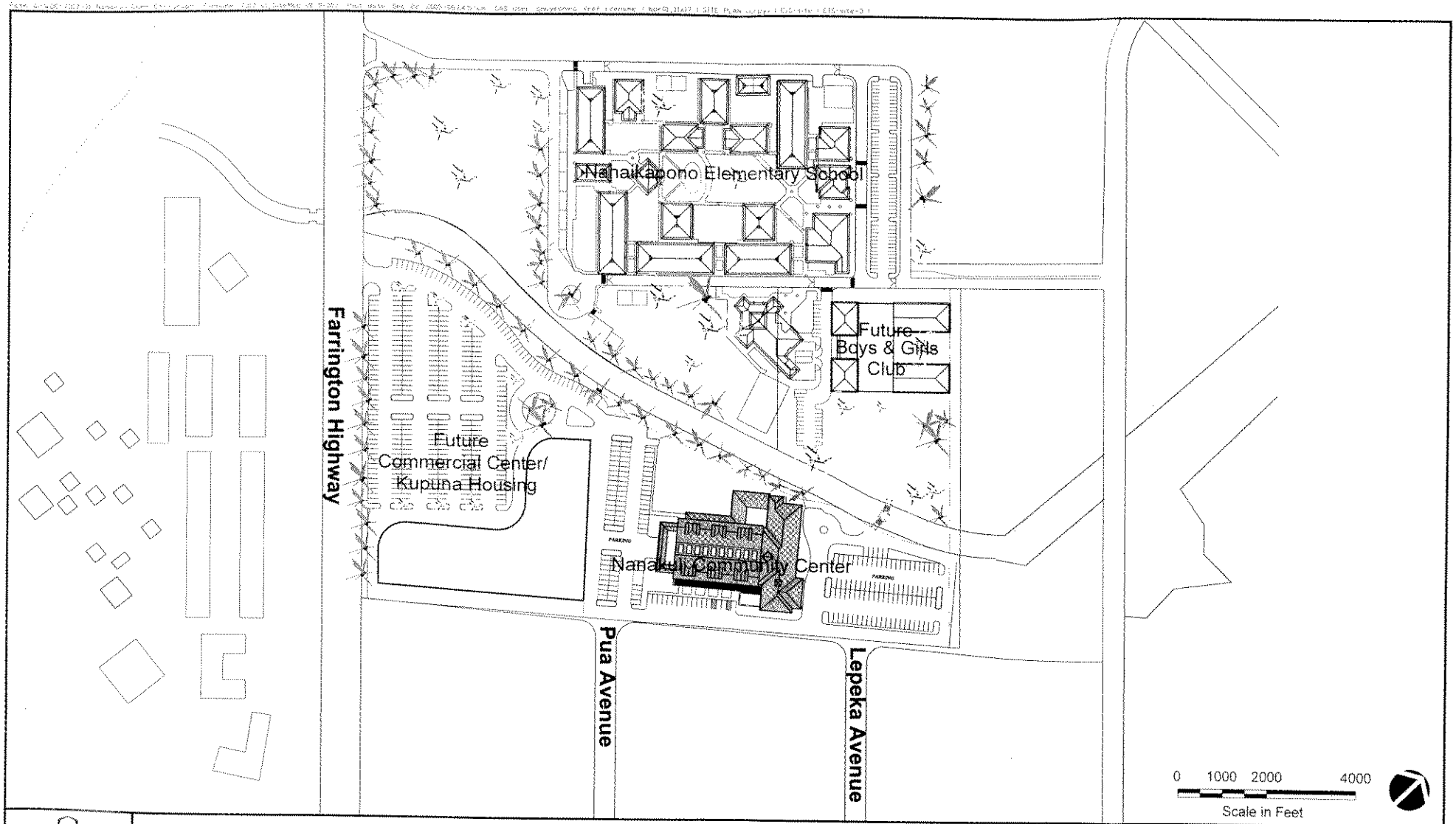

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NANAKULI COMMUNITY CENTER

SITE PLAN

FIGURE
3-1

provide after-school and weekend programs for children 7 to 17 years old and will serve 300-400 youths daily and 1,000 youths annually.

Table 3-1
Proposed Floor Area

Use	Area (sf)
Nanakuli Community Center	
First Floor	32,150
Second Floor	15,535
Sub-Total	47,685
Commercial Center / Kupuna Housing	
First Floor	46,930
Second Floor	27,350
Third Floor	27,350
Sub-Total	101,630
Boys and Girls Club	
First Floor	28,254
Second Floor	17,716
Sub-Total	45,970
TOTAL	195,285

3.3 Commercial Center/ Kupuna Housing

The Commercial Center/Kupuna Housing complex will be comprised of ground-floor retail and commercial space beneath 50 elderly rental housing units on the second and third floors; vehicular access, circulation and on-grade parking, utility connections and service for water, electricity, wastewater, and communications; on-site drainage improvements; and, landscaping. Vehicular access to the parking area would be provided from Farrington Highway, pending approval by the State Department of Transportation (DOT). The parking area will also be accessible from Pua Avenue, as well as Lepeka Avenue through the project site. Pedestrian access would be available form Farrington Highway and Pua Avenue, as well as from Lepeka Avenue and Mano Avenue through the project site.

Development of the Commercial Center/Kupuna Housing complex may be undertaken by the Nanakuli Community Association, depending on their ability to raise adequate funding. Otherwise, alternative development arrangements with private sector involvement would be considered. It is intended that revenues generated through building and/or land lease rent would supplement affordable rental revenues generated by the Kupuna Housing component to cover operation and maintenance costs. It is envisioned that the operation and management of the Commercial Center/Kupuna Housing complex would be under an entity created by the Nanakuli Community Association.

3.4 Project Schedule and Cost

The estimated order-of-magnitude construction cost for the proposed project is $12 million for the Nanakuli Community Center, $18 million for the Boys & Girls Club of Hawaii "Clubhouse" facility and $40.6 million for the Commercial Center/Kupuna Housing complex. The anticipated phasing will begin with the Nanakuli Community Center, which is estimated to be completed within three years. The Boys and Girls Club of Hawaii "Clubhouse" facility is anticipated to be constructed in the second phase and the Commercial Center/Kupuna Housing complex in the final phase, but the construction schedules for these are presently uncertain.

4. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential impacts and proposed measures mitigate potential adverse impacts resulting from the proposed project.

4.1 Climate

The Waianae coast is one of Hawaii's driest localities, receiving an average annual rainfall of 20 inches. The majority of the rainfall occurs during the winter months between November and April. The mean maximum temperature is in the mid-eighties (degrees Fahrenheit) and the mean minimum temperature is in the high sixties.

Impacts and Mitigation Measures

The proposed facilities will not affect regional climate; however, replacing the relatively dense vegetation on the project site with buildings, walkways, roadways, parking areas, and landscaped lawns will alter the microclimate of the site. Changes in wind patterns at ground level, shading by buildings and increased evapo-transpiration by irrigated landscaping will change patterns of heating and cooling and humidity near ground level within the project site.

4.2 Geology and Topography

The island of Oahu is a volcanic doublet formed by the Waianae range to the west and the younger Koolau Range on the east. Both are the remnants of great shield volcanoes, but the term "range" indicates that they have lost most of the original shield outlines and are now long narrow ridges shaped largely by erosion. The project site is located on the leeward coastal plain at the foot of the Waianae Range. The coastal plain is underlain by elevated coral reef formed when the sea level was higher than it currently is. The ancient reef is partially covered by alluvium carried out from the Waianae Range.

The project site and surrounding areas slope gently toward the sea with the drainage channel adjacent to the project site being the only significant topographic feature. The elevation of the project site is 12 to 20 feet above mean sea level (msl).

Impacts and Mitigation Measures

No significant impact on the geology or overall topography of the project site is anticipated during the construction of the proposed facilities. Construction of the proposed facilities will require grading activities and excavation for building foundations, utilities and roadbeds. Graded and excavated areas will be built over, paved over, or backfilled and

landscaped. To achieve required elevations for proper drainage, grading within the project site will slightly alter the existing topography.

4.3 Soils

The predominant soils within the coastal area belong to the Lualualei and Mamala series, and Coral Outcrop (see Figure 4-1). In Nanakuli, Mamala clay loam is shallow and stony, and the areas of Coral Outcrop consist of 80 to 90 percent coral with minimal soil. According to the U.S. Natural Resources Conservation Services (1972), the following soil types are found in the project area:

- Coral outcrop (CR) consists of coral or cemented calcareous sand. The coral reefs formed in shallow ocean water during the time the ocean stand was at a higher level. This is the predominant soil type at the project site.

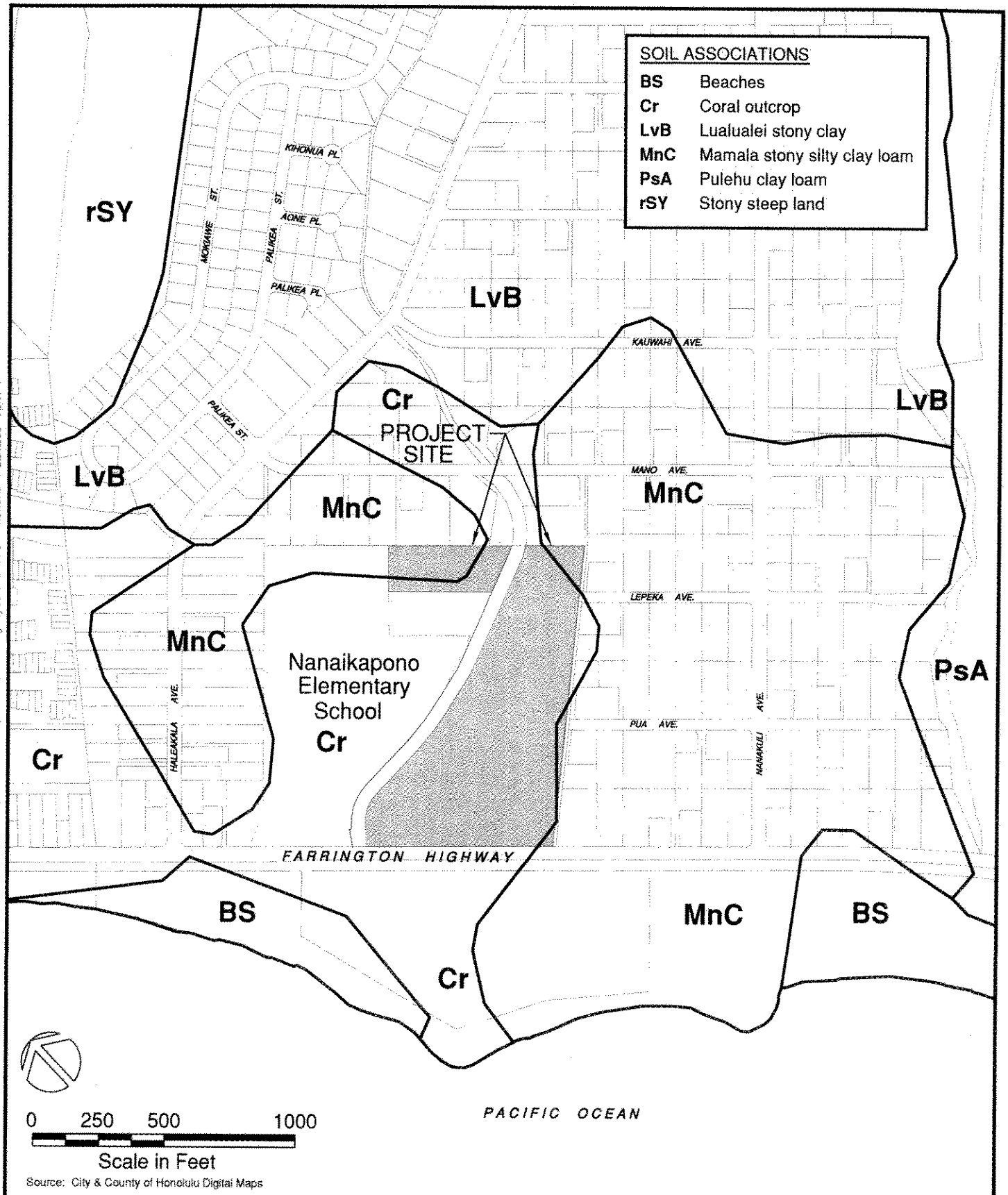
- Mamala stony silty clay loam (MnC) consists of stones, mostly coral rock fragments, are common in the surface layer and in the profile. The soil is underlain by coral limestone and consolidated calcareous sand.

The Detailed Land Classification- Island of Oahu published by the Land Study Bureau evaluates the quality or productive capacity of certain lands on Oahu for selected crops and overall suitability in agricultural use. The project site is not classified as productive agricultural lands.

The Agricultural Lands of Importance in the State of Hawaii (ALISH) Map, prepared by the State Department of Agriculture, classifies agricultural lands into three categories: 1) prime agricultural land, 2) unique agricultural land, and 3) other important agricultural land. The project site is not classified as productive agricultural lands.

Impacts and Mitigation Measures

No significant impacts on soils at the project site are anticipated with the construction and operation of the proposed project. Excavation and grading activities associated with construction of the proposed project will be regulated by the City and County's grading ordinance and the National Pollutant Discharge Elimination System (NPDES) permit requirement administered by the DOH.



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SOILS MAP

FIGURE 4 - 1

A NPDES General Permit for Storm Water Associated with Construction will be required for construction of the proposed project as the area of soil disturbance from activities such as clearing and grubbing, grading and stockpiling will exceed one acre. The permit requires compliance with a Best Management Practices (BMP) plan which, in turn requires compliance with City ordinances pertaining to grading, grubbing, stockpiling, soil erosion and sedimentation. Site-specific erosion and sediment control measures of the BMP plan may include construction of berms to detain run-off and installation of silt fences to filter silt from run-off.

Following construction, exposed soils will be built over, paved over, or backfilled and landscaped. Soils may be imported for landscaping if required.

4.4 Hydrology

4.4.1 Groundwater

Nanakuli Valley overlies the Waianae Aquifer, which extends through Lualualei, Waianae and Makaha. Groundwater movement within the reservoir is partly controlled by dikes and breccia. For some distance inland, a brackish to fresh basal lens exists in the dike compartment. The quality of water is generally good, except in near shore areas and areas abutting landward edges of the coralline aquifer, where the major contaminant is seawater. The project site is located makai of the Board of Water Supply "no-pass" zone", indicating that it does not overlie potable groundwater.

According to the map available at the Environmental Protection Agency's (EPA) website, the project site is not located within the EPA-designated Oahu Sole Source Aquifer area (also referred to as the Southern Oahu Basal sole source aquifer area). The western boundary of the designated area follows the boundary between the Ewa District and the Waianae District, traversing the ridgeline of the Waianae Range. The Oahu Sole Source Aquifer area includes the Ewa District but not the Waianae District, where the project site is located.

Impacts and Mitigation Measures

No significant impacts to groundwater underlying the project site are anticipated during construction of the proposed facilities. Construction activities are not likely to introduce to, nor release from the soil any materials which could adversely affect groundwater, including groundwater sources for domestic use.

Construction material wastes will be appropriately disposed of and prevented from leaching into receiving bodies of water. Dewatering is not anticipated for this project.

4.4.2 Surface Water

The gentle slope throughout the valley accounts for the poorly defined surface drainage pattern. Two intermittent streams flow through Nanakuli Valley: Nanakuli Stream and Ulehawa Stream. The latter stream has been channelized near its outlet at the ocean. Nanakuli Stream is located a half-mile south and Ulehawa Stream is located 1.5 miles north of the project site. Man-made channels within the area also direct surface runoff to the existing stream channels.

A concrete drainage channel intersects the project site and crosses underneath Farrington Highway, emptying into the Pacific Ocean. The total length of the drainage channel along the north boundary of the project site is 1,140 feet.

According to the Wild and Scenic Rivers Act (P.L. 90-542, as amended) (16 U.S.C. 1271-1287) found at the National Park Service website, no rivers in Hawai'i have been designated as components of the National Wild and Scenic Rivers System.

Impacts and Mitigation Measures

No significant impacts to streams or drainage systems at the project site are anticipated with the construction and operation of the proposed project. Excavation and grading activities associated with construction of the proposed project will be regulated by the City and County's grading ordinance and the National Pollutant Discharge Elimination System (NPDES) permit requirement administered by the DOH, as discussed previously in Section 4.3.

Construction materials wastes will be appropriately disposed of and must also be prevented from leaching into receiving bodies of water. Dewatering is not anticipated for this project.

4.4.3 Coastal Waters

The project site is located approximately 500 feet from the nearest shoreline, which fronts the charter school and Nanakuli Beach Park, on the opposite side of Farrington Highway. The coastal waters beyond this shoreline, extending from Ko Olina to Kahe Point are classified as "A" marine waters by State DOH Administrative Rules, Title 11, Chapter 54, "Water Quality Standards". Class A marine waters are recognized by DOH with the objective that "their use for recreational purposes and aesthetic enjoyment be protected." This classification allows other uses that are compatible with the protection and propagation of fish, shellfish, and wildlife, and with recreation in and on these waters.

According to Federal Emergency Management Agency's Map Service Center website, its Coastal Barrier Resource Area (CBRA) Q3 map indicated that, Hawaii has no areas within the Coastal Barrier Resources System.

Impacts and Mitigation Measures

No significant impacts on coastal waters are anticipated as a result of the proposed project.

During construction, storm runoff has the potential to carry increased amounts of sediment into storm drain systems and streams due to erosion of exposed soils. This runoff could potentially impact the water quality of nearshore coastal waters in the area. Excavation and grading activities associated with construction of the proposed project will be regulated by the City and County's grading ordinance and the National Pollutant Discharge Elimination System (NPDES) permit requirement administered by the DOH, as discussed previously in Section 4.3.

Construction materials wastes will be appropriately disposed of and must also be prevented from leaching into receiving bodies of water. Dewatering is not anticipated for this project.

Drainage facilities for the proposed project will be designed in compliance with Section II of the City Department of Planning and Permitting's (DPP) Rules Relating to Storm Drainage Standards, including specific sizing requirements for structural best management practices (BMP). Section II pertains to storm water quality for which "the City is required to reduce the discharge of pollutants to receiving waters to the 'maximum extent practicable'." As required by Section II, a site-specific BMP for the proposed project will be submitted to DPP for approval.

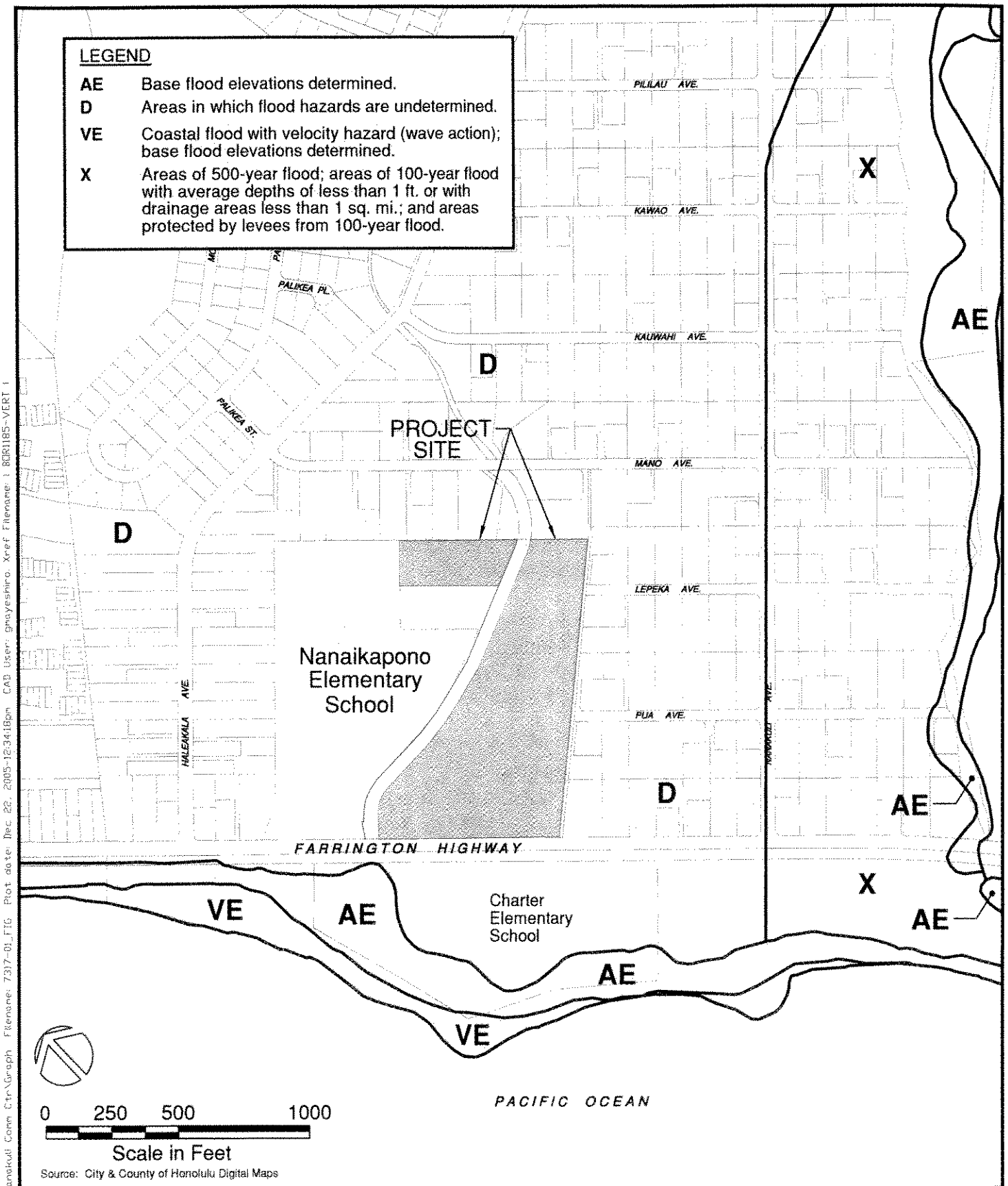
4.5 Flood Hazard

According to the Flood Insurance Rate Map, Community Panel Number 150003C0215G, (revised June 2, 2005) prepared by the Federal Emergency Management Agency (FEMA), the project site is within Zone D, "areas in which flood hazards are undetermined, but possible" as shown in Figure 4-2.

A portion of the project site is also located within the Tsunami Evacuation Zone (Hawaiian Telcom,October 2005).

Impacts and Mitigation Measures

The proposed project will cover much of the project site with impervious surfaces, which will increase the volume of runoff relative to the presently undeveloped condition of the site. The drainage channel dividing the project site was constructed to control the potential for flooding in the area by



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FLOOD ZONES

FIGURE 4 - 2

conveying storm runoff under Farrington Highway to discharge into the ocean between the charter school and Nanakuli Beach Park. By designing the proposed drainage improvements to direct the increased runoff into the drainage channel, the potential for flooding in areas surrounding the project site will be minimized.

4.6 Flora and Fauna

The existing vegetation on the project site consists primarily of non-native species. The most common species are kiawe, koa haole, and dry, scrubland grasses and shrubs. No federally protected, threatened or endangered species of plants or animals are known to inhabit the project site. According to the maps contained in the Critical Habitat Updates available at the U.S. Fish & Wildlife Service's (USFWS) website, the project site is not located within the USFWS-designated Critical Habitat for the Oahu Elepaio bird. The Southern Waianae Mountains Unit of the Critical Habitat encompasses higher elevations of the Waianae Range, mauka of the project site. The project site is also beyond the boundary of the USFWS-proposed Critical Habitat for 99 threatened and endangered plant species. The Oahu I Unit of the Critical Habitat includes areas of the Waianae Range mauka of the project site.

Domestic pets, feral animals, livestock and rodents are assumed to comprise the majority of mammalian species inhabiting the area. Birds associated with the kiawe and lowland vegetation type in the area include the waxbills, sparrows, bulbuls, pigeons, and doves. All bird species likely to be found within the project site are introduced species.

Impacts and Mitigation Measures

Since the project site does not provide a unique habitat in the area, no significant impacts on floral and faunal species are anticipated. No candidate, proposed, or listed threatened or endangered species will be disturbed. The incorporation of landscaping following construction will re-attract birds such as those presently found on the site.

4.7 Historic and Archaeological Resources

Archaeological Consultants of the Pacific, Inc. (ACP) conducted a historical and archaeological survey in April 2002, to evaluate the presence of significant historic properties within the project site. The survey included background research of previous archaeological work within the area, historical literature review, and field inspections. The survey report in its entirety is included herein as Appendix A.

The survey identified several archaeological and historical features within the project site. One archaeological site and a historical site were identified in a previous archaeological investigation preceding construction of Nanaikapono

Elementary School. The previous survey by Cultural Surveys Hawaii (CSH) identified site 50-80-07-5947, which included 17 sinkholes, 11 of which were located in the adjacent school property and six in the project site, in TMK: 8-9-002: 65 where the Boy's and Girls Club facility is proposed. Various cultural and paleontological remains were recovered from the sinkholes and one sinkhole within the school property contained a human burial. Of the six sinkholes within the project site, CSH recommended further study for one, while the others have almost no potential for yield significant information.

The subsequent survey by ACP confirmed the presence of the six sinkholes within the project site and identified three more sinkholes within TMK parcel 8-9-002:01, which is on the Kahe-side (southeast) side of the drainage canal. These sinkholes yielded cultural and paleontological remains but were deemed to have almost no potential for yielding significant information.

CSH's previous survey identified remains of the former Camp Andrews within the school property as a historical site (Site 50-80-07-5946). The subsequent survey by ACP identified additional remnants of Camp Andrews within the project site in TMK 8-9-002:1.

Impacts and Mitigation Measures

Of the identified archaeological and historic sites, further data recovery was recommended for one of the sinkholes on the project site, within TMK parcel 8-09-002:65. This data recovery will be conducted in consultation with the DLNR-SHPD. The historic site represented by the remnants of Camp Andrews on the project site in TMK 8-9-002:01 was determined to be adequately documented by the previous CSH survey.

Since additional undiscovered sinkholes are likely to exist within the project site, all subsurface construction activities will be monitored by an archaeologist. Also, a Monitoring Plan detailing the expected finds and methods of treatment will be prepared and submitted to the DLNR –SHPD for approval prior to commencing construction.

4.8 Cultural Resources

A cultural impact assessment for the project site was conducted by Archaeological Consultants of the Pacific, Inc. (ACP), and is included in its entirety as Appendix B. In addressing Hawaiian customary and traditional rights and their applicability to the project area, ACP:

1. Examined historical documents, Land Commission Awards, historic maps.

2. Reviewed the existing archaeological information pertaining to the sites on the property toward understanding traditional land use activities and to

identify and describe the cultural resources, practices and beliefs associated with the site, and to identify present uses, if any.

3. Conducted oral interviews with knowledgeable persons about the historic and traditional practices in the project area and region.

ACP's research determined that during the Mahele, five land court awards were filed by natives, but were all unawarded. Based on these claims, kula land was being used, and crops such as wauke and sweet potatoes were being grown in Nanakuli, along Nanakuli Stream, or one of its tributaries. In the mid 1920's Nanakuli was home to 10 residents and was opened up to native Hawaiian settlement.

In early 20th century, the project site and the site presently occupied by the new Nanaikapono Elementary School were designated as an U.S. military reservation by Presidential Executive Order. In 1940, the Navy constructed and opened a recreation camp, known as Camp Andrews, for enlisted men. The camp continued in operation during World War II. Following the war, the camp was phased out and many of its buildings dispersed throughout the community for use.

Although it is probable that the coastal areas of Nanakuli contain cultural deposits, in recent years, modern residential and recreational developments have obscured earlier deposits.

The interviewees did not indicate that any type of gathering activity took place or was likely to take place within the proposed project site.

Impacts and Mitigation Measures

The proposed project will not impact any known cultural activities, such as gathering. It proposes to utilize the project site to create a "village center" and gathering area in order to "build a healthy community."

The proposed project has the potential to impact undiscovered sinkholes that could contain cultural resources. Therefore, the mitigation measures described in Section 4.7 Historic and Archaeological Resources will be implemented.

4.9 Hazardous and Toxic Materials

URS Corporation conducted a Phase I Environmental Site Assessment in December 2001 to evaluate the project site for hazardous and toxic waste substances. This assessment is included as Appendix C and is summarized below.

The assessment investigated past and present land uses of the property and surrounding areas to determine the existence or potential for hazardous materials contamination. The assessment included the following:

- Review of site history
- Review of regulatory records
- Review of site geology and hydrogeology
- Site reconnaissance
- Data evaluation and report preparation

Large quantities of trash and debris were observed throughout the property, including but not limited to, tires, batteries, drums, vehicles, appliances, equipment, metal, concrete slabs and wood. No evidence of significant staining was observed on the soil and there was no evidence of buried solid waste.

No hazardous materials were observed in the channel and the channel is concrete lined but unsecured boundaries allow for potential future unauthorized dumping upstream that may impact the project site.

Impacts and Mitigation Measures

Based on the Phase I Environmental Assessment, no significant impacts related to the presence of hazardous materials on the project site are anticipated. All trash and debris on the project site will be disposed of in compliance with applicable Federal, State and City regulations and requirements.

4.10 Scenic Characteristics

The dominant scenic feature in the vicinity of the project site is the panoramic ocean view. Mauka views include the distant slopes of the Waianae Mountain range with ridges extending toward the sea. According to the City's Coastal View Study (1987), the project site lies within the Nanakuli Viewshed. Farrington Highway, the coastal road through the region, provides "continuous" or "intermittent coastal views" in some areas. The view study does not identify any significant stationary viewpoints along the Nanakuli coastline.

Impacts and Mitigation Measures

The proposed project will not impact makai views from Farrington Highway since the project site is located on the mauka side of the highway. Mauka views from the highway would be gradually altered by the development of presently vacant land and removal of vegetation that presently obscures views of the project site from the highway. The proposed project will further reinforce the urban character of the area, cumulatively adding the recent

completion of the adjoining Nanaikapono Elementary School. In this regard, the proposed project is intended to create an identifiable "village center" for the Nanakuli community.

4.11 Traffic

Wilson Okamoto Corporation prepared a traffic impact assessment of the proposed project (See Appendix D). The associated traffic surveys were conducted on November 16 and 21, 2004 between AM peak hours of 5:30 AM and 8:30 AM and the PM peak hours of 3:00 PM and 6:00 PM, during the normal school session, at the following intersections:

- Farrington Highway and Nanakuli Avenue
- Farrington Highway and Haleakala Avenue

Surveys were also conducted between AM peak hours of 6:00AM and 8:00 AM and the PM peak hours of 3:30 PM and 5:30 PM at the following intersections:

- Nanakuli Avenue and Mano Avenue
- Haleakala Avenue and Mano Avenue

The intersections were assessed using the methodologies from the Transportation Research Board *Highway Capacity Manual* Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration.

Operating conditions at these intersections are described in terms of their level-of-service (LOS). LOS is defined by LOS A (best) to LOS F (worst).

The peak weekday hours of traffic at the surveyed intersection occurs as shown in Table 4-1.

Farrington Highway serves as the primary access road along the leeward coast and connects with the H-1 Freeway near Kapolei. In the project vicinity, Farrington Highway intersects mauka-makai collector roads into Nanakuli Valley. In the project vicinity public transit is provided by Oahu Transit Service "TheBus" with stops located along Farrington Highway near its intersections with Nanakuli and Haleakala Avenues. Bus routes serving this section of Farrington Highway include bus route C "Country Express!", which extends from Ala Moana Shopping Center to Makaha; bus route 93 "Waianae Coast Express (to Downtown Honolulu)", which extends from Downtown Honolulu to Makaha; bus route 93A "Waianae Coast Express (to Pearl Harbor), which extends from Makaha to Pearl Harbor. There are no bicycle facilities in the project vicinity.

Table 4-1: Peak Periods of Traffic		
Intersection	**AM Peak**	**PM Peak**
Farrington Highway/Haleakala Avenue	7:30 AM to 8:30 AM	4:00 PM to 5:00 PM
Farrington Highway/Nanakuli Avenue	7:00 AM to 8:00 AM	3:15 PM to 4:15 PM
Mano Avenue/Haleakala Avenue	7:00 AM to 8:00 AM	3:30 PM to 4:30 PM
Mano Avenue/Nanakuli Avenue	7:00 AM to 8:00 AM	3:30 PM to 4:30 PM

Fronting the project site, Farrington Highway is a two-way, four-lane, undivided State Highway with a posted speed limit of 35 miles per hour (mph). Approximately 470 feet northwest of the project site, the highway intersects with Haleakala Avenue, a two-way, two-lane, City and County of Honolulu roadway with a posted speed limit of 25 mph. At this signalized intersection, the westbound approach of Farrington Highway serves through and right-turn traffic movements and the eastbound approach serves through and left-turn movements. The Haleakala Avenue approach serves left-turn and right-turn movements. All approaches to the intersection operate at LOS "D" during the AM peak period and LOS "E" during he PM peak period.

Approximately 560 feet southeast of the project site, Farrington Highway intersects with Nanakuli Avenue, which is a two-way, two-lane, City and County of Honolulu roadway with a posted speed limit of 25 mph. At this signalized intersection, all approaches serve through, left-turn and right-turn traffic movements. The approaches to the intersection from Nanakuli Avenue, as well as both approaches of Farrington Highway operate at LOS "D" during both peak hours of traffic.

Approximately 1,400 feet (0.26 miles) mauka of Farrington Highway, Nanakuli Avenue intersects with Mano Avenue. Mano Avenue is a two-way, two-lane, City and County of Honolulu roadway with a posted speed limit of 25 mph. At this unsignalized intersection, all approaches serve through, left-turn and right-turn traffic movements. Traffic on the Nanakuli Avenue approaches to the intersection are allowed to proceed freely through the intersection while he Mano Avenue approaches are controlled by a stop sign. Both approaches of Mano

Avenue operate at LOS "C" during the AM peak period and LOS "B" during the PM peak period.

Approximately 1,950 feet (0.37 miles) mauka of Farrington Highway, Haleakala Avenue intersects Mano Avenue. At this unsignalized intersection, all approaches serve through, left-turn and right-turn traffic movements. Traffic on the Haleakala Avenue approaches to the intersection are allowed to proceed freely through the intersection while the Mano Avenue approaches are controlled by a stop sign. The southbound approach of Mano Avenue operates at LOS "B" during the AM and PM peak period while the northbound approach operates at LOS "D" during the AM peak period and LOS "C" during the PM peak period.

Impacts and Mitigation Measures

No significant impacts on traffic are anticipated during the construction and operation of the proposed facilities.

In the short-term, during construction of the various phases of the project, trucks, heavy equipment, and other vehicles will use existing roads to import and export materials and to access construction areas. The increased traffic from construction-related vehicles should not be significant, but may cause some minor inconveniences to residents in the vicinity. Construction of water and sewer connections to lines in roadways may also cause temporary inconvenience. Coordinating work hours to avoid peak traffic hours will mitigate short-term traffic impacts.

Construction vehicles will park within the project site and, thus will not affect traffic flow along adjoining roadways except while traveling to and from the site.

As appropriate, construction contractor(s) will be required to mitigate potential vehicular and pedestrian traffic impacts through appropriate traffic control measures and safety devices.

For the long-term operation of the proposed project, the traffic impact assessment forecasts traffic volume and conditions for 2008. Since the construction schedule for the future phases are undetermined, the assessment assumes full build-out of the proposed project, including the Nanakuli Community Center, the Boys and Girls Club of Hawaii "Clubhouse" facility and the Commercial Center/Kupuna Housing complex.

The cumulative future traffic was forecast at the intersections by adding the following:

- Existing traffic volumes at the intersections.

- Increases in traffic volume by the growth rate derived from future population projections.
- Traffic generated by the proposed project.

The Year 2008 cumulative AM and PM peak hour traffic conditions with the full-build out of the proposed project are summarized in Table 4-2. The existing and projected Year 2008 (Without Project) operating conditions are provided for comparison.

Table 4-2
Existing and Projected Year 2008 (With and Without Project)
Traffic Operating Conditions

Intersection	Approach	AM			PM		
		Exist	Year 2008		Exist	Year 2008	
			w/out Proj	w/ Proj		w/out Proj	w/ Proj
Farrington Highway/ Haleakala Avenue	Southbound	D	E	E	E	E	E
	Northbound	D	D	D	E	E	E
	Westbound	D	E	E	E	E	E
Farrington Highway/ Nanakuli Avenue	Northbound	D	D	D	D	E	E
	Southbound	D	E	E	D	E	E
	Westbound	D	E	E	D	E	E
Mano Avenue/ Haleakala Avenue	Northbound	D	D	D	C	C	C
	Southbound	B	B	B	B	B	B
	Westbound	A	A	A	A	A	A
	Eastbound	A	A	A	A	A	A
Mano Avenue/ Nanakuli Avenue	Northbound	C	C	D	B	B	C
	Southbound	C	C	D	B	B	B
	Westbound	A	A	A	A	A	A
	Eastbound	A	A	A	A	A	A

Traffic in the vicinity of the proposed community center is expected, in general, to operate similar to Year 2008 without project conditions during both peak hours of traffic. The northbound approach of the Mano Avenue and Nanakuli Avenue intersection is expected to operate at a slightly lower, but still acceptable level of service during the PM peak hour of traffic due to the increase in traffic along Nanakuli Avenue. The other

approaches of that intersection, as well as the approaches of the remaining three study intersections are expected to operate at levels of service similar to Year 2008 without project conditions during both peak hours of traffic.

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress.

2. Restrict exiting traffic movements at the proposed driveway along Farrington Highway to right turn out movements only. The exiting lane should be channelized to ensure that vehicles do not execute left-turn maneuvers.

3. Align the proposed driveway along Farrington Highway with the entrance driveway of the Charter School across the highway to minimize conflicting movements.

4. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

5. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.

6. Consult with the State Department of Transportation (DOT).

7. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.

8. Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project property. Avoid vehicle-reversing maneuvers onto State of Hawaii and City and County roadways.

Consultation regarding public transit service for the proposed project, as well as consideration of bicycle access, will be pursued with DOT and the City in conjunction with the preparation of construction plans for work within and affecting State and City rights-of-way.

4.12 Noise

The project site is bordered by the new Nanaikapono Elementary School and a drainage channel on the north, Farrington Highway on the west, and abuts

single-family residences to the east and south. Predominant sources of noise include vehicles traveling along the highway and on adjoining streets and activities at the elementary school.

Impacts and Mitigation Measures

In the short-term, noise from construction activities will likely be unavoidable during the entire construction period. Development of the facilities will involve excavation, grading, and construction of new buildings and infrastructure. The various construction phases of the project may generate significant amounts of noise, which may impact nearby residents, and elementary school. The increase in noise level will vary according to the particular phase of construction. The noisiest periods will occur during site preparation, when large earth-moving equipment is operated. Typical ranges of construction equipment noise are from 70 – 105 dBA at 50 feet.

Construction noise impacts will be mitigated somewhat by compliance with provisions of the State DOH Administrative Rules, Title 11, Chapter 46, "Community Noise Control" noise control regulations. The permit allows construction to occur from Monday to Friday between 7:00 am until 6:00 pm. Also, the guidelines for the hours of heavy equipment operation and noise curfew times as set forth by the State DOH noise control rules will be adhered to. Otherwise, these rules require a noise permit (depending on the construction period) if the noise levels from construction activities are expected to exceed the allowable limits set forth in Chapter 46 rules. Heavy vehicles required for construction must comply with Title, 11 Administrative Rules, Chapter 42, and "Vehicular Noise Control for Oahu." It shall be the contractor's responsibility to minimize noise by properly maintaining noise mufflers and other noise-attenuating equipment, and to maintain noise levels within regulatory limits.

In the long-term, ambient noise levels in the immediate vicinity of the project site will increase due to the presence of people/students and associated increase in traffic. To reduce noise impacts on neighboring residences, a masonry wall will be constructed between the project site and adjoining residential properties.

4.13 Air Quality

There are no point sources of airborne emissions in the immediate vicinity of the project site. The air quality in this area is considered good with the primary non-point source of emissions from vehicles traveling along Farrington Highway and other roadways. While there is no air quality monitoring station in the vicinity of the project site, air quality is assumed to be in compliance with State and Federal standards due to the rural character of the area. The State DOH's nearest air

quality monitoring stations are located about eight to ten miles away at Barbers Point at Ko Olina golf course.

The Makaiwa station is a State and Local Air Monitoring Station (SLAMS) monitoring SO_2 and the West Beach station is also a SLAMS monitoring NO_2, PM_{10}, and SO_2. These air pollutants were well below the Federal and State air quality standards (Department of Health, 2003).

Under certain wind conditions, ambient air quality in the vicinity of the project site is occasionally affected by odors emanating from agricultural operations, particularly animal rearing operations in Lualualei Valley. The Nanakuli Landfill on Lualualei Naval Road is also a source of dust and exhaust emissions.

Impacts and Mitigation Measures

No significant impacts on ambient air quality are anticipated during construction and operation of the proposed facilities.

During construction, activities such as clearing, grubbing, grading and excavation at the project site will generate dust while vehicles and equipment will produce exhaust emissions. Dust control measures stipulated by Department of Health Administrative Rules, Title 11, Chapter 60, "Air Pollution Control" regulations will be employed during the construction period. These controls consist of wetting down loose soil areas with water, oil, or suitable chemicals; good housekeeping on the job site; and paving, or landscaping bare soil areas as soon as possible. As may be deemed appropriate, paving and/or revegetating areas early in construction will also help to control dust. Nevertheless, the properties which are anticipated to be most affected by air quality impacts during construction are the residences and elementary school located in the immediate vicinity of the proposed project site.

Emissions from construction equipment, trucks and commuting construction workers are not anticipated to significantly impact ambient air quality due to the relatively low level of vehicular activity in comparison to existing traffic conditions. Slow-moving construction vehicles, however, can disrupt peak-hour traffic, increasing congestion and resulting vehicular emissions. Traffic congestion and resulting emissions will be mitigated by transporting slower construction equipment during off-peak traffic hours. The properties which are anticipated to be most affected by air quality impacts during construction are the residences and businesses located adjacent to and along the proposed facilities.

Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment emissions, but the standard for

nitrogen oxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are very low and should be relatively insignificant compared to normal vehicular emissions from nearby roads.

In the long-term, operation of the proposed facilities will have no significant impact on air quality in the vicinity of the project site. Vehicular emissions from traffic associated with the proposed facilities will be negligible as traffic is anticipated to operate generally well along Farrington Highway and nearby roadways.

4.14 Socioeconomic Characteristics

4.14.1 Population and Economy

Population and Housing: Nanakuli is a rural, single family residential community approximately 50 miles west of downtown Honolulu on the leeward side of Oahu. According to a demographic profile of various Oahu planning regions (Development Plan / Sustainable Communities Plan) prepared by the City's Department of Planning and Permitting using the 2000 Census Data, Nanakuli Sub-area had a population of 11,866.

Of the total population, approximately 41% were people of Native Hawaiian and Other Pacific Islander ethnicity. The median age is 27.4 years with 57.5% of the population falling between the ages of 18 – 64 years. Of the 2,745 households within the Nanakuli Sub-area, family households comprise 90.5%. The average household size is 4.64. In comparison to Waianae as a whole, the Nanakuli population is slightly younger, more Native Hawaiians; a fairly even proportion of family households; and lower vacancy rate and higher homeownership rate (see Table 4-3).

Economy: According to the 2000 Census, the median household income for Nanakuli CDP was $45,352, which is lower than the median household income of $51,914 for the City and County of Honolulu.

Impacts and Mitigation Measures

Population and Housing: The proposed project includes construction of 50 units for elderly housing. Marginal impacts on the population of the region are anticipated since these units are intended to house elderly residents presently in the community. While the proposed project will marginally increase the housing inventory of the region, it will benefit the region by addressing demand for affordable elderly housing, which is generally not met through market housing.

Table 4-3: Demographic Characteristics: 2000				
Subject	**Nanakuli**		**Waianae**	
	Number	**Percent**	**Number**	**Percent**
Total population	**11,866**	**100.00**	**42,259**	**100.00**
AGE				
Under 5 Years	1,052	8.9	3,755	8.9
5 – 17 years	3,163	26.7	10,876	25.7
18 – 64 years	6,827	57.5	24,218	57.3
65 years and over	824	6.9	3,410	0.8
Median age (years)	27.4	--	28.5	--
RACE (alone or in combination with other races)				
White	665	5.6	4,737	11.2
Black or African American	87	0.7	465	1.1
American Indian and Alaska Native	33	0.3	141	0.3
Asian	1.366	11.5	7,093	16.8
Native Hawaiian and other Pacific Islander	4,847	40.8	12,139	28.7
Other	89	0.8	470	1.0
HOUSEHOLD (BY TYPE)				
Total Households	2,554	100.00	10,535	100.00
Family households (families)	2,312	90.5	8,809	83.6
With own children under 18 years	1,152	45.1	4,505	43.3
Married-couple family	1,508	59.0	5,806	55.1
With own children under 18 years	791	31.0	2,970	28.2
Female householder, no husband present	570	22.3	2,143	20.3
With own children under 18 years	256	10.0	1,285	11.2
Non – families	242	9.5	1,726	16.4
Living with nonrelatives	73	2.9	473	4.5
Living alone and 65 years and over	57	2.2	386	3.7
Average persons per household	4.64	--	3.97	--
HOUSING OCCUPANCY AND TENURE				
Total Housing Units	2,745	100.00	12,356	100.00
Occupied units	2,554	93.0	10,535	85.3
By owner	1,786	65.1	6,093	49.3
By renter	768	28.0	4,442	36.0
Vacant units	191	7.0	1,821	14.7
		2.8		6.1
Available housing vacancy rate (%)	4.3	--	9.2	--
Homeownership rate (%)	69.9	--	57.8	--

Source: 2001 Census File, City & County of Honolulu, Department of Planning & Permitting

Economy: In the short-term, the construction expenditures will confer some positive benefits to the local economy. This would include creation of some construction and construction support jobs. In the long-term, the proposed project will create job opportunities associated with the operation and maintenance of the various facilities.

4.14.2 Public Services

Police protection for the project site is provided by the Waianae Police Station, which is located 4 miles northwest from the project site on Farrington Highway in Waianae. The next closest stations are Barbers Point Substation and Kapolei Police Station. Nanakuli Fire Station, on the corner of Nanakuli Avenue and Mano Avenue, and the Waianae Fire Station, on Farrington Highway near Waianae Intermediate and High School, provide fire protection.

The Waianae Coast Comprehensive Health Center located near the Waianae Police Station provides ambulance and emergency care services for the Nanakuli area. The next closest facility is St. Francis West Hospital in Kapolei, approximately 20 minutes from Nanakuli.

Impacts and Mitigation Measures

In the short-term, construction activities at the project site may increase potential demand for police services due to construction-related traffic, security of construction sites and the presence of more people associated with construction. The potential need for fire protection services would increase due to the presence of construction materials and equipment on the project site. The presence of construction workers and others at the project site would also increase the potential demand for emergency care services. These impacts, however, would be relatively insignificant within the overall context of the areas served by the respective public services. In the long-term term, operation of the proposed facilities will marginally increase the potential demand for police and emergency services by creating a gathering area for the community. To the extent that the proposed project will provide opportunities for youth activities, potential criminal behaviors demanding police services could be reduced. Construction of facilities meeting current fire codes will minimize potential demand for fire protection services.

4.15 Infrastructure

4.15.1 Water

Water for the Nanakuli area is drawn from the Ewa and Waianae Wells by the City and County Board of Water Supply (BWS) and conveyed to communities through a network of distribution lines. The project site will be served by the Nanakuli 242 Reservoir. The existing water system in the vicinity of the project

area consists of a 24-inch, 12-inch and 6-inch water transmission line located along Farrington Highway and an 8-inch line along Mano Avenue.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing water system as a result of constructing the proposed facilities. During design and construction, close coordination will be maintained with BWS to ensure that the water system will not be adversely impacted and to minimize interruption of water service to adjacent areas.

Preliminary consultation with the BWS Customer Care Unit indicated sufficient domestic and fire protection capacity to serve the proposed project from existing water mains along Farrington Highway.

4.15.2 Wastewater

The existing municipal sewer system serving the vicinity of the project site includes several gravity lines along Farrington Highway, including a 30-inch interceptor, a 24-inch line, an 18-inch line and an 8-inch line. Wastewater collected by these lines is conveyed to the Waianae Wastewater Treatment Plant for treatment and disposal through an ocean outfall.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing wastewater system as a result of constructing of the proposed facilities. During design and construction, coordination will be maintained to ensure that the wastewater system will not be adversely impacted and to minimize the potential for interrupting wastewater service to adjacent areas.

Preliminary consultation with the City's Department of Planning and Permitting (DPP) Wastewater Branch indicates that an existing 10-inch sewer lateral extending from the18-inch line along the makai (southeast) side of Farrington Highway into the project site could potentially serve the proposed project. A Site Development Master Application for Sewer Connection will be submitted to the DPP for approval.

4.15.3 Electrical/Communication

Hawaiian Electric Company (HECO) provides electrical service in the project area through a network of underground ductlines and aerial power lines.

Hawaiian Telcom (formerly Verizon Hawaii) provides telephone and communication services. Existing underground and aerial service lines are located throughout the project area, serving private, residential and commercial properties.

Time Warner Oceanic Cable provides cable television and communication service in the project area. Existing underground and aerial cable lines are located throughout the project area, serving private, residential and commercial properties.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing electrical and communications system as a result of the construction and operation of the proposed facilities. Electrical, telephone and cable communication service to the proposed facility will be provided through overhead lines from Farrington Highway. Consultation will be initiated with HECO, Hawaiian Telcom and Tim Warner Oceanic Cable, respectively, to determine the adequacy of utility services for the proposed project. Required hook-ups to these systems will be coordinated with the respective utility companies to minimize any potential conflicts with services to adjacent areas.

4.15.4 Gas

The Gas Company has an existing underground line along Farrington Highway between Helelua Street and Auyong Homestead Road.

It is not anticipated that gas service will be obtained for the proposed project.

Impacts and Mitigation Measures

No significant impacts are anticipated on the existing gas system as a result of the construction of the proposed facilities. During design and construction of the proposed facilities close coordination will be maintained with The Gas Company to ensure that the gas lines will not be adversely impacted and service will not be interrupted.

4.15.5 Drainage

Sheet flow run-off from the project site is generally directed by topography toward Farrington Highway and the existing concrete drainage channel on the southeast border of the project site. The drainage channel is under the jurisdiction of the State of Hawaii Department of Land and Natural Resources.

The total length of the drainage channel along the project's northwest boundary is 1,140 feet. The drainage channel crosses underneath Farrington Highway, before emptying into the ocean. The drainage channel is trapezoidal shaped and has a width of 25.8 feet to 48.11 feet and a depth of 7.3 feet.

Impacts and Mitigation Measures

No significant impacts to drainage patterns in the vicinity of the project site are anticipated during construction and operation of the proposed facility.

During construction activities, potential surface run-off will be handled in accordance with the City and County's grading ordinance and the NPDES permit requirement administered by the DOH (refer to Section 2.3).

Development of the proposed project will increase the impervious area of the project site. The drainage pattern of the improved site is anticipated to generally follow the existing pattern. Long-term water quality will not be affected by the proposed facilities. The project site will be graded to drain the runoff towards the makai side of the site. A drainage system consisting of pipelines, manholes, drain inlets and outlet structures will be provided to discharge the runoff into the existing concrete trapezoidal channel along the northwest side of the site. Following construction, exposed soils will have been built over, paved over, or landscaped to control erosion.

According to the Drainage Report for Nanakuli Flood Control Channel, Nanakuli Residence Lots, 4th and 5th Series, dated December 1976 by Wilson Okamoto & Associates, Inc., the project site was accounted for in the design of the drainage channel.

4.15.6 Waste Disposal

The City and County of Honolulu, Department of Environmental Services Refuse Collection and Disposal Division collect solid waste in the vicinity of the project site.

Solid waste from residential and commercial properties within the project area is disposed of at the Waimanalo Gulch Sanitary Landfill. Construction waste is disposed of at the Nanakuli Landfill, also known as Lualualei Landfill, located on Lualualei Naval Road.

Impacts and Mitigation Measures

No significant impacts to the municipal solid waste collection and disposal system are anticipated during construction of the proposed facilities. Construction of the proposed facilities will require grading and excavation activities, which may produce excess soil. It will be the responsibility of the construction contractor(s) to dispose of any excess soil removed during construction. Depending upon its quality and usefulness, the excess soil could be used as fill at other projects or locations or disposed of in a landfill. There may be short-term environmental impacts caused by construction materials wastes. A permit may be required from the City and County Department of Planning and Permitting for grading, grubbing or stockpiling soils, which may require a Temporary Erosion Control Plan and soils report.

5. RELATIONSHIP TO LAND USE, POLICIES AND CONTROLS

The plans and policies relating to the proposed project range from broad program guidance to land use controls governing the project site. Construction of the proposed facilities is in consonance with the various plans, policies and regulatory controls, as discussed below.

5.1 Hawaii State Plan

The Hawaii State Plan (Chapter 226, Hawaii Revised Statutes, as amended) provides the overall theme, goals, objectives, policies and priority guidelines for statewide planning. The Hawaii State Plan also directs the appropriate State agencies to prepare functional plans for their respective program areas. The proposed project supports and is consistent with the following State Plan objectives:

Social-cultural advancement – housing

(a)(1): Greater opportunities for Hawaii's people to secure reasonably prices, safe, sanitary, and livable homes, located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals, through collaboration and cooperation between government and nonprofit and for-profit developers to ensure that more affordable housing is made available to very low-, low- and moderate-income segments of Hawaii's population.

(a)(2): The orderly development of residential areas sensitive to community needs and other land uses.

(b)(5): Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

(b)(7): Foster a variety of lifestyles traditional to Hawaii through the design and maintenance of neighborhoods that reflect the culture and values of the community.

Comment: The proposed project will provide 50 units for affordable elderly housing and a community center.

Socio-cultural advancement – education

(b)(1): Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups.

(b)(2): Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs.

(b)(4): Provide educational programs which enhance understanding of Hawaii's cultural heritage.

Comment: The proposed Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities.

Socio-cultural advancement – leisure

(b)(1): Foster and preserve Hawaii's multi-cultural heritage through supportive cultural, artistic, recreational, and humanities-oriented programs and activities.

(b)(2): Provide a wide range of activities and facilities to fulfill the cultural, artistic, and recreational needs of all diverse and special groups effectively and efficiently.

Comment: The proposed Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities.

Socio-cultural advancement – culture

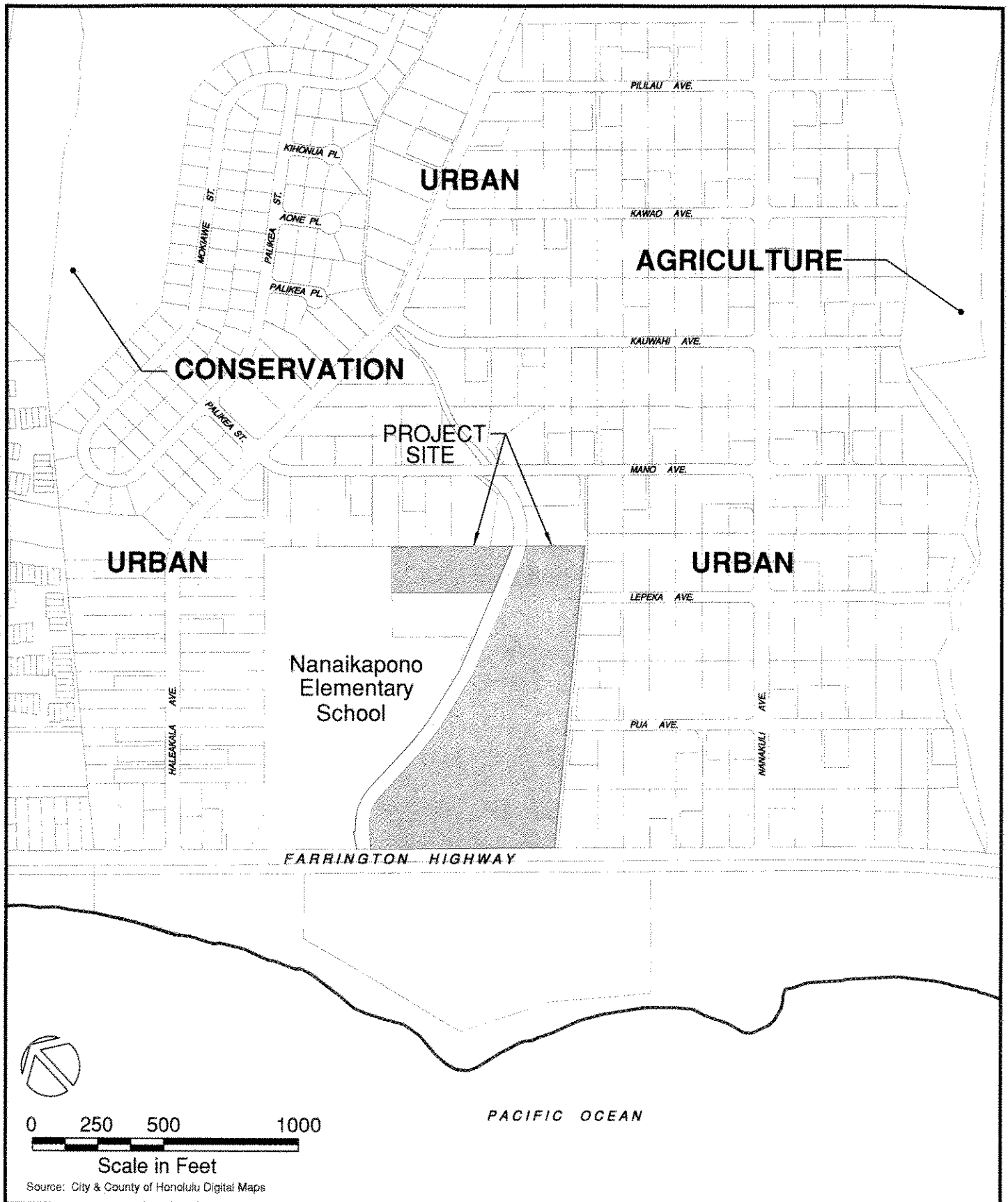
(b)(1): Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii.

(b)(2): Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.

Comment: The proposed Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities.

5.2 State Land Use Designation

The State Land Use Law is intended to preserve, protect, and encourage the development of lands in the State for uses which are best suited to the public health and welfare of Hawaii's people. The Hawaii Land Use Law in Chapter 205, Hawaii Revised Statutes (HRS), classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The project site lies within the Urban District, which includes *"lands characterized by city-like concentrations of people, structures, streets, urban level of services and other related land uses."* (see Figure 5-1). The proposed project is consistent with the Urban classification.



Source: City & County of Honolulu Digital Maps

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NANAKULI COMMUNITY CENTER

STATE LAND USE CLASIFICATION MAP

FIGURE 5 - 1

5.3 City and County of Honolulu

5.3.1 General Plan

The General Plan for the City and County of Honolulu (adopted 1977) was amended by the City Council in 1992. The Plan is a statement of the long-range social, economic, environmental and design objectives for the general welfare and prosperity of the people of Oahu. The Plan is also a statement of broad policies that facilitate the attainment of the objectives of the Plan. Eleven subject areas provide the framework for the City's expression of public policy concerning the needs of the people and functions of government. These areas include 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. As presented in Chapter 1 and assessed in Chapter 2 of this environmental assessment, the proposed project is in consonance with the following objectives and policies of the General Plan:

Housing, Objective A: To provide decent housing for all the people of Oahu at prices they can afford.

Policy 13: Encourage the provision of affordable housing designed for the elderly and the handicapped.

Comment: The proposed project will provide 50 units for affordable elderly housing and a community center.

Physical Development and Urban Design, Objective A: To coordinate changes in the physical environment of Oahu to ensure that all new developments are timely, well-designed, and appropriate for the areas in which they will be located.

Policy 8: Locate community facilities on sites that will be convenient to the people they are intended to serve

Comment: The proposed site is centrally located to the Nanakuli community. According to the Waianae Sustainable Communities Plan, the proposed site is identified as a "village center" for Nanakuli.

Physical Development and Urban Design, Objective D: To maintain those development characteristics in the urban-fringe and rural areas which make them desirable places to live.

Policy 1: Develop and maintain urban-fringe areas as predominantly residential areas characterized by generally low rise, low density development which may

include significant levels of retail and service commercial uses as well as satellite institutional and public uses geared to serving the needs of households.

Comment: The proposed project will provide a community center, Boys and Girls Club of Hawaii "Clubhouse" facility, and a Commercial Center/Kupuna Housing complex for the Nanakuli community.

Physical Development and Urban Design, Objective E: To create and maintain attractive, meaningful, and stimulating environments throughout Oahu.

Policy 5: Require new developments in stable, established communities and rural areas to be compatible with the existing communities and areas.

Policy 9: Design public structures to meet high aesthetic and functional standards and to complement the physical character of the communities they will serve.

Comment: The proposed project will provide meaningful and stimulating environment for the Nanakuli community. Nanakuli is an established rural community lacking services for the community and elderly. The Nanakuli Community Center, Boys and Girls Club, and the Commercial Center/Kupuna Housing will provide a resource to benefit local communities. The proposed project is compatible with the surrounding environment. The Nanakuli Community Center incorporates elements and materials from traditional architectural styles. The Community Center is also designed to take advantage of local weather conditions. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities. It will complement the physical character of the largely residential community by providing a recognizable focal point of community activity. The relatively low-rise two story buildings and one three-story building will provide visual focus without contrasting severely with the character of the surrounding neighborhood.

Policies of the City and County General Plan that the services and programs provided by the proposed project will help the City and County to implement includes:

Health and Education, Objective B: To provide a wide range of educational opportunities for the people of Oahu.

Policy 1: Support education programs that encourage the development of enjoyable skills.

Policy 2: Encourage the provision of informal educational programs for people of all age groups.

Policy 3: Encourage the after-hours use of school buildings, grounds, and facilities.

Comment: The proposed Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities.

Culture and Recreation, Objective A: To foster and multiethnic culture of Hawaii.

Policy 1: Encourage the preservation and enhancement of Hawaii's diverse cultures.

Policy 2: Encourage greater public awareness, understanding, and appreciation of cultural heritage and contributions to Hawaii made by the City's various ethnic groups.

Policy 3: Encourage opportunities for better interaction among people with different ethnic, social, and cultural backgrounds.

Policy 4: Encourage the protection of ethnic identities of the older communities of Oahu.

Comment: The proposed project will foster the multiethnic culture of Hawaii by providing a focal point for the Nanakuli community to identify with and promote public awareness of its rich Native Hawaiian culture. The Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs which will provide opportunities for promoting better understanding and appreciation of Native Hawaiian culture and values. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities expressing and sharing their cultural heritage.

5.3.2 Development Plans and Sustainable Communities Plan

The City and County of Honolulu has eight (8) Development Plans (DP) and Sustainable Communities Plans (SCP) that provide the framework for implementing the objectives and policies of the General Plan on an area wide basis. The project site is located within the Waianae Sustainable Communities Plan (July 2000) area that extends from the Ewa-Waianae district boundary north of the Kahe Power Plan, to Kaena Point, and mauka to the ridgeline of the Waianae mountain range.

5.3.2.1 Waianae Sustainable Communities Plan

The Waianae Sustainable Communities Plan Land Use Map depicts land use patterns that are consistent with the objectives and policies for the General Plan. According to the Waianae SCP Land Use Map, the project site is located in a Rural Residential area and is denoted by Rural Community Commercial Center symbol (Figure 5-2). Also in the general area is a symbol for a Community Gathering Place where social and cultural activities of members of the community can take place. The consistency of the proposed project with the Waianae Sustainable Communities Plan is discussed below:

2.1 Vision Statement

THE VISION FOR THE FUTURE OF WAIANAE IS A VISION OF A COMMUNITY living by values and customs that are firmly embedded in the rural landscape, the coastal shorelands, the ocean waters, the forested mountains, the diversity of cultures, the warmth of family and friends, and the Waianae traditions of independence, country living, and aloha.

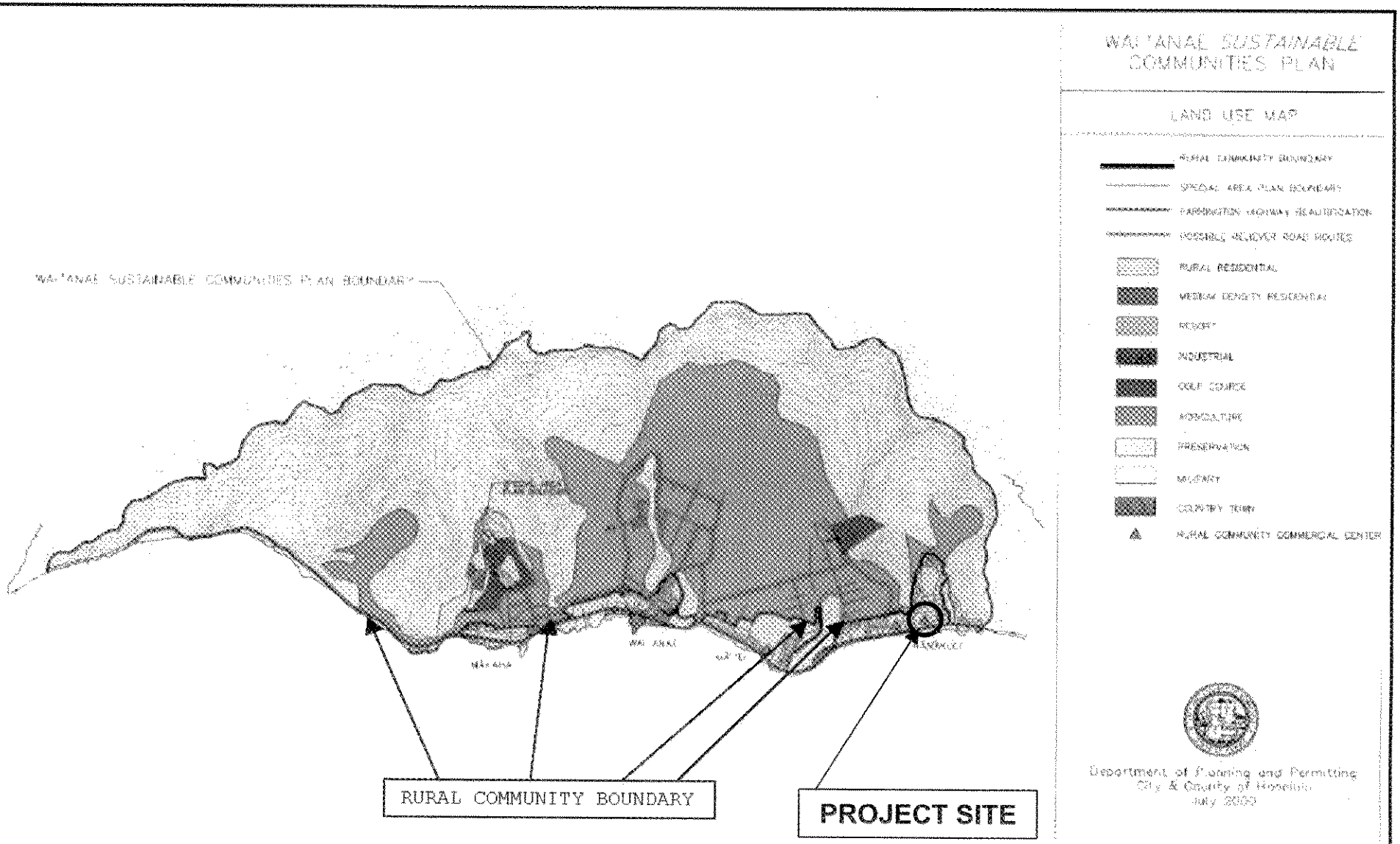
2.2 Community Values

- *Ours is a living culture of the land and the sea*
- *Relationships are fundamental to our values and identity*
- *We are a rural community*
- *We are a community with small town values*
- *We value economic choices in Waianae*
- *Our elderly have much to teach us*
- *We cherish our children*

Comment: The proposed project will foster the multiethnic culture of Hawaii by providing a focal point for the Nanakuli community to identify with and promote public awareness of its rich Native Hawaiian culture. The Boys and Girls Club of Hawaii "Clubhouse" facility will provide children in the community after school programs which will provide opportunities for promoting better understanding and appreciation of Native Hawaiian culture and values. The Nanakuli Community Center will provide the people of all ages a place to gather and participate in community activities expressing and sharing their cultural heritage.

2.7 Waianae Concept
2.7.3 Country Town and Village Centers

Within the RURAL COMMUNITY areas of each of the principal developed ahupuaa- Nanakuli, Lualualei, Waianae, and Makaha – there is the need for the development of more strongly defined



Source: Waianae Sustainable Communities Plan, Department of Planning and Permitting, July 2000

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NANAKULI COMMUNITY CENTER

WAIANAE SUSTAINABLE COMMUNITIES PLAN LAND USE MAP

FIGURE 5-2

commercial and service Centers. These Centers should contain a concentration of small retail businesses, restaurants, professional offices like dentists and doctors, and social services offices. They should also contain some clustered housing units, including second-story housing units above ground-level commercial space. Structures would be one or two stories in height. This more efficient development pattern would provide for a stronger local community identity, encourage more pedestrian traffic and less dependence on cars, support small local businesses, and potentially alleviate the strong "strip commercial" development pattern that presently exists along Farrington Highway.

Smaller "Village Centers" are schematically shown on the Waianae Concept graphic for the communities of Nanakuli, Lualualei/Maili, and Makaha. These smaller commercial centers would provide shops, stores, restaurants, and social services offices for the local communities, as well s a stronger sense of physical identity.

Comment: The Waianae Sustainable Communities Plan Land Use Map (Figure 5-2) identifies the project site as the "Nanakuli Village Center" The proposed Commercial Center/Kupuna Housing complex project will provide ground floor space for a concentration of retail and commercial uses with approximately 50 elderly rental housing units on two upper floors. The proposed adjoining Nanakuli Community Center and Boys and Girls Club of Hawaii "Clubhouse" will provide social services for the community. Collectively, the proposed project offers a development pattern that promotes a stronger local community identity and support for small local businesses.

The location of the proposed project adjacent to the new Nanaikapono Elementary School and proximity to the Nanakuli community on the mauka side of Farrington Highway also promotes a stronger local community identity and encourages more pedestrian traffic and less dependence on cars. While the proposed Commercial Center/Kupuna Housing complex will be taller than two stories, given the scale of the proposed "village center" concept, it will be consistent with its overall visual character and will accent the sense of physical identity.

The parking area for the Commercial Center/Kupuna Housing complex fronts Farrington Highway. While this could be construed as conveying a "strip commercial" development pattern when viewed from the highway, it places the complex within closer physical proximity to the proposed Nanakuli Community Center and the adjoining Nanakuli community. This will promote pedestrian traffic within the project site and between the community to create a greater

sense of physical and community identity. Locating the elderly rental housing units away from the highway also reduces noise impacts to future residents.

3.9 Commercial and Industrial Uses
3.9.2 General Policies Pertaining to Commercial and Industrial Uses
3.9.2.2 Encourage Commercial Business that Serve the Community

Encourage the establishment of appropriate commercial businesses that will provide jobs and goods and services in the Waianae District, especially designated Country Town and Village Center areas.

Comment: The proposed Commercial Center/Kupuna Housing complex project will provide ground floor space for a concentration of retail and commercial uses that floors will support small local businesses within a designated "village center."

3.10 Country Towns, Rural Community Commercial Centers and Gathering Places
3.10.2 General Policies Pertaining to County Towns, Rural Community Commercial Centers and Gathering Places
3.10.2.1 Phased Development Program
A program should be established for the phased development and improvement of commercial centers and Gathering Places for Nanakuli, Maili/Lualualei, Waianae and Makaha. The development program should include the coordination of various public planning and financial resources and partnering with local landowners and local businesses. The overall goal of the phased development program should be to establish: (1) physically distinct and economically viable Rural Community Commercial Centers that will serve local commercial needs, provide local jobs, encourage pedestrian and bicycle circulation, and foster a spirit of community identity and community pride, and (2) Community Gathering Places that will provide a setting for cultural, educational and social activities.

Comment: The proposed project will establish a physically distinct and economically viable "village center" that will serve local commercial needs through the retail and commercial space on the ground floor of the Commercial Center/Kupuna Housing complex, provide local jobs throughout all its components; and encourage increased pedestrian and bicycle circulation due to its proximity to Nanaikapono Elementary School and the Nanakuli community on the mauka side of Farrington Highway. The proposed Nanakuli Community Center and the Boys and Girls Club of Hawaii "Clubhouse" facility will provide a setting for cultural, educational and social activities.

3.10.3 Planning Guidelines for Country Towns, Rural Community Commercial Centers and Gathering Places

3.10.3.1 Geographic Size of the Centers

As a general guide, the geographic extent of the commercial and residential land uses that make up the Centers should be relatively small in scale. The Rural Community Commercial Centers would range in size from about three to five acres. Nearby homes would be within a reasonable walking distance of Center Commercial establishments.

3.10.3.2 Commercial Establishments in the Centers

Commercial buildings located within the Country Town and Rural Community Commercial Centers should be low-rise one-, two-, or at most three-story buildings. New buildings should be designed and sited to create strong building line along the main street. Parking lots should generally be located behind buildings. The typical configuration for strip commercial development, with a large parking lot fronting the street and the commercial buildings located at the back of the parking lot, should not be allowed. A limited amount of "fast turnover" parking stalls could be located in front of new commercial buildings. The design of new buildings should incorporate elements and materials from traditional local architectural styles. Where possible, commercial buildings should be designed as multipurpose structures, with retail commercial space on the ground floor space for professional offices or residential apartments on the second floor.

Comment: The proposed Commercial Center/Kupuna Housing complex project will provide ground floor space for a concentration of retail and commercial uses with approximately 50 elderly rental housing units on two upper floors. The parking area for the complex fronts Farrington Highway. While this could be construed as conveying a "strip commercial" development pattern when viewed from the highway, it places the complex within closer physical proximity to the proposed Nanakuli Community Center and the adjoining Nanakuli community. This will promote pedestrian traffic within the project site and between the community and create a greater sense of physical and community identity. Locating the elderly rental housing units away from the highway also reduces noise impacts to future residents.

3.10.3.4 Center Amenities

The Country Town and Rural Community Commercial Centers should be landscaped and contain other amenities to identity them as special places for people to frequent. These amenities could include:

- *Street trees along the main streets of the Center;*

- *Mini parks and gathering places;*
- *Wider front yards to accommodate outdoor cafes and sidewalk displays of merchandise;*
- *Pedestrian-scale street lights*
- *Street furniture at appropriate places; benches, trash receptacles, bike racks, planters with flowering plants.*

Comment: The proposed project is generally consistent with the planning guidelines and subsequent design refinement for the proposed project will be pursued in consideration of these guidelines.

5.3.3 Land Use Ordinance (LUO) and Zoning

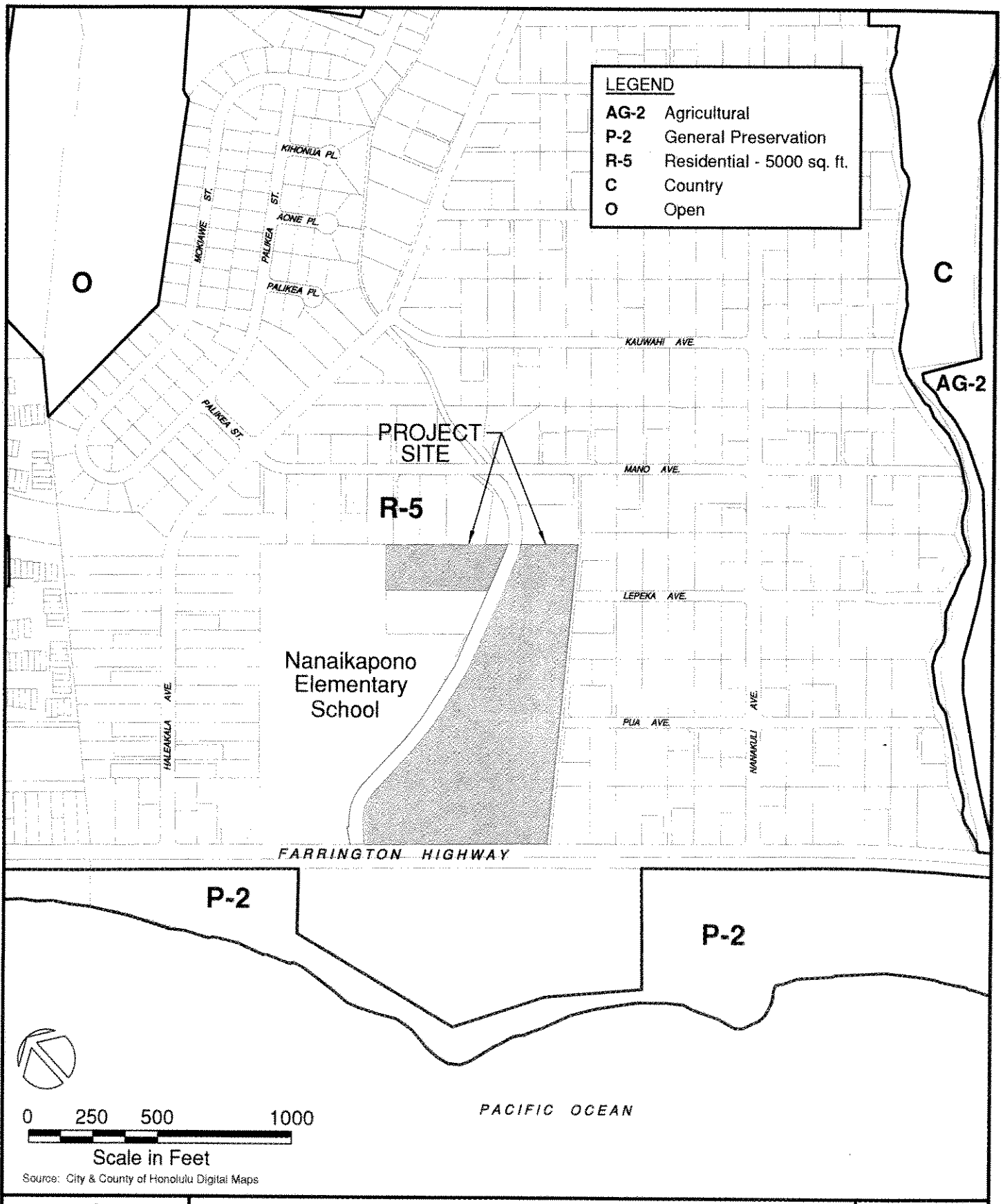
The City and County of Honolulu Land Use Ordinance (LUO) regulates land use in accordance with adopted land use policies, including the General Plan and Development/Sustainable Communities Plans. Zoning designations are shown on the zoning maps for the City (see Figure 5-3).

The project site is zoned Residential District (R-5). The intent of this district is to provide areas for urban residential development.

The proposed project consists of the Nanakuli Community Center, Boys and Girls Club of Hawaii "Clubhouse" facility, and the Commercial Center/Kupuna Housing complex. The community center and "Clubhouse" facility would be permitted through a Conditional Use Permit – minor. The elderly housing and commercial uses are not permitted uses in the R-5 zone. Preliminary consultation with the City Department of Planning and Permitting (DPP) indicates that the proposed project could be exempt from requirements of the City's Land Use Ordinance because it is being developed through a license agreement with the Department of Hawaiian Home Lands (DHHL) on DHHL property.

With regard to design standards, the proposed project buildings will likely exceed the maximum height limit of 25 to 30 feet for the R-5 zone. The proposed Nanakuli Community Center will reach a height of 50 feet. While the three-story Commercial Center/Kupuna Housing complex and the two-story Boys and Girls Club of Hawaii "Clubhouse" facility have yet to be designed, they are also likely to exceed the height limit. The maximum building area for the R-5 zone is 50% while the proposed building area will cover approximately 18% of the lot. Based on the LUO's maximum Floor Area Ratio (FAR) for Planned Development Housing in the R-5 zone, the maximum density allowed would be 35% of the land area. The proposed project floor area is approximately 33% of the project site.

The LUO's minimum parking stall requirement for the Nanakuli Community Center facility would be 189 while the current site plan would provide



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NANAKULI COMMUNITY CENTER

CITY & COUNTY OF HONOLULU ZONING CLASSIFICATIONS

FIGURE 5 - 3

approximately 185 stalls. While the floor space program for the proposed Boys and Girls Club of Hawaii "Clubhouse" facility has not been determined, if the parking requirements for an indoor recreation facility is used as a basis for calculation, more that 230 parking stalls would be required. This is more than double the 99 stalls available at Nanaikapono Elementary School, which the facility would share. The parking stall requirement for the Commercial Center would be 157 stalls, while the 50 residential units in the Kupuna Housing component would require an additional 100 stalls. The total requirement of 257 stalls would be greater than the 247 stalls shown in the current site plan.

5.3.4 Special Management Area

Pursuant to the Hawaii Coastal Zone Management Act (Chapter 205A, Hawaii Revised Statutes) all counties have enacted ordinances establishing Special Management Areas (SMA). Any development within the SMA, including development proposed by the State, requires a SMA Use Permit. On Oahu, the SMA permit is administered by the City Department of Planning and Permitting (DPP) and acted upon by the City Council pursuant to Ordinance No. 84-4.

The project site is located with the boundaries of the City's SMA (see Figure 5-4) and, therefore, would be subject to SMA permit requirements. Preliminary consultation with the City Department of Planning and Permitting (DPP) indicates that the proposed project could be exempt from SMA permit requirements because it is being developed through a license agreement with the Department of Hawaiian Home Lands (DHHL) on DHHL property. A letter from the DHHL declaring that the proposed project is exempt from the SMA Permit has been sent to the DPP for concurrence (See Appendix E). The proposed project is, nevertheless, in consonance with the following applicable objectives, policies and guidelines for the issuance of the SMA permit:

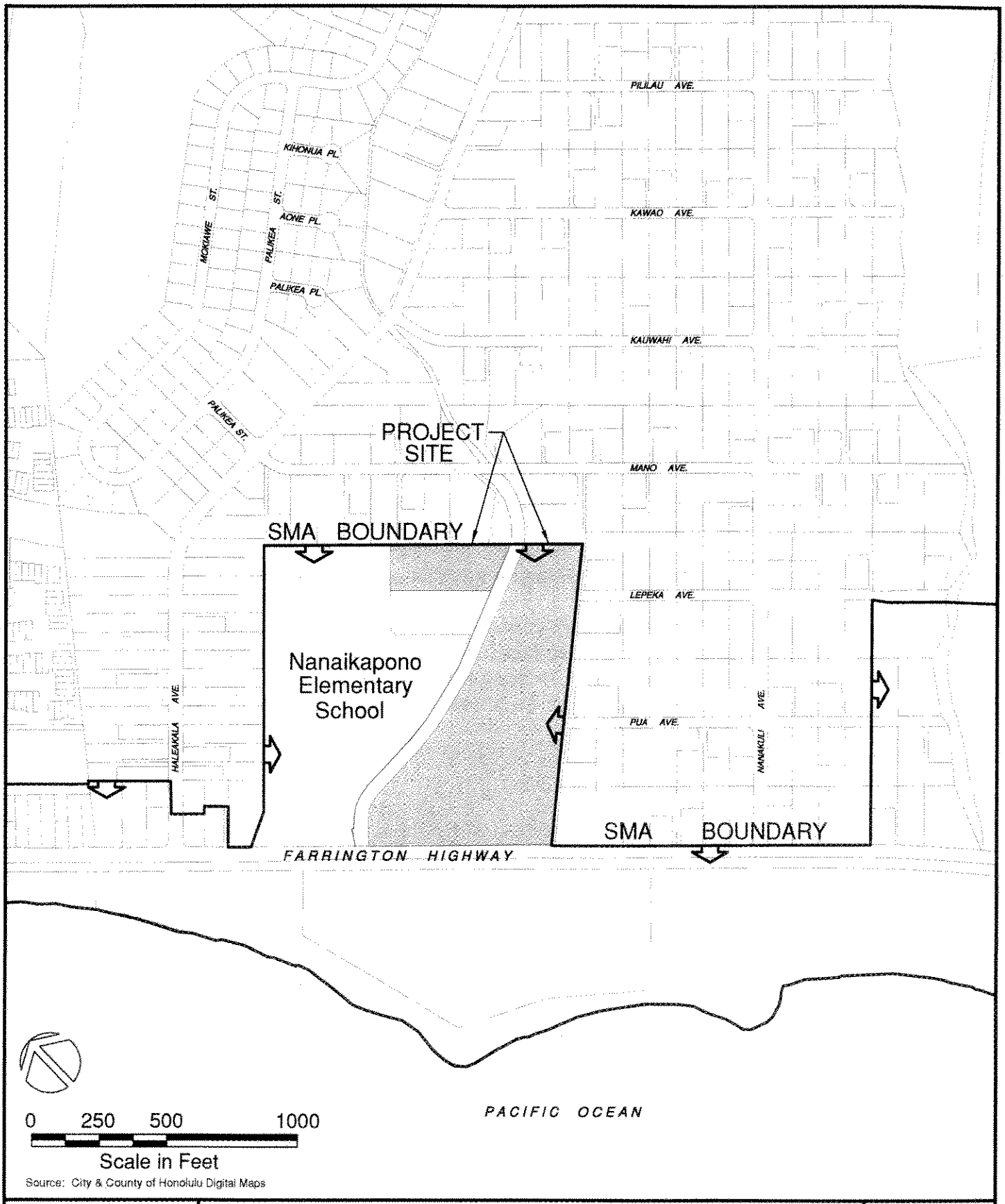
Recreational Resources

Objective: Provide coastal recreational opportunities accessible to the public.

Comment: The project is not anticipated to adversely impact accessibility to nearby coastal recreational resources. Located across Farrington Highway from the project site are Kalanianaole and Nanakuli Beach Parks.

Historic Resources

Objective: Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone



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NANAKULI COMMUNITY CENTER

SPECIAL MANAGEMENT AREA MAP (SMA)

FIGURE 5 - 4

management area that are significant in Hawaiian and American history and culture.

Policy A: Identity and analyze significant archaeological resources,

Policy B: Maximize information retention through preservation or remains and artifacts or salvage operations; and

Policy C: Support state goals for protection, restoration, interpretation, and display of historic resources.

Comment: Of the identified archaeological and historic sites within the project site, further data recovery was recommended for one of the sinkholes within TMK parcel 8-09-002:65. This data recovery will be conducted in consultation with the DLNR-SHPD. The historic site represented by the remnants of Camp Andrews on the project site in TMK 8-9-002:01 was determined to be adequately documented by a previous archaeological survey.

Since additional undiscovered sinkholes are likely to exist within the project site, all subsurface construction activities will be monitored by an archaeologist. Also, a Monitoring Plan detailing the expected finds and methods of treatment will be prepared and submitted to the DLNR –SHPD for approval prior to commencing construction.

Scenic and Open Space Resources

Objective: Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policy A: Identify valued scenic resources in the coastal zone management area;

Policy B: Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and exiting public views to and along the shoreline;

Policy C: Preserve, maintain, and where desirable, improve and restore shoreline open space and scenic resources; and

Policy D: Encourage those developments which are not coastal dependent to locate in inland areas.

Comment: The proposed project will not impact makai views from Farrington Highway since the project site is located on the mauka side of the highway. Mauka views from the highway would be gradually altered by the development of presently vacant land and removal of vegetation that presently obscures views of the project site from the highway. The proposed project will further reinforce the urban character of the area, cumulatively adding the recent completion of the adjoining Nanaikapono Elementary School. In this regard, the proposed project is intended to create an identifiable "village center" for the Nanakuli community.

Coastal Ecosystems

Objective: Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policy C: Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

Policy D: Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.

Comment: Excavation and grading activities associated with construction of the proposed project facilities will be regulated by the City and County of Honolulu's grading ordinance and the NPDES permit requirements administered by DOH. The grading ordinance includes provisions related to reducing and minimizing the discharge of pollutants associated with soil disturbing activities including grading, grubbing, and stockpiling. A NPDES General Permit for Storm Water Associated with Construction Activity will be required to control storm water discharges should the area of soil disturbance from activities such as clearing and grubbing, grading and stockpiling be in excess of one acre. The permit requires compliance with a BMP plan, which, in turn, requires compliance with City ordinances pertaining to grading, grubbing, stockpiling, soil erosion and sedimentation. The BMP plan typically includes appropriate structural or non-structural mitigative methods such as containment berms and filtration/detention ponds that would control the discharge of storm water runoff resulting from construction activities. Other erosion and sediment control mitigative measures

may include appropriately stockpiling materials on-site to prevent runoff, covering or stabilizing topsoil stockpiles, use of sediment basins and sediment traps, and establishing revegetation or landscaping as early as possible on completed areas.

Economic Uses

Objective: Provide public or private facilities and improvements important to the State's economy in suitable locations.

Comment: The proposed project will have no adverse effects on the economy of Nanakuli. The proposed project would provide short-term economic benefits in the form of construction jobs and long-term economic benefits in the form of jobs provided by the proposed project. In addition, the proposed project will provide a place for the community, young and old, to gather.

Coastal Hazards

Objective: Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence, and pollution.

Policy B: Control development in areas subject to storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;

Policy C: Ensure that developments comply with requirements of the Federal Flood Insurance Program.

Comment: According to the Flood Insurance Rate Map, Community Panel Number 150003C0215G, (revised June 2, 2005) prepared by the Federal Emergency Management Agency (FEMA), the project site is within Zone D, "areas in which flood hazards are undetermined, but possible" as shown in Figure 4-2. The proposed project will cover much of the project site with impervious surfaces, which will increase the volume of runoff relative to the presently undeveloped condition of the site. The drainage channel dividing the project site was constructed to control the potential for flooding in the area by conveying storm runoff under Farrington Highway to discharge into the ocean between the charter school and Nanakuli Beach Park. By designing the proposed drainage improvements to direct the increased runoff into the drainage channel, the potential for flooding in areas surrounding the project site will be minimized.

A portion of the project site is located within the Tsunami Evacuation Zone.

Managing Development

Objective: Improve the development review process, communication, and public participation in the management of coastal resources and hazards.

Policy B: Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements.

Policy C: Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Comment: Preparation and processing of this environmental assessment is intended to communicate potential short and long-term impacts of the proposed project.

Public Participation

Objective: Stimulate public awareness, education, and participation in coastal management.

Policy B: Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities.

Comment: The public will be afforded an opportunity to review and comment on the EA pursuant to the requirements of Chapter 343 Hawaii Revised Statutes and Section 11-200 of Title 11 Department of Health Administrative Rules.

Beach Protection

Objective: Protect beaches for public use and recreation.

Comment: The project is not anticipated to adversely impact any beaches or shoreline resources.

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6. ALTERNATIVES

6.1 No Action Alternative

The "No Action" alternative would not result in the construction of a community center, Boys and Girls Club of Hawaii "Clubhouse" facility, and the Commercial Center/Kupuna Housing complex. The "No Action" alternative would preclude short- and long-term beneficial and adverse impacts described in this EA.

6.2 Alternate Site

The proposed project site is identified by the Waianae Development Plan Land Use Map as a "Rural Community Commercial Center. The Waianae Concept Graphic further identifies the project as the "Nanakuli Village Center." The proposed project is consistent with this concept and will provide a variety of community services in a centrally identifiable location. Furthermore, the Nanakuli Community Association has obtained a license agreement to develop the proposed project at the project site from the Department of Hawaiian Home Lands. Therefore, no alternative sites are being considered.

6.3 Alternative Design

Various alternative site configurations and uses were considered in developing the proposed project. The location of the Boys and Girls Club of Hawaii "Clubhouse" facility near the Nanaikapono Elementary School is ideal for providing after school activities for students. The location of the Commercial Center/Kupuna Housing complex fronting Farrington Highway provides essential public visibility for the commercial component. The Nanakuli Community Center is within walking distance from the Kupuna Housing facility as well as the "Clubhouse" facility.

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7. DETERMINATION AND COMPLIANCE

7.1 State – Finding of No Significant Impact (Chapter 343, HRS and Title 11, Chapter 200, HAR)

This Final EA was prepared in accordance with the consultation process of Chapter 343, Hawaii Revised Statutes. Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 200-12 of Title 11, Administrative Rules, Department of Health, State of Hawaii. It is determined that the proposed project will not have a major effect on the environment, and therefore this Finding of No Significant Impact (FONSI) will be filed with the State Office of Environmental Quality Control (OEQC).

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

The proposed action is not anticipated to involve any construction activity that might lead to a loss or destruction of any natural or cultural resource.

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

The proposed project will not curtail the beneficial uses of the environment.

(3) Conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project does not conflict with the long-term environmental policies, goals and guidelines of the State of Hawaii. As presented in this EA, the project's potential adverse impacts are associated only with short-term construction-related activities and can be mitigated through adherence to standard construction mitigation practices.

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

The proposed project would provide short-term economic benefits in the form of construction jobs as well as employment associated with the operation of the project. The proposed project would also positively impact the social welfare of the region by providing additional housing for kupuna and a place for the community to gather.

(5) Substantially affect public health;

The proposed project is anticipated to have a positive impact on the public health by providing additional services to the community.

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

No secondary effects are anticipated with the construction or operation of the proposed project.

(7) Involve a substantial degradation of environmental quality;

Construction activities associated with the proposed project are anticipated to result in relatively insignificant short-term impacts to noise, air quality, and traffic in the immediate project vicinity. With the incorporation of the recommended mitigation measures during the construction period, the project will not degrade environmental quality.

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

The proposed project is not anticipated to have a considerable cumulative effect upon the environment.

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

There are no known rare, threatened or endangered species of flora or fauna or associated habitat on the project site that could be adversely affected by the construction and operation of the proposed project.

(10) Detrimentally affect air or water quality or ambient noise levels;

Operation of construction equipment would temporarily elevate ambient noise and concentrations of exhaust emission in the immediate vicinity of the project site. Operation of the proposed project will have no significant long-term impact on air or water quality or ambient noise levels in the vicinity.

(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, fresh water, or coastal waters;

According to the Flood Insurance Rate Map, Community Panel Number 150003C0215G, (revised June 2, 2005) prepared by the Federal Emergency Management Agency (FEMA), the project site is within Zone D, "areas in which flood hazards are undetermined, but possible" as shown in Figure 4-2. The proposed project will cover much of the project site with impervious surfaces, which will increase the volume of runoff relative to the presently undeveloped

condition of the site. The drainage channel dividing the project site was constructed to control the potential for flooding in the area by conveying storm runoff under Farrington Highway to discharge into the ocean between the charter school and Nanakuli Beach Park. By designing the proposed drainage improvements to direct the increased runoff into the drainage channel, the potential for flooding in areas surrounding the project site will be minimized.

A portion of the project site is located within the Tsunami Evacuation Zone.

(12) Substantially affect scenic vistas and viewplanes identified in county or state plans or studies; or

The proposed project will not impact makai views from Farrington Highway since the project site is located on the mauka side of the highway. Mauka views from the highway would be gradually altered by the development of presently vacant land and removal of vegetation that presently obscures views of the project site from the highway. The proposed project will further reinforce the urban character of the area, cumulatively adding the recent completion of the adjoining Nanaikapono Elementary School. In this regard, the proposed project is intended to create an identifiable "village center" for the Nanakuli community.

(13) Require substantial energy consumption.

Construction and operation will not require substantial increase in energy consumption.

7.2 Federal – Determination and Compliance (24 CFR Part 58)

Historic Preservation (36 CFR 800): Of the identified archaeological and historic sites within the project site, further data recovery was recommended for one of the sinkholes within TMK parcel 8-09-002:65. This data recovery will be conducted in consultation with the DLNR-SHPD. The historic site represented by the remnants of Camp Andrews on the project site in TMK 8-9-002:01 was determined to be adequately documented by a previous archaeological survey.

Since additional undiscovered sinkholes are likely to exist within the project site, all subsurface construction activities will be monitored by an archaeologist. Also, a Monitoring Plan detailing the expected finds and methods of treatment will be prepared and submitted to the DLNR –SHPD for approval prior to commencing construction.

Floodplain Management (24 CFR 55, Executive Order 11988): According to the Flood Insurance Rate Map, Community Panel Number 150003C0215G, (revised June 2, 2005) prepared by the Federal Emergency Management Agency

(FEMA), the project site is within Zone D, "areas in which flood hazards are undetermined, but possible" as shown in Figure 4-2. The proposed project will cover much of the project site with impervious surfaces, which will increase the volume of runoff relative to the presently undeveloped condition of the site. The drainage channel dividing the project site was constructed to control the potential for flooding in the area by conveying storm runoff under Farrington Highway to discharge into the ocean between the charter school and Nanakuli Beach Park. By designing the proposed drainage improvements to direct the increased runoff into the drainage channel, the potential for flooding in areas surrounding the project site will be minimized.

Wetlands Protection (Executive Order 11990): There are no wetlands within or near the project site.

Coastal Zone Management (Sections 307 (c).(d)): According to a letter dated June 24, 2004 from the Department of Business, Economic Development & Tourism, Office of Planning to HUD's Hawaii State Field Office, the Hawaii CZM Program list of federal assistance programs that require CZM federal consistency review has been revised to exclude HUD assistance programs, including Community Development Block Grants.

Sole Source Aquifers (40 CFR 149): According to the Oahu Sole Source Aquifer Map (Environmental Protection Agency, November 2001) available at the Environmental Protection Agency's (EPA) website, the project site is not located within the EPA-designated Oahu Sole Source Aquifer area (also referred to as the Southern Oahu Basal sole source aquifer area.

Endangered Species Act (50 CFR 402): No federally protected, threatened or endangered species of plants or animals are known to inhabit the project site. According to the maps contained in the Critical Habitat Updates available at the U.S. Fish & Wildlife Service's (USFWS) website, the project site is not located within the nearby USFWS-designated Northern Waianae and Southern Waianae Mountains Unit of the Critical Habitat for the Oahu Elepaio bird. The project site is also beyond the boundary of the USFWS-proposed Oahu I Unit of the Critical Habitat for 99 threatened and endangered plant species.

Wild and Scenic Rivers Act (Section 7 (b), (c)): According to the Wild and Scenic Rivers Act (P.L. 90-542, as amended) (16 U.S.C. 1271-1287) found at the National Park Service website, no rivers in Hawaii have been designated as components of the National Wild and Scenic Rivers System.

Air Quality (Clean Air Act, Section 176 (c) and (d): According to the State Department of Health's (DOH) 2003 Annual Summary Hawaii Air Quality Data, "Air quality in the State of Hawaii continues to be one of the best in the nation

and criteria pollutant levels remain well below state and federal ambient air quality standards." No air pollutants that may be generated at the project site are anticipated to exceed federal or State ambient air quality standards in the vicinity.

Farmland Protection Policy Act (7 CFR 658): The project site is not used for agricultural production.

Environmental Justice (Executive Order 12898): The proposed project will provide a place for the community to gather and will not result in adverse environmental impacts affecting the community. Therefore, no disproportionate adverse impact on any group of people identifiable by factors such as race, ethnicity or socio-economic is anticipated.

Coastal Barrier Resources Act/Coastal Barrier Improvement Act (§58.6 (c)): According to FEMA's Map Service Center website, its Coastal Barrier Resource Area (CBRA) Q3 map, Hawaii has no areas within the Coastal Barrier Resources System.

Airport Runway Clear Zone of Clear Zone Disclosure (§58.6 (d)): The project site is not within an airport runway Clear Zone, as defined by Section 151.9, Federal Aviation Regulations.

HUD Environmental Assessment Checklist (HUD 782, 24 CFR 58.40; Ref 40 CFR 1508.5 & 1508.27):

- Conformance with Comprehensive Plans and Zoning – No impact anticipated (See Chapter 5)
- Compatibility and Urban Impact – No impact anticipated (See Chapter 5)
- Slope – No impact anticipated (See Section 4.2)
- Erosion – Requires mitigation pursuant to permits (See Sections 4.2 and 4.3)
- Soil Suitability – No impacts anticipated (See Section 4.2 and 4.3)
- Hazards and Nuisances, including Site Safety – No impacts anticipated (See Section 4.5)
- Energy Consumption – No impacts anticipated
- Contribution to Community Noise Levels – No impacts anticipated (See Section 4.12)
- Effects of Ambient Air Quality on Project and Contribution to Community Pollution Levels – No impacts anticipated (See Section 4.13)
- Visual Quality – Coherence, Diversity, Compatible Use and Scale – No impacts anticipated (See Section 4.10)
- Demographic Character Change – No impacts anticipated
- Displacement – No impacts anticipated (no displacement proposed – the function of the existing Nanakuli Cultural Center will be incorporated in the proposed Nanakuli Community Center)

- Employment and Income Patterns – Potentially beneficial (See Section 4.14)
- Educational Facilities – No impacts anticipated

8. LIST OF REQUIRED PERMIT APPROVALS

Federal
National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Associated with Construction

State of Hawaii
Water Allocation
DOH Noise Permit
DHHL Agreements
Work with State Right of Way
Easement for the pedestrian bridge

City and County of Honolulu
Site Development Master Application for Sewer Connection
Building Permit
Grubbing, Grading, Excavation, Stockpiling Permit
Trenching Permit Drain Connection License
Street Usage Permit

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9. CONSULTATION

9.1 Parties Consulted During Draft EA

The following agencies and organization were consulted and comments solicited for the Draft EA. Of those who formally replied, some had no comments, while other provided substantive comments as indicated by the √ and, √√respectively. All written comments are reproduced herein,

Federal
U.S. Army Corps of Engineers√
U.S. Fish and Wildlife Service

State
Department of Business, Economic Development, and Tourism
Department of Education√
Department of Hawaiian Home Lands√
Department of Health
Department of Health, Office of Environmental Quality Control√√
Department of Land and Natural Resources, Land Division
Department of Land and Natural
Resources, Historic Preservation Division
Department of Transportation,
Highways Division
Office of Hawaiian Affairs√√
University of Hawaii, Environmental Center√√

County
Department of Design and Construction√√
Department of Planning and Permitting√√
Department of Transportation Services
Board of Water Supply√√
Fire Department√√
Police Department√

Elected Officials
Representative Michael P. Kahikina
Senator Colleen Hanabusa
Councilmember Todd Apo

Others
Hawaiian Electric Company
Waianae Coast Neighborhood Board

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Tracy Fukuda 7317-01 File

From: Earl Matsukawa
Sent: Friday, November 04, 2005 9:53 AM
To: Tracy Fukuda
Subject: FW: Review Comments for DEA - Nanakuli Community Center (TMK 8-9-2: 1 & 67)

-----Original Message-----
From: Ramsey, Connie L POH [mailto:Connie.L.Ramsey@poh01.usace.army.mil]
Sent: Friday, November 04, 2005 9:16 AM
To: Earl Matsukawa
Cc: Anamizu, Joy N POH
Subject: RE: Review Comments for DEA - Nanakuli Community Center (TMK 8-9-2: 1 & 67)

Mr. Matsukawa:
I apologize for the delay in getting our (Regulatory Branch) comments to you. Below find our comments. Please notify Ms. Anamizu if you need a formal letter from us.

Thanks,
Connie Ramsey

File No. POH-2005-590
Draft Environmental Assessment for Nanakuli Community Center, Oahu (TMK 8-9-2: 1, 67)

Based on the information provided in the draft environmental assessment (DEA), it appears activity will not involve the discharge of dredged or fill material into waters of the United States, including adjacent wetlands; therefore, a Department of the Army permit will not be required.

From: Dobinchick, Jasmina M POH
Sent: Friday, November 04, 2005 8:28 AM
To: 'ematsukawa@wilsonokamoto.com'
Cc: Ramsey, Connie L POH
Subject: Review Comments for DEA - Nanakuli Community Center (TMK 8-9-2: 1 & 67)

Dear Mr. Matsukawa:

Following information is provided as requested:

1) The flood hazard information provided on page 4-6 of the DEA is correct (Zone D).

2) Ms. Connie Ramsey of our Regulatory Branch is reviewing the DA permit requirements portion of the report and will furnish you with her review comments under separate cover. Her email address is provided above.

Jasmina (Jessie) Dobinchick
Civil Works Technical Branch

7317-01
January 3, 2006

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1907 S. BERETANIA ST.
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HONOLULU, HI 96826
PH. (808)946-2277
FAX: (808)946-2253

Lt. Col David F. Anderson
U.S. Army Corps of Engineers
Building 230
Ft. Shafter, Hawaii 96858

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67
File No. POH-2005-590

Dear Lt. Col Anderson:

Thank you for your email response of November 4, 2005 regarding the subject Draft Environmental Assessment (EA). We acknowledge that the proposed project will not require a Department of the Army Permit.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMOTO
SUPERINTENDENT

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

OFFICE OF THE SUPERINTENDENT

November 4, 2005

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, Hawai`i 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment for the Nanakuli Community Center, Nanakuli, Oahu, Hawaii, TMK: 8-9-02:01 and 67

The Department of Education (DOE) has reviewed the draft Environmental Assessment for the Nanakuli Community Center and has no comment at this time other than the users of the Boys and Girls Club obey Nanaikapono Elementary School's parking rules and assist in maintaining the area free of litter and rubbish.

If you have any questions, please call Rae Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Theron Nichols of the Facilities Development Branch at 733-4860.

Very truly yours,

Patricia Hamamoto
Superintendent

PH:lh

c: Rae Loui, Assistant Superintendent, OBS
Duane Kashiwai, Facilities Director, FDB
Sanford Beppu, Planning Section, FDB
Genevieve Salmonson, Director, Office of Environmental Quality Control
Kali Watson, Nanakuli Homestead Association
Karen Moriyama, CAS, Nanakuli/Pearl City/Waipahu Complex Areas

7317-01
January 3, 2006

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FAX: (808)946-2253

Ms. Patricia Hamamoto, Superintendent
Department of Education
State of Hawaii
P.O. Box 2360
Honolulu, Hawaii 96804

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Ms. Hamamoto:

Thank you for your letter of November 4, 2005 regarding the subject Draft Environmental Assessment (EA). The applicant appreciates your Department's generosity in allowing the proposed Boys and Girls Club to use Nanaikapono Elementary School's parking lot and will uphold its responsibility for enforcing parking rules and maintaining the area by removing trash and litter.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

EM
TF

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

STATE OF HAWAII

DEPARTMENT OF HAWAIIAN HOME LANDS

P.O. BOX 1879

HONOLULU, HAWAII 96805

November 1, 2005

Mr. Earl Matsukawa
Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street
Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment, Nanakuli Community Center, TMK No. 8-9-02:01 and 67, Nanakuli, Island of Oahu

Thank you for sending me the Draft Environmental Assessment for the above project. After reviewing the assessment, it is my opinion that this project is a perfect fit for the Nanakuli Community.

The Department of Hawaiian Home Lands is committed to providing our resources to benefit Hawaiian communities, particularly the youth and the elderly. By building the Boys and Girls Club facility, as well as the Kupuna housing, both of these socioeconomically challenged age group's needs are being met.

This Draft Environmental Assessment has my blessing. I believe it to be very well written, and an excellent road map to an outstanding Hawaiian Community project.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Ms. Genevieve Salmonson, OEQC

7317-01
January 3, 2006

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FAX: (808)946-2253

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

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Kane:

Thank you for your letter of November 1, 2005 regarding the subject Draft Environmental Assessment (EA). We appreciate your support of the proposed project.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

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

November 4, 2005

Ms. Deborah Kim Morika, Director
Department of Community Services
715 S. King St. Ste. 311
Honolulu, HI 96813

Dear Ms. Morika:

Subject: Draft Environmental Assessment Nanakuli Community Center

Thank you for the opportunity to review the subject document. We have the following comments.

1. Please evaluate whether a traffic signal might make it easier and safer to enter and exit the site.

2. Please describe the flooding history of the project.

3. Please show the nearest bus stop to the site.

4. Will the facility include a community kitchen.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Genevieve Salmonson
Director

7317-01
January 3, 2006

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FAX: (808)946-2253

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

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Ms. Salmonson:

Thank you for your letter of November 4, 2005 regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. Further consultation with the State Department of Transportation (DOT) will be pursued in conjunction with the preparation of construction plans that must be approved for work within or affecting State rights-of-way. If the DOT deems it necessary, a signal warrant study will be prepared by the applicant as a basis for determining if a traffic signal will be required.

2. The concrete drainage channel bisecting the project site was constructed to relieve potential flooding in the area. In conjunction with subsequent design work for the proposed project, site drainage will be studied to determine appropriate drainage facility requirements.

3. The Final EA will show the nearest City bus stops to the project site.

4. The Nanakuli Community Center includes a kitchen facility.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

EW

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD05/2074

November 1, 2005

Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 702
Honolulu, HI 96826

RE: Draft Environmental Assessment for the Proposed Nānākuli Community Center, Nānākuli, O'ahu, TMK 8-9-02: 01 & 67.

Dear Mr. Matsukawa,

The Office of Hawaiian Affairs (OHA) is in receipt of your October 4, 2005 request for comment on the above listed proposed project, TMK 8-9-02: 01 & 67. OHA offers the following comments:

The Draft Environment al Assessment appears to thoroughly address issues concerning environmental and cultural protection. Because several cultural deposits and at least one human burial were discovered in close proximity to the parcel, OHA recommends that all ground altering activities be monitored by a professional archaeologist. Thank you for your correspondence, our staff looks forward to reviewing the Final Environmental Assessment.

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

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

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

7317-01
January 3, 2006

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

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Namuo:

Thank you for your letter of November 1, 2005 (HRD05/2074) regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. As recommended by the archaeological survey included in the Draft EA, all subsurface construction activities will be monitored by and archaeologist. Also, a Monitoring Plan detailing the expected finds and methods of treatment will be prepared and submitted to the State Historic Preservation Division for approval prior to commencing construction.

2. The applicant assures that should iwi or Native Hawaiian cultural or traditional deposits be uncovered during subsurface construction activities, work will cease and appropriate agencies notified, pursuant to applicable law.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

UNIVERSITY OF HAWAI'I
Environmental Center

NOVEMBER 8TH, 2005
RE: 0748

Wilson Okamoto Corporation
19807 South Barentania Street
Honolulu, Hawai'i 96826

Dear Mr. Matsukawa,

Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, O'ahu, Hawai'i

The Nanakuli Homestead Association is proposing to build a community gathering area for resident and commercial use. The project site is located on the land formerly known as Camp Andrews and encompasses two land parcels identified as Tax Map Key (TMK) 8-9-02:01, approximately 12 acres on the south and southeast side, and TMK 8-9-02: 67, roughly 1.6 acres on the north side. The site is located 500 feet from the nearest shoreline, 12-20 feet above mean sea level, and, according to the Federal Emergency Management Agency (FEMA), is an area for which flood hazard is undetermined.

The project will be comprised of three phases: Community Center, Boys and Girls "Clubhouse" facility, and Commercial Center/Kapuna Housing, each of which will require parking, connections to service for water, electricity, wastewater, and communications, and drainage improvements. Prospective construction activities will cover much of the project site with impervious surfaces.

This review was conducted with the assistance of Dr. Linda Cox, Natural Resources & Environmental Management and Amelia Hicks of the Environmental Center.

General Comments

Our reviewers find that the draft Environmental Assessment for the Nanakuli Community Center is generally comprehensive and that the overall plan presented therein is a positive development idea for the area. While our reviewers recognize the sound breadth of issues discussed in the document, each noted that some areas require further analysis and discussion.

Specific Comments

Project Summary (Page S-2)

We note that numerous State and County agencies were consulted in the course of preparing the draft EA, yet no record of correspondence or comments pertinent to these consultations exists within the document. Given that the applicant is licensed by the Department of Hawaiian Home Lands, and in view of numerous historic sites on the project area and the responsibilities of the State Historic Preservation Division of the Department of Land and Natural Resources, it is highly unlikely that prior consultations with these agencies and others were oral only. Pursuant to §11-200-10(12) Hawai'i Administrative Rules (HAR), contents of an environmental assessment must include:

> *[w]ritten comments and responses to the comments under the early consultation provisions of sections 11-200-9(a)(1), 11-200-9-(b)(1), or 11-200-15, and statutorily prescribed public review periods.*

Although it may be argued that inclusion of such records only is required legally in the final Environmental Assessment, such an argument runs counter to the intended purpose of the assessment process for disclosure and discussion of all relevant information relating to the proposed action.

Project description (§3.1, 3.2, 3.3, Pages 3-1 and 3-2)

The intended uses of the proposed center appear appropriate for the community's needs. In regard to the maximum capacity anticipated for the center, our reviewers question the number of persons expected to use the center on a daily, monthly, and annual basis. Section 3.2 discusses the anticipated youth user frequency, but our reviewers suggest that additional statistics regarding the total expected user frequency are needed. Specifically, what is the projected capacity for each of the Nanakuli Community Center, Boys and Girls Club of Hawaii "Clubhouse", and Commercial Center/Kapuna Housing buildings? Additionally, our reviewers request that the parking needs of each building's users be clarified.

Flood Hazard (§4.5, Page 4-6)

Although the project area occupies land designated "undetermined" under the categorization of the Flood Insurance Rate Map, bisection of proposed parcels by a hardened drainage channel offers evidence of flood potential. In particular, given the flashy nature of runoff from high-volume precipitation events and the existence of numerous sinkholes in the area, which are calcareous solution features formed under conditions of inundation, it appears likely that flooding may be likely under extreme conditions. We suggest that consideration be given to additional containment enhancements along the portions of the drainage channel bordering the proposed

structures. In addition, given the flood uncertainties, we recommend against use of the proposed community center as an emergency shelter during periods of extreme weather.

Traffic (§4.1.1, Page 4-11)

While the draft EA provides adequate descriptions of the traffic routes which will be most affected by the project, our reviewers find that it does not sufficiently address potential consequences of the project to vehicular and pedestrian traffic. The major intersections closest to the project site are Farrington Highway/Haleakala Avenue, Farrington Highway/Nanakuli Avenue, Mano Avenue/Haleakala Avenue, Mano Avenue/Nanakuli Avenue. Traffic volume in the area is expected to increase due to the high user frequency anticipated for the project. What structural changes (e.g. additional lights) will there be to ensure safe vehicle ingress and egress as well as pedestrian safety? Farrington Highway is a particularly busy route, and our reviewers express concern that the center's intended users, youth and elderly, may be disproportionately at risk of accidents if the current traffic control measures remain.

Thank you for the opportunity to review this Draft EA.

Sincerely,

John T. Harrison Ph.D
Environmental Coordinator

cc: OEQC
James Moncur
Linda Cox
Amelia Hicks

2500 Dole Street, Krauss Annex 19, Honolulu, Hawaii 96822
Phone: (808) 956-7361

7317-01
January 3, 2006

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Dr. John Harrison
Environmental Center
University of Hawaii at Manoa
250 Dole Street, Krauss Annex 19
Honolulu, Hawaii 96822

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Dr. Harrison:

Thank you for your letter of November 8, 2005 regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your specific comments:

Project Summary

The Summary identifies parties consulted regarding the proposed project prior to preparing the subject Draft EA. Section 11-200-9(b)(1), Hawaii Administrative Rules (HAR), which applies to "applicant actions" does not require consultation to be conducted via written correspondence. Regarding the parties listed:

- Department of Hawaiian Home Lands (DHHL) – The DHHL owns the land and has issued a license agreement with the applicant to develop the project. It has been involved throughout the development of the proposed project concept. While there is an abundance of written correspondence between DHHL and the applicant, we do not feel that inclusion of such correspondence would be appropriate. The Final EA will include a letter from DHHL commenting on the Draft EA and which expresses its support for the proposed project.
- Department of Land and Natural Resources, Historic Preservation Division (SHPD) – As was the standard practice when the archaeological survey was prepared, the archaeological consultant contacted SHPD staff by telephone to discuss the recommended scope of the survey for the project site. The inventory survey with subsurface testing was conducted based on that recommendation.
- Department of Transportation, Highways Division (DOT-HWY) – The applicant and the project's traffic engineer at the time met with staff of DOT-HWY at the earliest stages of project development in 2002 to discuss driveway access from Farrington Highway. While there is no written correspondence, the traffic engineer provided recommendations to the project designers regarding the location and configuration of the proposed driveway based on that meeting.
- Department of Planning & Permitting (DPP) - The EA preparer met with staff from DPP ("the lead county agency responsible for implementing the County's general plan...") on September 16, 2005.

- The primary issue discussed was whether or not a Special Management Area (SMA) permit would be required. While there is no written correspondence regarding this meeting, it is cited in Section 5.3.4 Special Management Area of the Draft EA.
- Board of Water Supply (BWS) – The project's civil engineer called the BWS Customer Care Unit regarding the adequacy of domestic and fire protection capacity to serve the proposed project. While there is no written correspondence, this preliminary consultation is cited in Section 4.15.1 Water of the Draft EA. The Final EA will include a letter from BWS commenting on the Draft EA and which confirms the adequacy of the water system.

Project Description
The applicant has not prepared statistics regarding total expected user frequency or projected capacity. For the purposes of assessing traffic impact, which is based on the amount of floor area devoted to various uses and dwelling unit counts, the conceptual designs of proposed facilities represent a potential "maximum" development, or a "worst case" scenario for traffic generation. As facility designs are refined based on budgetary and other considerations, it is likely that various floor areas and residential unit counts, along with associated traffic impacts and parking needs, will be reduced. The purpose of the EA is to determine if the potential "maximum" development would have "significant" impacts warranting preparation of an EIS. If, on the other hand, should future design refinement result in a proposal exceeding the "maximum" development assessed in the current EA, preparation of another EA based on such a proposal would be warranted.

The parking needs of the proposed facilities relative to the minimum requirements of the City's Land Use Ordinance is discussed in Section 5.3.3. of the Draft EA.

Flood Hazard
The concrete drainage channel bisecting the project site was constructed to relieve potential flooding in the area. In conjunction with subsequent design work for the proposed project, site drainage will be studied to determine appropriate drainage facility requirements, including capacity, runoff detention and for capturing pollutants such as silt and petroleum products from parking areas. The proposed community center will most likely not be designated as an emergency shelter as it lies within a tsunami evacuation zone.

Traffic
The Draft EA includes a traffic impact assessment that addresses potential impacts resulting from additional vehicular traffic generated by the proposed project. The assessment provides recommendations for various structural features, such as the aligning the driveway on Farrington Highway opposite the existing driveway from the Charter School (the former Nanaikapono Elementary school) to minimize conflicting traffic movements. Further consultation with the State Department of Transportation and the City

Department of Planning & Permitting will be pursued regarding considerations such as driveway location and design, roadway improvements, traffic signage, traffic signalization, bus stop, sidewalk design, and pedestrian and bicycle routes in conjunction with approvals required for construction plans for work within and affecting City and State rights-of-way. These approvals are listed in Chapter 8 – List of Required Permit Approvals in the Draft EA.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

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: www.honolulu.gov

MUFI HANNEMANN
MAYOR

WAYNE M. HASHIRO, P.E.
DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

October 20, 2005

Mr. Earl Matsukawa, Project Manager
Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
TMK: 8-9-02:01 and 67

Thank you for giving us the opportunity to submit our comments regarding the above Draft Environmental Assessment.

Our comments are as follows:

- A Sewer Connection Application should be filed with the Department of Planning and Permitting.
- Ownership of the existing drainage channel (Figure 1-3) should be determined; if City-owned, impacts to the channel walls from any imparted additional loads, e.g. adjacent traffic lanes, and from the roots of the specific type of trees to be planted along the channel wall will need to be considered and addressed.

Should you have any questions, please contact Eldon Franklin, Chief of our Wastewater Division, at 527-5040 or Marvin Char, Chief of our Civil Division, at 527-6381.

Very truly yours,

for WAYNE M. HASHIRO, P.E.
Director

WMH:lt (123124)

c: DDC Wastewater Division
DDC Civil Division
DDC Facilities Division
Office of Environmental Quality Control

7317-01
January 3, 2006

WILSON OKAMOTO CORPORATION

ENGINEERS
PLANNERS

1907 S. BERETANIA ST.
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PH. (808)946-2277
FAX: (808)946-2253

Mr. Wayne M. Hashiro, Director
Department of Design and Construction
City and County of Honolulu
650 S. King Street, 11th Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Hashiro:

Thank for your letter of October 20, 2005 regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. The applicant will file a Sewer Connection Application with the Department of Planning and Permitting.

2. The existing drainage channel is under the jurisdiction of the Department of Land and Natural Resources, State of Hawaii.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANOUE
DEPUTY DIRECTOR

2005/ELOG-2355

November 7, 2005

Mr. Earl Matsukawa
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Re: Draft Environmental Assessment (DEA) Nanakuli Community Center
Nanakuli, Oahu, Hawaii, Tax Map Key 8-9-002:001 and 067

In response to your request for comments of October 4, 2005, regarding the DEA for the subject project, we have the following comments to offer:

1. Section 3 Project Description: Figures 3-1 and 3-2 are referenced in the DEA but are missing. Please include in the Final Environmental Assessment (FEA) or revise text.

2. Section 4.5 Flood Hazard: The Flood Insurance Rate Map has been updated, as of June 2, 2005. The FEA should state the correct panel number. It appears that a portion of the project site is located within a tsunami evacuation zone. This should be confirmed with the Oahu Civil Defense Agency. Information regarding tsunami evacuation zone should also be included in Section 7, item #11.

3. Section 4.11 Traffic: The following items should also be addressed in the FEA:

   a. The applicant and the contractor should communicate regularly with the area residents and the Neighborhood Board during the construction phase of the project to monitor heavy truck routing, parking of construction vehicles or any other construction related impacts.

   b. The recommendations contained in the traffic impact analysis report should be incorporated into the design plans for this project.

   c. Improvements along street frontages, where no improvements currently exist, should be implemented as part of this project, as required.

d. Construction plans for all work within and affecting the street right-of-way must be submitted for review. Traffic control plans, affecting City streets during construction, must be submitted for review and approval.

4. Section 4.15.2 Wastewater: The municipal sewer system is available and adequate. Submission of a Site Development Master Application for Sewer Connection is required for sewer capacity reservation. This project may also be liable for payment of a Wastewater System Facility Charge.

5. Section 5.3.1 General Plan:

   a. Page 5-5, Physical Development and Urban Design, Objective E: The comment pertaining to the above should be expanded or rewritten in the FEA. The comment, as written in the DEA, does not address Objective E or policies 5 and 9 stated in the report. The comment makes no mention of compatibility with the surrounding community, the aesthetics of the proposed action, or how the project complements the physical character of the community.

   b. Page 5-6, Culture and Recreation, Objective A: The comment pertaining to the above should be expanded or rewritten in the FEA. The comment, as written in the DEA, does not address Objective A or policies 1 through 4 stated in the report. The comment should directly address the objective and policies, rather than be a generalized statement of the project.

6. Section 5.3.2 Development Plans and Sustainable Communities Plan: This paragraph mixes the old and new Development Plans (DP) and should be rewritten as follows, "The City and County of Honolulu has eight (8) Development Plans and Sustainable Communities Plans which provide a framework for implementing the objectives and policies of the General Plan on an area wide basis. The project site is located within the Waianae Sustainable Communities Plan (July 2000) area that extends from the Ewa-Waianae district boundary north of the Kahe Power Plant, to Kaena Point, and mauka to the ridgeline of the Waianae mountain range."

7. Section 5.3.2.1 Waianae *Sustainable* Communities Plan:

   a. General Comment: The FEA should include a section on how the proposed action supports and is consistent with the vision and community values expressed in the Waianae *Sustainable* Communities Plan (SCP, July 2000). See Sections 2.1 and 2.3 of the Waianae SCP.

b. Page 5.6, first paragraph: The second sentence should be rewritten as follows, "According to the Waianae *Sustainable* Communities Plan (SCP) Land Use Map, the project site is located in a Rural Residential area and is denoted by Rural Community Commercial Center symbol. Also in the general area is a symbol for a Community Gathering Place where social and cultural activities of members of the community can take place."

c. Figure 5-2: This figure should be replaced with a copy of the relevant portion of the Waianae SCP Land Use Map. Figure 5-2 in the DEA is from the old DP and not part of the Waianae SCP.

d. Page 5-8, Waianae Concept: The comment pertaining to the above should be expanded or rewritten in the FEA. There is no mention, for example, of how the proposed action encourages more pedestrian traffic, less dependence on cars, and how it could potentially alleviate the strong "strip commercial" development pattern along Farrington Highway.

e. Page 5-10, Country Towns, Rural Community Centers and Gathering Places: The comment pertaining to the above should be expanded to describe how the proposed action supports the policies and guidelines that are referenced. It appears that the proposed project is contrary to the guideline pertaining to commercial establishments located within Rural Community Centers, specifically with respect to the site configuration of the Commercial Center/Kupuna Housing complex and parking fronting Farrington Highway (as shown in Figure 1-3). The configuration shown is characteristic of strip commercial development which is contrary to what is encouraged in the Waianae SCP. There should also be a description of the architectural style of the proposed buildings, either in this section or elsewhere in the FEA. The SCP advocates that commercial buildings should incorporate elements and materials from traditional local architectural styles. Although it may be preliminary to describe the architectural design of the Boys and Girls Club of Hawaii "Clubhouse" facility and the Commercial Center/Kupuna Housing complex, a description of at least the Nanakuli Community Center should be included. Finally, there should be a description in this section or elsewhere in the FEA of the proposed landscaping for the proposed action.

8. Section 5.3.3 Land Use Ordinance (LUO) and Zoning: Revise the first sentence by replacing "DPs" with "the Development/*Sustainable* Communities Plans." The second sentence of this section should be deleted. Additionally, if the applicant is claiming exemption from LUO requirements, then a formal written

declaration of exemption by the Department of Hawaiian Home Lands (DHHL) should be included in the FEA and also submitted to the department stating as such.

9. Section 5.3.4 Special Management Area: Regarding the Special Management Area (SMA) permit requirements, a declaration of exemption via a letter from DHHL and the license agreement between the DHHL and the Nanakuli Homestead Association need to be disclosed and included in the FEA, and submitted to the Department of Planning and Permitting.

10. Section 6.3 Alternative Design: Although it is true that the location of the Commercial Center/Kupuna Housing complex fronting Farrington Highway provides essential public visibility for the commercial component, the site configuration of this building and the parking fronting Farrington Highway should be reconsidered as part of the proposed action or as an alternative design. The site configuration of the proposed action should be consistent with the Waianae SCP, specifically with the planning guideline pertaining to commercial establishments within Rural Community Commercial Centers (Section 3.10.3.2 of the Waianae SCP).

11. Section 7, item #6: This section should state approximately how many residents are expected to live in the proposed Commercial Center/Kupuna Housing complex.

12. The FEA should describe public transit and bicycle access to the proposed project. There should be mention of proposed impacts and, if needed, mitigative measures. Since many elderly residents do not drive, convenient and safe pedestrian and bus access to and from the Nanakuli Community Center and the Commercial Center/Kupuna Housing is critical. Of particular importance is the safety of crossing Farrington Highway in light of the increasing number of pedestrian accidents and fatalities. Likewise, the proposed Boys and Girls Club of Hawaii "Clubhouse" will be frequented by youth who do not drive and thus convenient and safe bicycle access is equally important.

13. The FEA should address storm water quality requirements in accordance with Section II of the "Rules Relating to Storm Drainage Standards".

14. Section 8 (Permits):

    a. The project will require a drain connection license from DPP.
    b. An easement will be required for the bridge.
    c. Revise "Work with City Right of Way" to "Trenching Permit".

We look forward to reviewing the FEA with the revisions mentioned above. Should you have any questions, please contact Matt Higashida of our staff at 527-6056.

Very truly yours,

for Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:js

cc: Department of Hawaiian Home Lands
Office of Environmental Quality Control
Nanakuli Homestead Association

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7317-01
January 3, 2006

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Mr. Henry Eng, Director
Department of Planning & Permitting
City and County of Honolulu
650 S. King Street, 7th Floor
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Eng:

Thank you for your letter of November 7, 2005 (2005/ELOG-2355) regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. The proposed site plan was inadvertently placed in Chapter 1 and labeled Figure 1-3. In the Final EA, the proposed site plan will be correctly placed in Chapter 3 and labeled Figure 3-1. The reference to Figure 3-2 in the Draft EA is incorrect and should also refer to Figure 3-1. This will be corrected in the Final EA.

2. The Final EA will correctly reference the updated Flood Insurance Rate Map panel number. The flood designations for the project site shown in Figure 4-2, however, are unchanged. The Final EA will state that the project site is within a tsunami evacuation zone.

3. Traffic

   a. The applicant has kept the Neighborhood Board apprised of the proposed project and will continue to do so prior to and during construction to address any concerns the residents may have.

   b. In conjunction with the approvals of construction plans for work within and affecting State and City rights-of-way, consultation with the State Department of Transportation (DOT) and the City Department of Planning & Permitting (DPP) will be pursued regarding plans for the proposed project's roadway frontages, including appropriate incorporation of recommendations contained in the traffic impact assessment.

   c. Improvements along street frontages will be provided pursuant to approvals of construction plans required for work in State and City rights-of-way.

   d. Construction plans for all work within and affecting the street right-of-way will be submitted to the City for review. In addition, traffic

control plans to be implemented during construction will be submitted for review and approval.

4. We appreciate your confirmation that the municipal sewer system is available and adequate for the proposed project. A Site Development Master Application for Sewer Connection will be submitted as required. We acknowledge that the proposed project may be liable for payment of a Wastewater System Facility Charge.

5. General Plan:

   a. The discussion in Section 5.3.1 *Physical Development and Urban Design, Objective E* will be expanded in the Final EA.

   b. The discussion in Section 5.3.1 *Culture and Recreation, Objective A* will be expanded in the Final EA.

6. Section 5.3.2 Development Plans and Sustainable Communities Plan will be rewritten, as specified, in the Final EA.

7. Waianae Sustainable Communities Plan

   a. A section on how the proposed action supports and is consistent with the vision and community values expressed in the Waianae Sustainable Communities Plan (July 200) will be included in the Final EA.

   b. The first paragraph on page 5-6 will be rewritten, as specified, in the Final EA.

   c. Figure 5-2 will be replaced with the Land Use Map (July 2000) in the Final EA.

   d. The discussion on the Waianae Concept will be expanded, as recommended, in the Final EA.

   e. The discussion on Country Towns, Rural Community Centers and Gathering Places will be expanded, as recommended, in the Final EA.

8. Section 5.3.3 Land Use Ordinance will be revised, as specified, in the Final EA. A declaration of exemption from the City's Land Use Ordinance requirements and the Special Management Area Permit by the Department of Hawaiian Home Lands (DHHL) will be included in the Final EA and submitted to the DPP.

9. Please refer to item 8, above.

10. The proposed site configuration is subject to further refinement and the applicant will work with the project designers to consider alternatives that could better address the planning guidelines of the Waianae Sustainable Communities Plan. Considerations for locating the proposed parking between the Farrington Highway and the Commercial Center/Kupuna Housing include reducing highway traffic noise impacts on the residential units and providing closer pedestrian access between the residential units and the Community Center.

11. The number of residential units will not exceed the 50 units proposed in the Draft EA, although the actual unit count has yet to be determined. The residential units will accommodate elderly singles and couples, although the actual ratio has yet to be determined.

12. The Final EA will describe existing public transit service and indicate that there are no existing bicycle facilities in the vicinity of the project site. Consultation regarding public transit service for the proposed project as well as consideration of bicycle access will be pursued with DOT and DPP in conjunction with the preparation of construction plans for work within and affecting State and City rights-of-way. With regard to pedestrian safety crossing Farrington Highway, the location of the proposed project on the mauka side of the highway provides safer pedestrian access for the Nanakuli community.

13. The Final EA will state that drainage facilities for the proposed project will be designed in compliance with Section II of the City Department of Planning and Permitting's (DPP) Rules Relating to Storm Drainage Standards, including specific sizing requirements for structural best management practices (BMP). As required by Section II, a site-specific BMP for the proposed project will be submitted to DPP for approval.

14. Chapter 8 of the Final EA will be revised as follows:
    a. Add "Drain Connection License"
    b. Add "Easement for the pedestrian bridge"
    c. Revise "Work with City Right-of-Way" to "Trenching Permit."

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

EM

BOARD OF WATER SUPPLY

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

November 3, 2005

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 S. Beretania St., Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

Subject: Your Letter of October 4, 2005 on the Draft Environmental Assessment for Nanakuli Community Center, TMK:8-9-2:1,67

Thank you for your letter on the proposed Nanakuli Community Center.

The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position of information sated herein up until the final approval of your building permit. The final decision on the availability of water will be confirmed when the building permit is submitted for approval.

When water is made available, the applicant will be required to pay our Water Systems Facilities Charges for resource development, transmission and daily storage.

The proposed project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Application.

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

Very truly yours,

for KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control

7317-01
January 3, 2006

WILSON
OKAMOTO
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ENGINEERS
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1907 S. BERETANIA ST.
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Mr. Herbert Minakami, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 S. Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Minakami:

Thank you for your letter of November 3, 2005 regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. We appreciate your determination that the existing water system is presently adequate to accommodate the proposed Nanakuli Community Center and acknowledge that the availability of water will be confirmed when the building permit application is submitted to you for your review and approval.

2. We acknowledge that the applicant is required to pay Water System Facilities Charges for resource development, transmission and daily storage.

3. The applicant will comply with the cross-connection control and backflow prevention requirements for the project in conjunction with the building permit application.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.honolulufire.org

EM 7 †

INTERNATIONALLY ACCREDITED AGENCY 2000-2005

MUFI HANNEMANN
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

October 24, 2005

Mr. Earl Matsukawa, AICP
Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
OCT 27 2005
WILSON OKAMOTO CORPORATION

Dear Mr. Matsukawa:

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-002: 001 and 067

We received your letter dated October 4, 2005, requesting our comments on the above-mentioned subject.

The Honolulu Fire Department (HFD) requires that the following be complied with:

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from fire apparatus access as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1)

2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

   On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2 as amended)

3. Submit civil drawings to the HFD for review and approval.

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

Sincerely,

ATTILIO K. LEONARDI
Fire Chief

AKL/SK:bh

cc: Ms. Genevieve Salmonson, Director
State of Hawaii, Department of Health, Office of Environmental Quality Control
Mr. Kali Watson, Nanakuli Homestead Association

7317-01
January 3, 2006

WILSON
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Mr. Attilio Leonardi, Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street
Honolulu, Hawaii 96819

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Leonardi:

Thank you for your letter of October 24, 2005 regarding the subject Draft Environmental Assessment (EA). We offer the following responses in the respective order of your comments:

1. The proposed project will comply with applicable design requirements of the Uniform Fire Code, including the provision of fire apparatus access roads.

2. The water system serving the proposed project will be designed to meet fire protection requirements in accordance with the Board of Water Supply and the Uniform Fire Code.

3. Civil drawings for the proposed project will be submitted to the Honolulu Fire Department for review and approval.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

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

MUFI HANNEMANN
MAYOR

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-KP

October 11, 2005

Mr. Earl Matsukawa, AICP, Project Manager
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

RECEIVED
OCT 13 2005
WILSON OKAMOTO CORPORATION

Dear Mr. Matsukawa:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the Nanakuli Community Center.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Michael Tamashiro of District 8 at 692-4253 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

cc: Ms. Genevieve Salmonson
OEQC

Serving and Protecting with Aloha

7317-01
January 3, 2006

WILSON
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CORPORATION

ENGINEERS
PLANNERS

1907 S. BERETANIA ST.
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Mr. Boisse Correa, Chief
Police Department
City and County of Honolulu
801 S. Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment
Nanakuli Community Center
Nanakuli, Oahu, Hawaii
Tax Map Key: 8-9-02:01 and 67

Dear Mr. Correa:

Thank you for your letter of October 11, 2005 (BS-KP) regarding the subject Draft Environmental Assessment (EA). We acknowledge the proposed project should have no significant impact on the facilities or operations of the Honolulu Police Department.

We appreciate your review of the Draft EA.

Sincerely,

Earl Matsukawa, AICP
Project Manager

cc: Mr. Kali Watson, Nanakuli Homestead Association

10. REFERENCES

1. City and County of Honolulu, Department of Land Utilization. *Coastal View Study*. 1987.

2. City and County of Honolulu, Department of Planning and Permitting. *General Plan Objectives and Policies*. 1992.

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6. Hawaii State Department of Business, Economic Development and Tourism. *Hawaii Census 2000*. http://www2.hawaii.gov/DBEDT/index/cfm?section=READ_Census449 December 28, 2004.

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9. Land Study Bureau. *Detailed Land Classification- Island of Oahu*. L.S.B. Bulletin No. 11, December 1972.

10. Macdonald, Gordon A., A.T. Abbott and Frank L. Peterson. *Volcanoes in the Sea, The Geology of Hawaii*. Second Edition 1986.

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12. Takasaki, Kiyoshi J. *Ground Water in the Waianae District, Oahu, Hawaii*. United States Geological Survey, 1971.

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15. Wilson Okamoto Corporation, *Final Environmental Assessment for Nanakuli IV Elementary School*, February 2001.

AN ARCHAEOLOGICAL INVENTORY SURVEY WITH SUBSURFACE TESTING REPORT FOR THE PROPERTY LOCATED AT TMK: 8-9-002:001 IN NANAKULI AHUPUA'A, WAI'ANAE DISTRICT, ISLAND OF O'AHU

APRIL 2002

Prepared for: Mr. Kali Watson
Nanakuli Kokua Ohana Center
Century Square, Suite 907
1188 Bishop Street
Honolulu, Hawaii 96813

Prepared by: Archaeological Consultants of the Pacific, Inc.
Catherine M. Berdy, B.A.
Michelle Elmore, B.A.
Joseph Kennedy, M.A.
59-624 Pupukea Road
Haleiwa, Hawaii 96712

Inventory Reports Data Recovery Reports Research Design Documents Monitoring Due Diligence Work Historical Studies Cultural Studies Burial Treatment Plans Preservation Plans Interpretive Reconstructions Restorations Qualified Expert Witness Testimony

59-624 Pupukea Road Haleiwa, Hawaii 96712 Phone: 638-7442/Fax: 638-0703

Abstract

An Archaeological Inventory Survey has been conducted by Archaeological Consultants of the Pacific, Inc. at TMK: 8-9-002:001 located in Nanakuli, O'ahu, at the request of Mr. Kali Watson of the Nanakuli Kokua Ohana Center. The purpose of the investigations was to determine if significant historic properties exist within the project limits and, if present, properly document and evaluate those sites.

Investigations took the form of a 100% surface survey of the subject property and the excavation of four hand excavated 1 x 1 meter test units. The test units were excavated inside of what appeared to be sinkholes. One test unit produced three artifacts, the rest were sterile for significant cultural material, additionally there were no significant palaeontological remains in the sinks on Parcel 1 of the current subject property, not enough to constitute a site. However, Parcel 2, previously surveyed by Cultural Surveys of Hawaii, contains the previously recorded site, Site 50-80-07-5947. Site 5947 represents the cultural and palaeontological deposits within the sinkholes of Parcel 2 on the subject property. Additionally, the surface survey revealed an extension to a site of historic significance, Site 50-80-07-5946, which was previously identified on the adjacent property. It is the remains of the former Camp Andrews, a WWII military rest and relaxation camp.

Based upon the results of the current investigations, and previous recommendations by Cultural Surveys of Hawaii, Archaeological Consultants of the Pacific, Inc. recommends that a determination be made that future construction activities would have an "adverse effect" on significant historic properties at Site 50-80-07-5947, the cultural and palaeontological deposits within the subject properties sinkholes, under the Chapter 6E draft rules for archaeological Inventory Survey. Only one of the sinks, Sink 5 on Parcel 2 of the current subject property warrants further investigation. However, the potential for discovering more sinks in the construction process is possible and therefore a qualified archaeologist should monitor construction activities. In regards to the extension of Site 50-80-07-5946, the remains of Camp Andrews, the previous survey by Cultural Surveys of Hawaii in conjunction with the current investigations has fully documented the former Camp Andrews and no further archaeological work is necessary.

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An Archaeological Inventory Survey with Subsurface Testing Report for the Property Located at TMK: 8-9-002:001 In Nanakuli Ahupua'a, Wai'anae District, Island of O'ahu

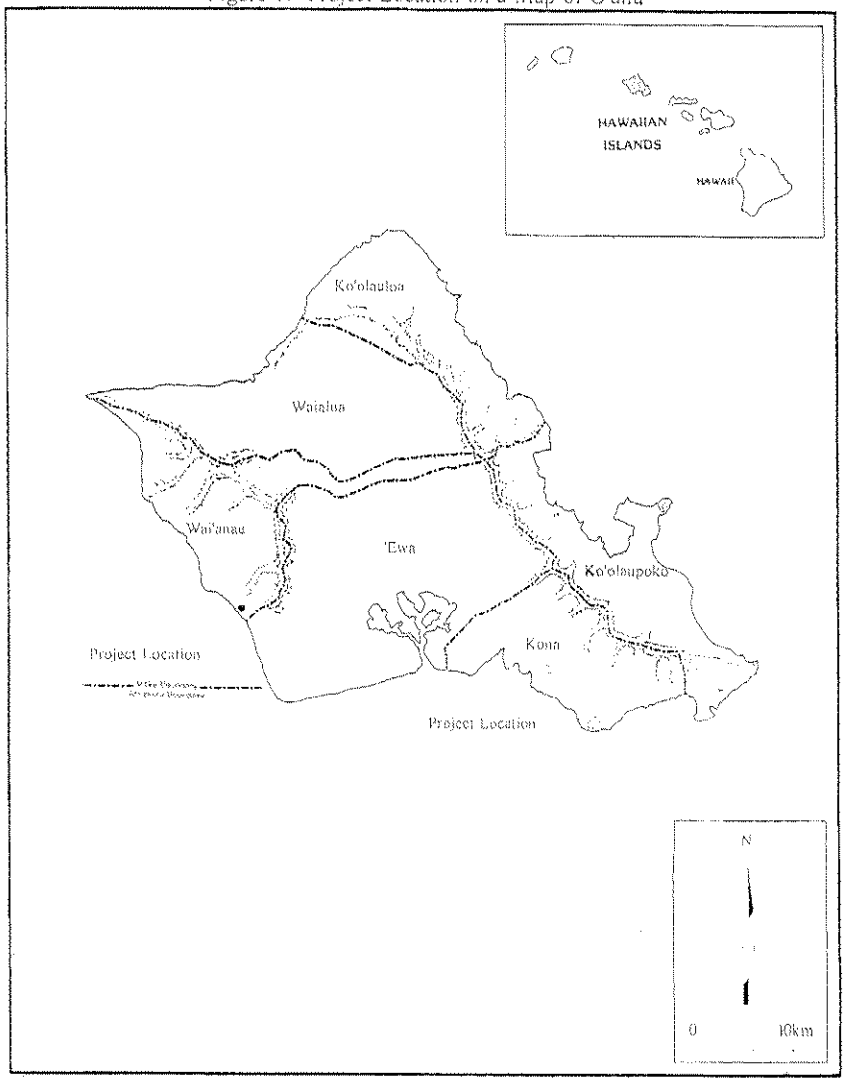
Section 1: Introduction

At the request of Mr. Kali Watson of the Nanakuli Kokua Ohana Center, Archaeological Consultants of the Pacific, Inc. (ACP) has conducted an Inventory Survey with subsurface testing for property which has been proposed to be developed as the Nanakuli Kokua Ohana Center, a community center. The subject property of 13.65 acres (TMK: 8-9-002:001) is located in the *ahupua'a* of Nanakuli, current district of Wai'anae, Island of O'ahu (see Figures 1, 2 and 3). The property is currently owned by Hawaiian Homelands.

The purpose of these archaeological investigations was to perform the tasks and meet the requirements specified by the National Historic Preservation Act (NHPA) and the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD). These investigations would allow for the evaluation of the significance of potential historic resources located on the property including their eligibility for inclusion in the National Register of Historic Places. These investigations also allow for the making of recommendations concerning the mitigation of the impact of future construction activities upon potentially significant historic resources.

Inventory Survey investigations have documented the presence of two sites. Site 50-80-07-5947 represents the cultural and palaeontological deposits within the sinkholes of the subject property. Site 5947 is previously recorded by Cultural Surveys of Hawaii (CSH) and is limited to (within the current subject property) the sinks on Parcel 2, which CSH previously surveyed. Sinks on Parcel 1 were sterile with the exception of one sink, but that sink (ACP Sink A) did not contain enough cultural or significant palaeontological material to constitute an extension of the previously recorded site. Another site, Site 50-80-07-5946, also previously identified by CSH on the adjacent property to the north was extended to the current subject property. Site 5946 is the remains of the former Camp Andrews, a WWII military rest and relaxation camp. The previous survey by CSH in conjunction with the current investigations has fully documented the former Camp Andrews and no further work is necessary on Site 5946. In regards to Site 5947, these investigations, and the previous work by CSH concluded that Parcel 2 has the potential to yield important archaeological and palaeontological information. This recommendation could be extended to Parcel 1 in the event that more sinks are discovered in the construction process. Recommendations have been made for monitoring by a qualified archaeologist during the construction process in case more sinks are uncovered.

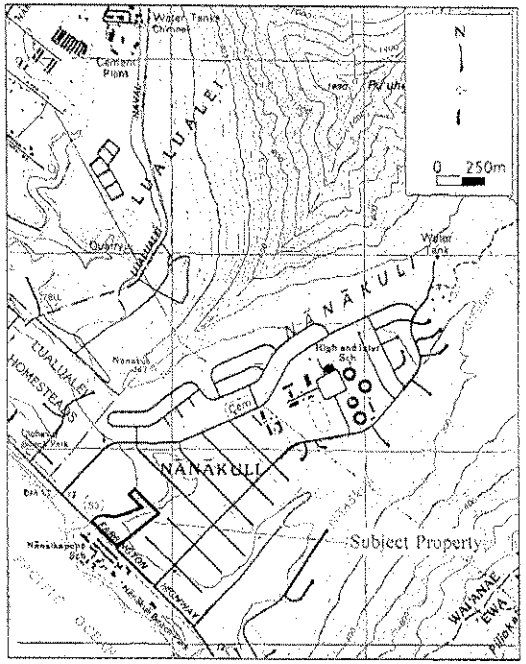
Figure 1: Project Location on a Map of O'ahu



Camp Andrews TMK: 8-9-002:001

Source: Adapted from Nugetmeier in Soukenberg 1990

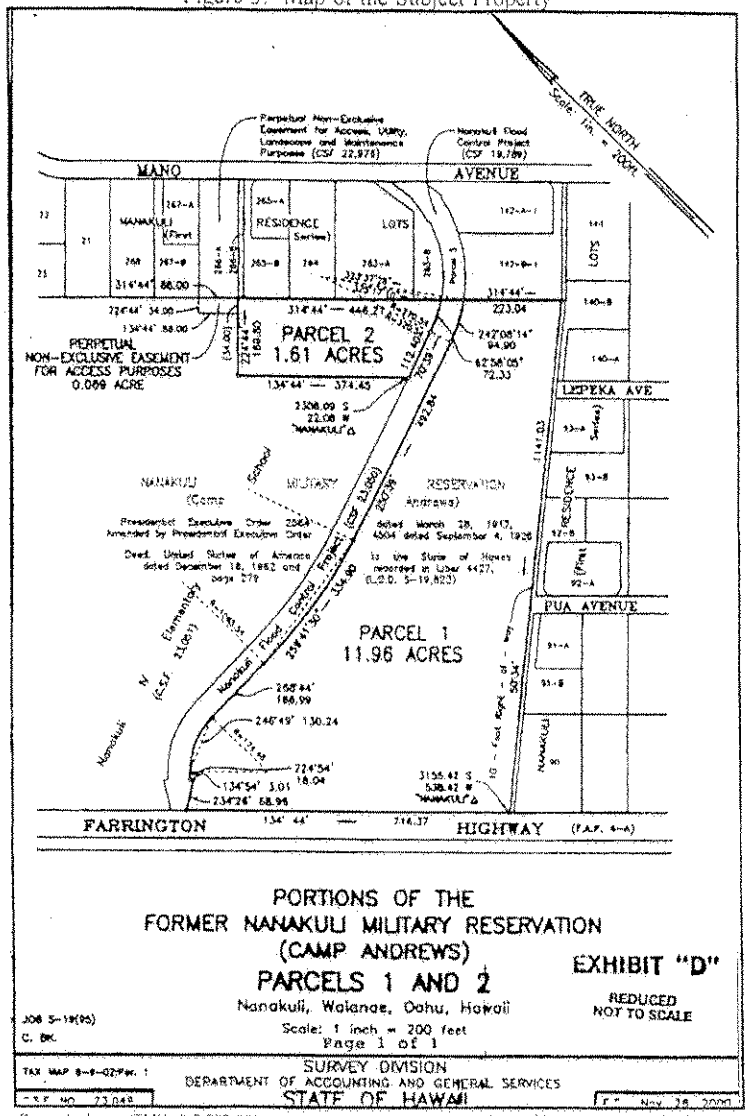
Figure 2: Subject Property on a U.S.G.S. Map



Camp Andrews TMK: 8-9-002:001

Source: U.S.G.S. 7.5 Minute Series (Topographic) Map
Schofield Barracks Quadrangle 1998

Figure 3: Map of the Subject Property



Camp Andrews TMK: 8-9-002:001

Source: State of Hawaii, Survey Division 2000

Section 2: Physical Setting

The subject property (TMK8-9-002:001) is located in the *ahupua'a* of Nanakuli, current district of Wai'anae, Island of O'ahu. The project area is located at geographic grid coordinates 21° 23' 02" North by 158° 08' 37" West and UTM (Universal Transverse Mercator) coordinates 588752mE and 2364780mN. The property is bordered by Farrington Highway along its western (*makai*) border, by the Nanakuli Flood Control Drainage Canal along most of its northern border, and by privately owned and developed lots along its eastern (*mauka*) and southern borders. The elevation on the property ranges from 12 to 20 feet above mean sea level (McDermott, Chiogioji & McGuire 2001:5).

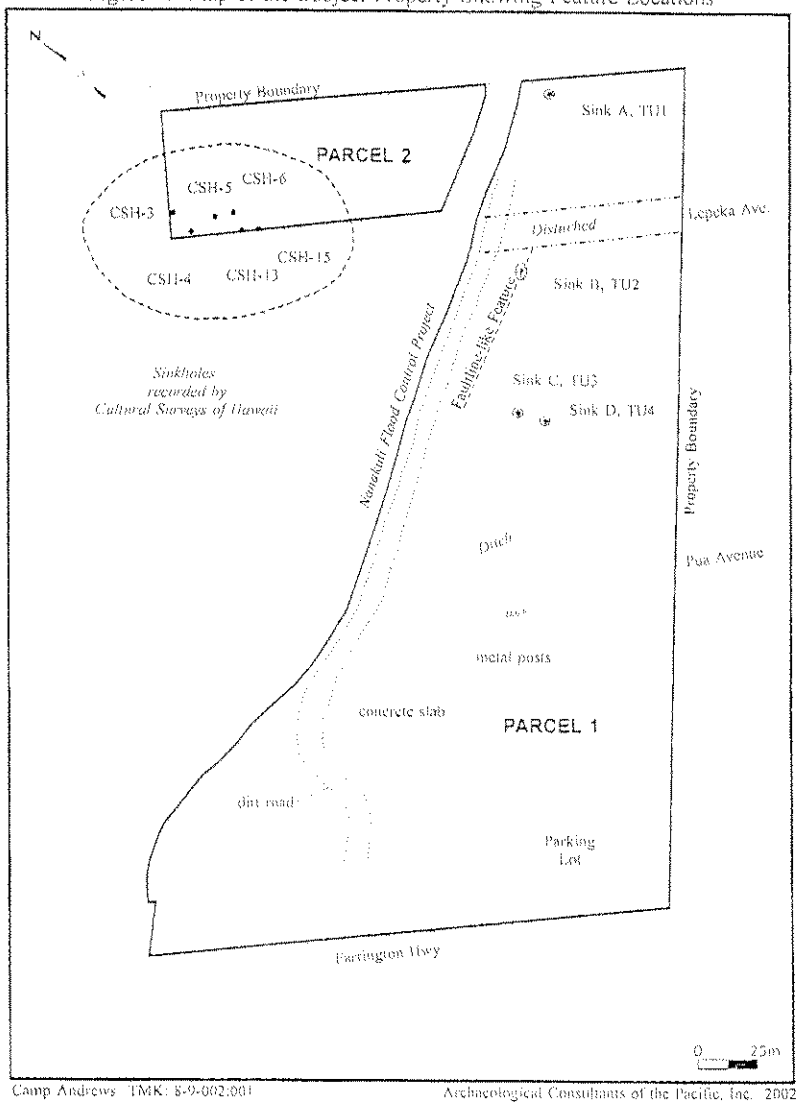
The property is comprised of two parcels encompassing an area of 13.57 acres. Parcel 1 is the bulk of the property, it lies entirely to the south of the Nanakuli Flood Control Drainage Canal and is 11.96 acres. Parcel 2 is just 1.61 acres at the Northeast corner of the property on the opposite side of the drainage canal (see Figure 3).

The property is mostly level with a moderate rise leading up to the *mauka* end of the property. There are, however, man made disturbances such as two ditches across the property and a bulldozed area running northwest to southeast that alter the lay of the land (See Figure 4).

Currently the subject property is quite arid, receiving only 10 to 15 inches of rain a year (Armstrong 1973:56). The landscape is dominated by wild tamarind (*haole koa; Leucaena glauca*), Mesquite (*kiawe; Prosopis pallida*), the occasional banyan tree (*Ficus benghalensis*) and sparse, mostly dead, grasses and weeds. Another dominant feature of the landscape is the trash strewn across the entire subject property. This debris is so thick in some areas it covers the ground surface entirely.

Foote *et al.* (1972) describe the soils in the area as a Jaucas-Mokuleia association. These soils are "deep, nearly level to moderately sloping, excessively drained and well-drained soils that have coarse-textured underlying material on coastal plains" (Foote *et al.* 1972:268). These soils lie on top of an emergent Pleistocene reef or coral outcrop. These outcrops are made up of coral or cemented calcareous sand and were formed in shallow ocean water during the Pleistocene era when the ocean level was much higher than it is today (Foot *et al.* 1972:29). One feature of the emergent Pleistocene reef is the presence of sinkholes. Although there is some debate as to the number of factors involved, it is generally accepted that sinkholes are formed during the downward percolation of rainwater or surface runoff through limestone, or coral rock. Water derived from the atmosphere is slightly acidic. This weak acid is able to dissolve the carbonates, which constitute limestone and coral rock. In areas where surface runoff occurs, due to the intensity of rainfall exceeding the infiltration capacity of the exposed reef, the water will flow for short distances overland, until it flows underground along lines of weakness, or joints, in the rock. Through time the water erodes the rock to form depressions or sinkholes. Usually these depressions collect sediment, which is deposited as the water flows into the permeable rock.

Figure 4: Map of the Subject Property Showing Feature Locations



Section 3: Historic Background & Land Use

The leeward lands of Wai'anae are comprised of steep sided valleys with relatively level valley floors, which are fronted by sandy beaches. A comprehensive review of the District of Wai'anae has been presented in Cordy's (1998) *Ka Moku O Wai'anae: He Mo'olelo O Ka Wa Kahiko*. The earliest use of the land was probably temporary campsites utilized in relation to fishing and resource gathering. One site near Kaupuni Stream at Poka'i Bay contained a surprisingly early date of A.D. 600s-800s (Cordy 1998:6). Permanent habitation probably did not occur until after A.D. 1000. Cordy discusses initial permanent habitation in Wai'anae:

> In Wai'anae, one might expect the earliest permanent settlement to have been in Wai'anae Valley at Pokai Bay in association with its flowing stream (Kaupuni) and at Kamaile with its spring (Keko'o) – as these were the two best watered coastal lands in the moku. Then perhaps Makaha and parts of Lualualei with at least upland flowing waters, and perhaps perennial streams, would have been settled, and then the rest of the district (Cordy 1998).

Evidence for use of the land for *lo'i* behind the coastal habitation areas in Wai'anae Kai Ahupua'a dates to as early as A.D. 1100s-1200s (Cordy 1998:8), whereas agricultural use "in Nanakuli, dry fields in the upper valley began to be built in the A.D. 1200s-1400s and permanent habitations in the 1300s-1400s and ... these sites seem likely to reflect later population spread from a somewhat earlier settlement along the shore" (Cordy 1998:8). As population on O'ahu grew during the 1400s-1700s, permanent habitations likely increased and cultivation of *lo'i* and dry-land agriculture likely expanded.

In addition to the utilization of littoral resources, numerous fishponds provided a valuable resource. During the 1400s-1500s:

> Coastal fishponds... were... probably constructed in these years under the sponsorship of the rule of high chiefs. A fishpond in Honouliuli along Pearl Harbor in 'Ewa, Loko Paweo II in Waikiki, Moli'i and Nu'upia fishponds in Kane'ohe Bay all have their initial constructions dated back to this period." Some of the lineal marshlands behind the coastal dunes in the moku of Wai'anae also may have been in use as fishponds at this time –perhaps in 'Ohikilolo and Wai'anae (Cordy 1998).

Also during this time, more and larger *heiau* were likely built in association with the rise of the O'ahu Kingdom. In the district of Wai'anae, numerous *heiau* have been recorded along the coast and in both the lower and upper portions of the valleys.

Traditional Prehistoric Accounts:

The district of Wai'anae has a prominent place in the Hawaiian oral tradition; its place names figure in central mythological cycles and in the stories of the ruling chiefs, suggesting perhaps a relatively early occupation of this land.

Stories of the demigod Maui are found throughout Polynesia, with local variations from each of the Hawaiian Islands. On O'ahu, these stories are centered in Wai'anae.

Maui and his two brothers, Maui-mua and Maui-ikiiki, are said to have been born in Wai'anae. Hina, their moon-goddess mother, lived in a cave on the southern side of Wai'anae where she made the famous fishhook with which Maui tried to bring all of the Hawaiian Islands together, the snare for catching the sun and her own tapa cloth (Beckwith 1982:232).

The famous pig god, Kamapua'a, is known for his exploits in Wai'anae. He and his grandmother Kamaomaoniho, are said to have lived together on Mount Ka'ala where they could look down into Wai'anae. During the night, Kamapua'a would sneak down and steal taro from the patches in the valley. When the people of Wai'anae discovered that a pig was stealing their taro, they caught him and tied him to a rock named Pahoa. On the day set for killing him, the people found him gone from the rock and roaming about in the taro patches again. They caught him once again and took him to Pu'u Kahea where the *imu* (underground pit oven) had been prepared for his roasting. At this time many *kinolau* (supernatural bodies) crossed the plains and devoured the men of Wai'anae who had not fled (Sterling and Summers 1978:72).

Another story tells of Kamohoali'i, a shark god, who begot a half-man, half-shark child with a woman of Wai'anae. Many people were devoured before this shark-man was finally caught and killed (Hammatt, Borthwick and Shideler 1987:12).

Early Historic Period:

People along the Wai'anae Coast in January 1778 were the first to spot the ships of Captain James Cook as he discovered the Hawaiian Islands for the western world (McGrath, Brewer and Krauss 1973). Cook did not stop in Wai'anae, but continued on to Kauai. Some years later, we have our first discoverer's account of the Wai'anae Coast. In March, 1793 Captain George Vancouver's ship was off the coast of Wai'anae and he had this to say of the experience:

> "The few inhabitants who visited us [in canoes] from the village earnestly entreated our anchoring ... And [they] told us that, if we would stay until morning, their chief would be on board with a number of hogs and a great quantity of vegetables; but that he would not visit us then because the day was taboo poory [a kapu day]. The face of the country did not however, promise an abundant supply [of water]; the situation was exposed (McAllister 1933:113).

Vancouver sailed on and did not take a favorable impression of the Wai'anae coast with him, he further noted that the entire coast was "one barren rocky waste nearly destitute of verdure, cultivation or inhabitants." (McGrath *et al.* 1973:17) The only village he observed was at Wai'anae (McAllister 1933:112) the rest of the coast held a "few straggling fisherman's huts" and "a small grove of shabby cocoanut trees" (Handy & Handy 1972:270-271).

Vancouver did note that the valley beyond Wai'anae presented a "fertile, cultivated aspect" (McGrath *et al.* 1973:17). Unfortunately this did not clue Vancouver into the fact that had he gone ashore his negative impressions would have been belied. The inhabitants of Wai'anae led a comfortable life. "An overland traveler who visited

the village some years later wrote 'This is a very beautiful place, opening on an extensive valley . . . having a view of the sea. On the left is a grove of coconuts on low ground through the midst of which runs a beautiful stream of clear water from the mountains. Houses are scattered here and there in the grove and clumps of sugar cane and rows of bananas are interspersed'" (McGrath *et al.* 1973:17).

Handy and Handy also had a more favorable opinion of the Wai'anae Valley:

> Wai'anae Valley supported a number of areas where wet taro was planted, watered by streams from the Wai'anae range, streams whose flows were probably constant owing to the high bogs on top of the mountains . . . Undoubtedly there were also small settlements subsisting mainly on sweet potato, in the valleys where constant streams were lacking [Nanakuli and Makua]. In famine times, then, there was reef fishing, and the Wai'anae Mountains had wild bananas, *ti*, fern, and other roots that were edible . . . (Handy and Handy 1972:275-276).

Noted historian John Papa 'I'i makes an early mention of a settlement in Nanakuli. In his book "Fragments of Hawaiian History ('I'i 1983:26-27), 'I'i describes visits to his aunt. One visit was in Nanakuli when 'I'i was a boy. During that visit he noted that breadfruit trees were present and that fishing activities were occurring in the village (*ibid*).

In 1804 a cholera epidemic called *mai oku'u* swept across the Hawaiian islands. The effects of the epidemic were devastating to the population (McGrath *et al.* 1973). During the same period of time another sort of epidemic began, the sandalwood trade. Demand for sandalwood became so great that often the day-to-day work of subsistence was overlooked. The greed of some chiefs for wealth was so great that "famine was experienced from Hawai'i to Kaua'i . . ." (historian Kamakau in McGrath *et al.* 1973:18). The Wai'anae Range had "extensive stands of sandalwood" but the over harvesting during this period of time has left sandalwood nearly extinct on the Wai'anae Coast (McGrath *et al.* 1973:18).

By this point in time, missionaries had made their way to the islands. One useful aspect of their work was that they were the first to attempt a census of the islands. Their work was conducted from 1831-1832 and 1835-1836. Figures for Wai'anae, which most likely included Nanakuli, were 1,868 in the first census and 1,654 in the second (McDermott *et al.* 2001).

Land Acquisition Awards:

In the Great Mahele of the 1840s the *ahupua'a* of Wai'anae, which at that time included Nanakuli was claimed as Crown lands, the personal property of King Kamehameha III. Five land court awards were filed by natives, which were all subsequently unawarded. The following table provided by McDermott *et al.* (2001:24) details the five claims.

Table 1 (From McDermott *et al.* 2001:24)
Nanakuli, Wai'anae, O'ahu, Land Commission Claims from the *Mahele*

LCA	Claimant	'Ili	Land-Use Information from *Mahele* records
830	Mahiki	--	3 *Apana*, 1 House lot-references to cairns, streams, and other house lots, land given by Kahele
833	Kahaanui	Kaape	4 *Apana*, 1 House lot-reference to cairns, streams, and other house lots, land given by Kahele
846	Awa	--	5 *Apana*, 1 House lot-reference to streams and other house lots, land given by Kahele
7455	Kuluahi	Hapai	1 *Apana*, 1 *Kula*, 1 House lot, 1 *Wauka*-"a *multiwai*, a pond, a cultivate (sic) *kula* and for firewood also, a valley planted in *wauke mauka*, and *kula* house lot" (Native Register 342v5)
8153	Haalula	Kuamookahi	1 *Apana*, 1 *Kula*, 1 House lot, 1 *Wauke*, 1 Sweet Potatoes

Based on these claims we know that *kula* land was being used, and crops such as *wauke* and sweet potatoes were being grown in Nanakuli, along Nanakuli Stream, or one of its tributaries (McDermott *et al.* 2001). The exact location of the five claims is not known, however, Cordy's (1997) work in the region would support the idea that these claims were located in the upper part of the valley (McDermott *et al.* 2001). This is based on the discovery of "permanent habitation features" in the upper valley (McDermott *et al.* 2001:24). McDermott *et al.* argues that "there is no indication that any of the apana, or land divisions, of the five LCA claims were located in the vicinity of the current Nanakuli IV Elementary School project area" (McDermott *et al.* 2001:24).

Late Historic Period to Present:

In the latter half of the nineteenth century, land use in Wai'anae shifted from traditional agriculture to large-scale ranching and sugar production. According to an 1863 missionary report, most of the land in the Wai'anae District was being used for grazing and had been divided into six or seven large land divisions under long term lease or sold in fee simple. In Nanakuli this was the case with the Dowsett and Robinson families. Only one hundred acres were reportedly left under taro in Wai'anae Valley (McGrath *et al.* 1973:31). By the late 1870s, ranching had become the leading industry on the coast. McGrath *et al.* (1973) reports that George Bowser in research for a book found ranches in a number of places along the Wai'anae coast including Nanakuli during the years 1880-1881. Bowser says this of his visit through Nanakuli:

> From the Lualualei Valley to the Nanakuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nanakuli and at Ho'ae'ae, close adjoining, the Messers. Robinson have cattle ranches. The pasture here cannot be

compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better (Bowser 1880:494).

Sugarcane was first cultivated on O'ahu by John Emerson earlier in the century in Waialua (McDermott, Kikiloi, Creed, Schideler and Hammatt 2000). In 1878, Hermann A. Widemann, a German immigrant and judge, began Wai'anae Plantation (also called Wai'anae Sugar Co.), the first large-scale sugar plantation on O'ahu. Sixty acres were cleared and planted not far from Wai'anae Village, and a mill was built by 1880. In 1879, the plantation leased most of Wai'anae Kai for 25 years, brought in twenty local Hawaiians, fifteen Caucasian technicians and almost 60 Chinese laborers (McDermott and Hammatt 2000b:26). Twenty-four new houses were built in Wai'anae Valley to house these workers, and "a plantation camp was built at Kamaile on the site of the old Native Hawaiian village" (Flood *et al.* 1994:38). [*Note: All documents relating to sugar plantations on O'ahu have been compiled by the Hawaii Sugar Planters Association which are currently housed at Hamilton Library at the University of Hawaii-Manoa.*]

Flood *et al.* (1994:39) discuss some of the problems Widemann faced:

> Probably the greatest challenge for Wai'anae Co. was locating more water. Wai'anae Stream did not have enough water to accommodate all the new sugar fields popping up. The answer to this problem was drilling, a new process designed to tap artesian water. The process was discovered in nearby 'Ewa in 1879. Widemann took the opportunity to make use of this new discovery. He contracted the three McCandless brothers, pioneers in this field, to drill 33 wells into his property at a cost of $50,000.00 to $75,000.00. They could only charge him full price if they found water and half price if they found nothing (Pratt 1939:275). The resulting volume of water was insufficient, forcing the company to augment with whatever surface water they could find.

McGrath *et al.* (1973:75) further elaborate on methods used in obtaining water:

> ...The expensive well drilling campaign had developed a nest of 18 wells at Kamaile. They produced about 3,000,000 gallons daily. But the water was more salt than fresh. So the drive to buy up more water rights and to develop new sources grew more intense instead of less.
>
> In the 1890s a new leader began guiding this relentless search for water. He was John M. Dowsett, Widemann's son-in-law... Reports credit him with pushing a plan to reforest upper Wai'anae Valley in order to create a watershed area. Workmen planted trees, then fenced off the lower slopes of the mountains to keep out the cattle, so the vegetation would grow. Meanwhile, they dug an elaborate network of ditches to catch the runoff. ...By 1897 the ditches were producing 2,200,000 gallons of water a day. ...[Dowsett] had his men build a reservoir at the base of the mountains. He installed a hydro-electric plant ...about two miles below the pali (cliffs) and the reservoir. He dropped the water from the reservoir to the hydro-electric plant in a sluice 7,000 feet long. The fall of the water developed 440 horsepower, enough to generate 300 kilowatts of electricity. This electrical power drove the plantation's water pumps at the wells, operated the mill generators in the off season and provided electric lights for the plantation manager's house at a time when many people in Honolulu were still using kerosene lamps.
>
> A four-inch pipe from the hydro-electric plant to the village provided a domestic fresh water supply for the plantation camps. The rest of the water ran off in open ditches

> to sweeten brackish irrigation water being pumped from the Kamaile wells. Other pumps lifted the mixture into a network of flumes and ditches which led to cane furrows as far away as Lualualei.

Despite the water problem, the sugar boom revived the economy of Wai'anae, and by 1884 it was the largest settlement outside of Honolulu. In 1890, the Wai'anae Plantation had 600 acres under cultivation and the population of Wai'anae had increased. In 1895, O.R. & L. railroad, started by Dillingham in 1889, reached the Wai'anae Sugar Company and connected it to the Ewa mill; by 1898 the railway would eventually extend around Ka'ena Point and link up with Waialua. Wai'anae Village grew and was the center of population and activity (Kuykendall 1967:100 and McGrath *et al.* 1973).

Coffee cultivation was also attempted in Wai'anae during this period. In 1886, August Ahrens planted 45 acres of coffee in the lee of Mount Ka'ala at the head of Wai'anae Valley. Coffee did not turn out to be as lucrative as sugarcane. The local economy continued to be dominated by sugar into the twentieth century (McGrath *et al.* 1973).

In the early 1900s the Government decided to "open up land in Lualualei for homesteads" (McDermott *et al.* 2001:28). Large tracts were purchased by well-known families such as the Von Holt, McCandless, and Dowsett, smaller lots were purchased by roughly 40 working class families (McDermott *et al.* 2001:28). Between 1917 and 1921, leases on 200,000 acres of government land in Wai'anae District expired. An area of land in central Wai'anae Kai was turned into Wai'anae Homesteads, residential plots for people of Hawaiian ancestry. Nanakuli, home to only 10 residents in the mid 1920s was also opened up to native Hawaiian settlement. "By 1930 over 200 residential lots had been taken" (McDermott *et al.* 2001:29). However, lack of water was still an issue in the region.

During World War II, the sugar industry in Wai'anae declined. The draft and abundant supply of defense jobs created a labor shortage on the plantation. The Wai'anae Coast was used as a location for practicing amphibious landings, a recreation center was set up at Poka'i Bay in addition to the rest and relaxation camp of Camp Andrews in Nanakuli, and much of the sugarcane land was taken over by the military (McGrath *et al.* 1973:136). The military occupied much of the Wai'anae Coast and inflicted much damage along it (*ibid* 1973:138).

After the war, the Wai'anae Plantation was never able to turn a profit. Increasing labor and operational costs forced the company to liquidate in 1946. At the time, people thought that the collapse of the plantation would lead to the collapse of the revitalized Wai'anae Coast. In 1947, Chinn Ho, of Capital Investment Company, bought nearly 10,000 acres of land in Wai'anae, and subdivided the land into cheap beach lots in fee simple (McGrath *et al.* 1973:151).

In 1940, a government census counted 2,948 permanent residents along the Wai'anae Coast (McGrath *et al.* 1973:145). By 1950, the government census noted 7,024

permanent residents along the Wai'anae Coast (McGrath *et al.* 1973:151). Much of the population increase can be attributed to Ho's marketing of cheap lots.

In the 1950s and 1960s, the population continued to steadily increase in Wai'anae, much due to the work of Ho. A breakwater was built to protect fishing boats in Poka'i Bay, the water supply was improved and jobs opened up in 'Ewa with the development of the Campbell Industrial Park" (McGrath *et al.* 1973:156).

Presently, Wai'anae is the home of a large community. Population is concentrated along the coast and spreads up the flat bottoms of the valleys.

Section 3.1: Previous Archaeology

A substantial number of archaeological investigations have been conducted in the lower and upper valley portions of Nanakuli Ahupua'a. Thrum and McAllister conducted the earliest investigations in the *ahupua'a*, recording the location of Hihune Heiau (Site 147, no longer present) towards the base of Pu'u Heleakala. Thrum describes it as a "small walled heiau of *pookanaka* class; used around 1860 by Frank Manini as a cattle pen, for which natives prophesied his poverty and death" (Thrum in McAllister 1933). Handy (1940) conducted an investigation of ethnographic agricultural practices in the upper valley area and found ruins of stone terraces, platforms and pavements related to Hawaiian habitation.

More recent archaeological Inventory Surveys have been conducted in undeveloped lands in the upper and lower valley areas (Cordy *et al.* 1990; Cordy and Pak 1990; Cordy 1998; Cordy 1997; McDermott and Hammatt 1999). The lower valley areas contained substantially fewer sites in comparison with the upper valley. The upper portion of the valley was found to contain numerous archaeological sites including agricultural features, temporary and permanent habitations, large enclosures, activity areas, and two possible religious sites (a small shrine and a possible *heiau*) (Cordy 1997). Pak and Cordy (1990:4) were able to run some radiocarbon analyses that "indicate that many of the sites were initially occupied in the A.D. 1500s and that some may have been occupied as early as the A.D. 1300s or 1400s."

An investigation in 1994 by Aki Sinoto Consulting noted extensive land alteration, and indicated that the expected findings would primarily include post-Contact agriculture, ranching and military sites (Nakamura and Pantaleo 1994).

An investigation was conducted the following year by Ogden Environmental and Energy Services Co. for the Department of the Navy (Schilz, Horst, Shun, Clevenger, Pietruszewsky, Weisler and Ziegler 1995). The project was located on the south side of Nanakuli Stream *makai* of Farrington Highway. This investigation found no archaeological sites, although the subject property was not in a high probability area as the land was a shallow, probably recent fill, on an emerged Pleistocene reef or beach rock (Schilz *et al.* 1995:11 & McDermott *et al.* 2001:36,).

Though no sites were found during the coastal investigations in Nanakuli, scattered settlements are indicated in historic accounts:

> Archival records—although very limited—show that there was a settlement along the coast in Nanakuli. In the early 1800s, John Papa Fi visited his aunt here. Although he described very little of the coastal settlement, he did note that breadfruit trees were present. Also, his relatives were supervising "the fishing" at that time in the village.[128] Others passed through Nanakuli walking from Waimanalo Gulch in 'Ewa on their way to Wai'anae Valley. They provided general descriptions for the area from Nanakuli through Ulehawa and Ma'ili in Lualualei, without specifics. They noted houses were present on the shore. In 1818 Hunnewell walked by a "number of Indian villages," and in 1828, Chamberlain recorded that, "We passed several kauhale (clusters of houses)"[129] (Cordy 1998).

Evidence of these settlements have most likely been destroyed by activities such as cattle ranching and modern structures such as Farrington Highway, various houses, Nanaikapono Elementary School, and Nanakuli Beach Park (Cordy 1997:12).

Most recently, the 15 acres adjacent to the current subject property have had an archaeological assessment (Hammatt, McDermott & Chiogioji 1999) and an Archaeological Inventory Survey (McDermott *et al.* 2001) by Cultural Surveys of Hawaii, Inc. (CSH). These surveys have resulted the discovery of two sites.

Site 50-80-07-5946 is the remains of Camp Andrews, a military rest and relaxation area. The camp was "constructed and utilized during the first half of the 20th century until it was deactivated and the land returned to the State of Hawaii in the late 1950s" (McDermott *et al.* 2001:40). The physical remains of the former camp consist of "numerous concrete slabs, some trash deposits, and a gateway structure" (McDermott *et al.* 2001:1). Please see Section 5 "Findings" for a detailed description of this site.

The second site, Site 50-80-07-5947 is the "cultural and palaeontological deposits within the project area's sinkhole features" (McDermott *et al.* 2001:40). The report details the discovery of 17 emerged reef-limestone sinkholes, which contained a cultural midden, one complete burial and one small occurrence of isolated scattered human skeletal fragments, various artifacts, and palaeontological deposits of extinct fauna (McDermott *et al.* 2001). Please see Section 5 "Findings" for a detailed description of this site.

Section 3.2: Settlement Patterns

Based upon the land use and archaeological studies mentioned above, settlement patterns for Nanakuli Ahupua'a can be briefly summarized. A detailed summary of the settlement patterns for the Wai'anae District may be found in Cordy's (1998) *Ke Moku o Wai'anae: He Mo'olelo O Ka Wa Kahiko*. Patterns of settlement across the *ahupua'a* of the district would have been somewhat similar, though occurring at differing times. The earliest settlements of the valleys began with small coastal populations utilizing littoral resources. Permanent habitation settlements then grew along the swampy backsides of the dunes and along the coastal trail, which roughly follows the route of Farrington Highway. By the 13th Century, the populations had begun utilizing the inland portions of the *ahupua'a*. A change in the distribution of populations occurred in the following centuries when inhabitants moved from the coast to new population centers in the interior of the valleys where scattered clusters of permanent habitation sites are found in the areas surrounding Kaneaki Heiau in Makaha; along Kaupuni Stream and the *'ili* of Pu'u Kahea and Kamaile in Wai'anae Kai; in the upland valleys of Halona, Pahoa and Puhawai in Lualualei; and across the upper valley floor of Nanakuli. Several factors are cited as influencing this shift in the centers of population, the most compelling of which is proximity to agriculturally productive areas.

The post-Contact Period saw a decline in the native Hawaiian population followed by the abandonment of the traditional irrigated taro systems. In the late 1800s to early 1900s, the large-scale cultivation of sugarcane expanded onto the seaward portions of the valley floors. A list of taxpayers and contributions were recorded in 1855 by a tax collector named J.W. Makalena (McGrath *et al.* 1973:29). McGrath *et al.* discuss these figures:

> This list of taxpayers, generally adult males, provides a clue as to how the population of the Wai'anae Coast was distributed at that time. Here are the figures:
>
> | | |
> |---|---|
> | Wai'anae Kai | 62 |
> | Kamaile | 44 |
> | Makaha | 38 |
> | Makua | 21 |
> | Maili | 9 |
> | Nanakuli | 8 |
> | Total | 182 |
>
> If we assume a population of less than 800 for the area, and four persons to the average household, the number of taxpayers in Wai'anae Valley represent about 250 persons. We can also estimate that about 175 people lived at Kamaile, about 150 in Makaha Valley, almost 85 in Makua Valley, more than 35 in Maili, and over 30 in Nanakuli.
>
> ...There were two schools in Wai'anae Valley, each with about 25 students. ...the people of Nanakuli paid a total of $26 for school, poll and other taxes. Maili paid in $31. In Makua, the people paid $73.50; in Makaha, $92.25; at Kamaile, $177; and in Wai'anae Valley, $276.

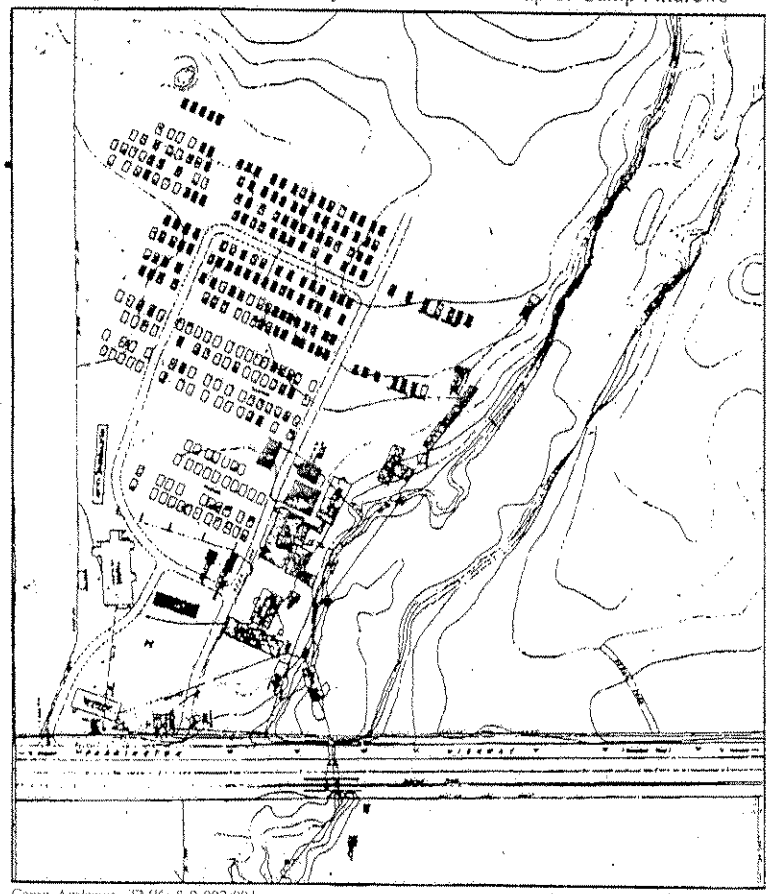
From Makalena's records, it was also revealed that in some areas there were more horses than taxpayers. In Wai'anae Valley, 123 horses and nine mules and donkeys were reported; 66 horses and four mules and donkeys in Kamaile; and 10 horses in Nanakuli (*ibid*).

Although it is probable that the coastal areas of Nanakuli contain cultural deposits, in recent years, modern residential and recreational developments have obscured earlier deposits.

Section 3.3: Expected Finds

Based upon the land uses, previous archaeology and settlement patterns discussed above, the expected finds for the subject property may now be discussed. A good deal of archaeological work has been done adjacent to the current subject property in preparation for the proposed Nanakuli IV Elementary School. Hammatt, McDermott and Chiogioji's archaeological assessment in 1999, McGuire and Hammatt's traditional cultural practice assessment in 2000, McDermott and Hammatt's 2000 letter report of initial inventory survey findings (2000a) and McDermott, Chiogioji and McGuire's 2001 Inventory Survey report "have demonstrated that the [property adjacent to the current subject property] . . . contains significant historic properties" (McDermott *et al.* 2001:38-39). These historic properties include "the historic remains of Camp Andrews [a WWII rest and relaxation camp] and traditional Hawaiian and palaeontological deposits within the [adjacent subject property's] . . . sinkhole features" (McDermott *et al.* 2001:39). This most recent 2001 inventory survey also encountered one traditional Hawaiian burial, and one occurrence of a small amount of isolated scattered human skeletal material. It is possible that the current subject property, given the existence of sinkholes, will also contain traditional Hawaiian and palaeontological deposits. Camp Andrews, however, appears to have been limited to the northern side of the drainage canal (see Figure 5). A 1942 general layout and services map of Camp Andrews (Figure 5) does not show any structures on the current subject property, however, it is still possible that some remnants of the old camp may be found on the current subject property.

Figure 5: 1942 General Layout and Services Map of Camp Andrews



Camp Andrews TMK: 8-9-002:001 Source: McDermott et al. 2001

Section 4: Methodology

The current archaeological investigations were conducted on November 14th through November 21st 2001. All fieldwork was conducted under the direction of the Principal Investigator, Joseph Kennedy, M.A.. Fieldwork was conducted by Joseph Kennedy, M.A., Michelle Elmore, B.A., James R. Moore, B.S., and Catherine Burdy, B.A.. Fieldwork methods consisted of both surface and subsurface investigations.

A pedestrian survey was utilized to systematically investigate the subject property. The purpose of the pedestrian survey was to identify all potentially significant historic properties, and sinkholes, which may be located on the surface of the subject property. The pedestrian survey was conducted by having the field crew sweep the parcel on foot using transects spaced approximately 5 to 10 meters (m) apart. Visibility was good with scant grasses and modern garbage covering the terrain. Through the use of this procedure a 100% surface survey of the subject property was completed and all potentially significant historic properties were identified.

Subsurface investigations were conducted within the 4 apparent sinkholes (during excavation it became apparent that ACP Sink B was not a true sinkhole) identified on the subject property. These consisted of one 1 x 1 meter test unit in each of the apparent sinkholes. The purpose of conducting subsurface excavations was to determine if cultural deposits were present and to examine the soil stratigraphy. The results of these investigations would provide information, which would allow for the evaluation of potential sites.

A variety of techniques were utilized to ensure proper data collection. The locations of sinkholes, features and various terrain features across the subject property were mapped with a Garmin E-Trex Vista Global Position System (GPS). The Garmin was reading at a 5 to 7 meter accuracy. A compass and tape were used to assure even greater precision. This information was then mapped using a basic UTM grid and information from the State of Hawaii Department of Accounting and General Services map. Soil samples were collected from each stratigraphic layer identified. Profiles were drawn of each test unit and a plan view was drawn of each sinkhole. Photographs were taken of each sinkhole before and after excavation. Notes were taken in the field describing the environmental setting of the subject property including indications of former modifications and/or modern developments made to the property. Detailed field notes were also taken describing all subsurface excavations with a summary of the basic findings from each test unit. All of these methods in data collection were conducted in order to provide an accurate and detailed visual and written record of the findings on the subject property.

Laboratory analyses included a range of diagnostic endeavors and were conducted according to standard scientific and archaeological methods and recorded on standardized analysis forms. Vertebrate remains were identified to the genus level, as possible, by Dr. Alan Ziegler with the results being tabulated and presented by provenience and weight. Invertebrate remains were identified to the species level, as possible, by ACP personnel

with the results being tabulated and presented by provenience and weight. Artifactual material was sorted by type, tabulated, weighed, measured and presented by provenience by ACP personnel.

This report provides complete descriptions of the investigations undertaken, including written accounts, placement of the features and test units on plans drawn to scale, and profiles depicting stratigraphic deposits encountered. Also included are soil descriptions according to USDA standards and the presentation of the results of all laboratory analyses described above. The methods utilized aided in the production of an accurate and detailed report along with a determination of site significance as well as the impact of future construction endeavors.

All materials collected will be bagged and labeled appropriately, placed in labeled and inventoried boxes, and curated at the ACP office located at 59-624 Pupukea Road, Hale'iwa, Hawai'i.

Section 5: Findings

Archaeological investigations conducted by ACP systematically surveyed the entire subject property. The current investigations identified portions of two sites: Site 50-80-07-5946 and Site 50-80-07-5947. Each of these sites was previously identified by CSH in their Inventory Survey of the adjacent property TMK 8-9-02:65 (McDermott *et al.* 2001).

Site 50-80-07-5946

Results of the investigations on the current subject property extend the original boundary of Site 50-80-07-5946 from TMK 8-9-02:65 onto the current subject property. Site 50-80-07-5946 is the remains of the former Camp Andrews, a WWII military rest and relaxation camp. The boundary of this site extends into the current subject property because of the discovery of a concrete pad and fence line on the *mukai* end of the property (see Figure 4). These structural remains are in accordance with CSH findings of Camp Andrews structural remains on the adjacent property. CSH survey findings for the camp on the adjacent property are presented below (McDermott *et al.* 2001:52, 53).

> The 15-acres of the former Camp Andrews site was documented in the present inventory survey . . . Based on the 1942 layout map discussed in the above historic documentation of Camp Andrews, these 15 acres are the only portion of a 39-acre former military reservation where camp buildings and facilities were constructed . . .
>
> No surface Hawaiian archaeological properties were observed in any portion of the survey area. Only two intact remnants of the former Camp Andrews were observed. A small concrete structure is located in the southeast portion of the survey area . . . It is barrel vaulted with inward-sloping walls. According to staff of the U.S. Army Museum-Hawaii at Fort DeRussy, the structure may be a reinforced bunker. Nanakuli resident Walter Kamana, Jr. suggests that the structure is an incinerator . . .
>
> Along the boundary of the survey area fronting Farrington Highway are two coral block pillars with a section of pipe extending from the top of each . . . The pillars formerly marked the entrance to Camp Andrews. According to information in a newspaper article, the pipes "braced another horizontal pipe that held up the entrance sign" to the camp (Honolulu Star-Bulletin 8/11/97:B1).
>
> The only other remnant evidences of the camp are an unpaved roadway extending through the camp from Farrington Highway and ten concrete foundation pad remnants of various sizes . . . Some of the concrete pads have been correlated to building locations indicated on the 1942 camp layout map . . . The remaining unidentified pad sites appear to represent additional buildings constructed subsequent to 1942.
>
> Modern trash piles and abandoned vehicles are the only surface evidences of activities in the Camp Andrews parcel since the camp's closing.

McDermott *et al.* 2001 has provided an excellent history of Camp Andrews, including historic maps, newspaper articles, historic documents, historic photographs, local informant interviews, and current photographs and written descriptions, which detail existing conditions at the former camp. Please see their report for a detailed description and background analysis of the camp.

Site 50-80-07-5947

Site 50-80-07-5947 represents the cultural and palaeontological deposits located within the subject property's sinkhole features. The current investigation does not extend the boundary of the original site as defined by CSH. ACP located four apparent sinks, three turned out to actually be sinkholes; a fourth (Sink B) was not. Only one of the sinks, Sink A, contained significant historic materials and palaeontological materials but not in sufficient quantities, nor were the materials significant enough to alter the existing boundary of the site. During CSH's Inventory Survey, the Sinks on Parcel 2 of the current subject property were fully investigated and excavated. Despite the fact that these findings have already been reported on, (McDermott *et al.* 2001), CSH findings are also being presented in this report because the features they describe fall within the current subject property. ACP has broken up the site and only reported on the areas of the site that fall within Parcel 2 of the current study. However, in order to fully understand the site, McDermott *et al.*'s findings (2001:57) for the entire site are being presented in brief in the following excerpt.

> The cultural and palaeontological deposits that make up Site 50-80-07-5947 are located almost exclusively within the project area's sinkhole features. There are no structural remains, such as stacked stone platforms or walls, associated with Site 50-80-07-5947. A few traditional Hawaiian artifacts, including a basalt core and some basalt flakes resulting from lithic reduction, and a limestone abrader . . ., were found on the current land surface, outside the sinkhole features. However, the traditional Hawaiian cultural remains found outside the sinkholes were extremely limited. No palaeontological remains were found outside the sinkholes.
>
> During inventory survey investigations, 17 sink features were located and flagged for land surveyor recording. . . .
>
> . . . the sink dimensions vary greatly. Some sinks are small enough that a 1 by 1 meter test unit would not fit within the sink. Other sinks are large enough that many 1 by 1 meter excavations could be dug within them. It should be understood that the subsurface testing of the sinks was at best a sampling exercise. It was simply not feasible to excavate more than a small fraction of the total sink deposit from the 17 sink features.
>
> Each of the 17 sink features was tested using standard archaeological excavation techniques. Where possible, an at least 1 by 1 meter hand dug excavation was completed in each of the sinks. Many of the sinks contained a fill deposit of large limestone boulders and rubble. This sink in-filling possibly began with Native Hawaiians in prehistoric times, continuing into the 19th century when Nanakuli was ranch land and *paniolo* would have filled the sinks to protect cattle from injury. In the 20th century, military use of the parcel likely required further sink in-filling (Hammatt, McDermott, and Chiogioji 1999:26). In such instances, this material was removed with a backhoe prior to the hand excavation of the finer-grained sediments below. .
>
> Sinks 1 and 2 were selected for test excavation as part of the preliminary sub-set of the inventory survey work because they are the largest known sinks in the project area (see McDermott and Hammatt 2000a). With their large size they were thought to have more potential for cultural deposits related to habitation and mortuary practices. The sink's large size was not thought to lessen the potential for palaeontological deposits. Boulder and cobble rubble removal from each of the sinks was difficult. This was particularly true in Sink 1 where the rubble fill extended to a depth of 4 meters below surface. This depth is the absolute limit of backhoe excavation, because of the limiting factors of the length of the backhoe arm and the narrowness of the sink opening . . .
>
> Dr. Alan Ziegler identified a number of prehistorically extinct bird species in the vertebrate faunal assemblage from the sink excavations . . . These species are prehistorically extinct on O'ahu at least, and many are extinct altogether. For the following discussion the prehistorically extinct bird taxons include *Pterodroma phaeopygia* (Hawaiian Petrel), *Oceanodroma castro* (Band-rumped Storm Petrel); *Branta sandvicensis* (Hawaiian Goose), *Branta* sp. (True Goose), *Thambetochen xanion* (O'ahu Lowland Moa Nalo), *Circus dossenus* (Wood Harrier Hawk), *Porzana ziegleri* (Lesser O'ahu Rail), *Grallistrix orion* (O'ahu Stilt Owl), *Corvus* sp. (Crow), *Chaetoptila* sp. (Kioea). Dr. Ziegler's Undescribed (sic) serpentiliavid bat is another taxon which is most likely prehistorically extinct on O'ahu. Historic introductions that might serve as temporal markers in the sink stratigraphy include *Herpestes auropunctatus* (Mongoose), *Mus Musculus* (House Mouse), *Rattus rattus/Rattus norvegicus* (Roof Rat or Norway Rat), *Oryctelagus cuniculus* (Rabbit), *Felis catus* (Cat), and *Streptopelia chinensis* (Spotted Dove). *Rattus exulans* is the Polynesian introduced rat . . .

The results of all excavations on the current subject property and descriptions of the sites identified within the project area will be briefly described below.

Section 5.1: Surface Survey Results

The subject property underwent a 100% surface survey. Four apparent sinkholes (ACP Sinks A through D) were identified on Parcel 1. Upon excavation, it became apparent that Sink B was not a sink, but rather a shallow depression that was brought about through the interaction with meandering freshwater from the nearby stream in conjunction with bulldozer action associated with the making of the adjacent road and drainage canal. This was further evidenced by the fact that this unique formation continued *makai* from Sink B along the road for several meters. This same formation, having almost a fault line appearance, was also present on the opposite side of the drainage canal.

In addition, 6 sinks out of a total of 17 on the adjacent subject property previously identified and excavated by CSH (McDermott *et al.* 2001) were reidentified and determined to fall within the boundaries of the current subject property on Parcel 2. These 6 sinks were CSH Sink numbers 3, 4, 5, 6, 13, and 15. This made for a total of 9 sinkholes on the current subject property.

During the surface survey ACP also located a concrete slab and cemented metal fence posts 30m south of the drainage canal. The concrete slab was 18.8m long by 4m wide oriented on an E/W axis. The cemented metal fence post line ran parallel to a man made ditch. These features can be seen on Figure 4. Based upon the structural remains of Camp Andrews on the adjacent property, an abundance of "concrete pads", it is highly likely that the concrete slab and fence line on the current subject property are associated with the former camp as well. Although, it is interesting to note that the 1942 map of Camp Andrews (Figure 5) does not show any structures on the south side of the drainage canal. CSH's survey of the adjacent property also found numerous concrete pads not represented by structures on the 1942 general layout map. McDermott *et al.* suggest that "the remaining unidentified pad sites appear to represent additional buildings constructed subsequent to 1942" (2001:53).

Section 5.2: Test Unit Descriptions, Parcel 1

Test Unit 1, Sink A

Test Unit 1 was excavated inside of Sink A, a sinkhole located near the *mauka* edge of Parcel 1. The sinkhole was quite small, the mouth measured 98cm across and 56cm wide. The test unit was generally the extent of the sinkhole's walls. Exceptions to this occurred when the sinkhole widened at around 140cmbd (centimeters below datum) and the test unit continued straight down. Eventually around 205cmbd the sinkhole walls narrowed to just 44cm wide and further excavation became impossible. The sinkhole was empty to 135cmbd at which point excavation for Test Unit 1 began (See Figure 6 and Plates 1 and 2).

Layer 1A/1:

Layer 1A, level 1 began at the bottom of the sinkhole 135cmbd and continued to 145cmbd. The bottom of the sinkhole was full of loose chunks of coral, twigs, leaves and modern debris which included plastic bags. This base sloped down under a coral lip to the south. The soil is loose and light, very similar to flour. It is a dark brown (10YR 3/3) fine powdery silty clay loam. The soil contained modern debris such as bits of plastic bags and metal fragments, including one piece of corroded indeterminate iron. One bone fragment, that of *Sus scrofa* (pig) weighing 2.4g (grams) was recovered. The results for all artifact analyses for Parcel 1 can be found in Section 5.6, Table 6 and the results for all faunal analyses from Parcel 1 can be found in Section 5.4, Table 2.

Layer1A/2:

Layer 1A, level 2 ran from 145 to 155cmbd. The soil is still a loose dark brown (10YR 3/3) fine powdery silty clay loam. The soil contained small coral fragments, one large coral chunk and more modern debris such as plastic and some woven fabric, possibly cotton. Several bones surfaced in this level including 1.5g of Medium procellariid, 0.1g of a small or medium bird, 0.3g of a medium bird, a trace amount of *Rattus* sp., 0.4g of a small-to-medium mammal, and a trace amount of a small vertebrate.

Layer 1A/3

Layer 1A, level 3 ran from 155 to 165cmbd. The soil is the same loose dark brown (10YR 3/3) fine powdery silty clay loam with small coral fragments. Items removed from the level include one small fragment of indeterminate rusted metal, *Cypraea* sp. shell fragments weighing 8.0g, and numerous small bone fragments including 0.3g of a medium and/or large bird, 0.1g of *Rattus exulans*, trace amounts of *Rattus norvegicus* and/or *Rattus rattus*, *Mus musculus*, and *Felis catus*, and 0.1g of a small and/or medium vertebrate. The results for all invertebrate analyses for Parcel 1 can be found in Section 5.5, Table 4.

Layer 1A/4

Layer 1A, level 4 ran from 165 to 175 cmbd. The soil is the same loose dark brown (10YR 3/3) fine powdery silty clay loam with small coral fragments. Items

Figure 6: Plan View and Profile of Test Unit 1, Sink A

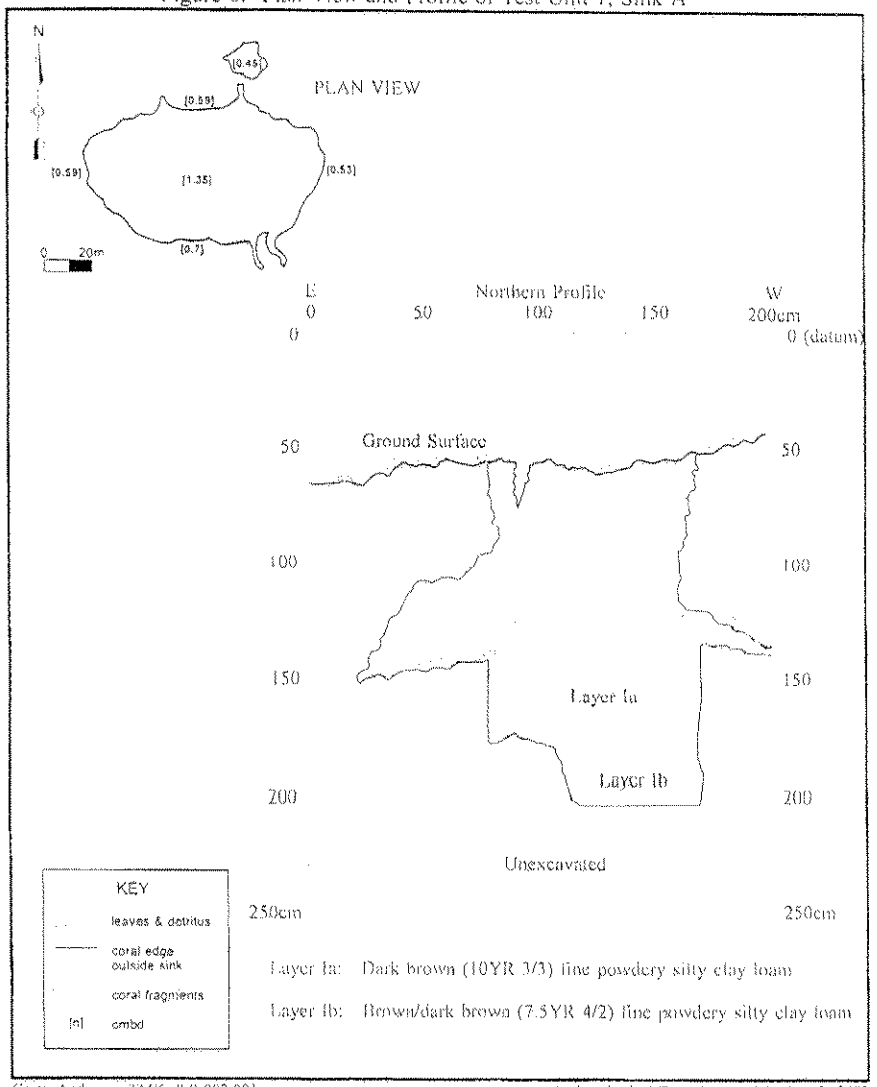


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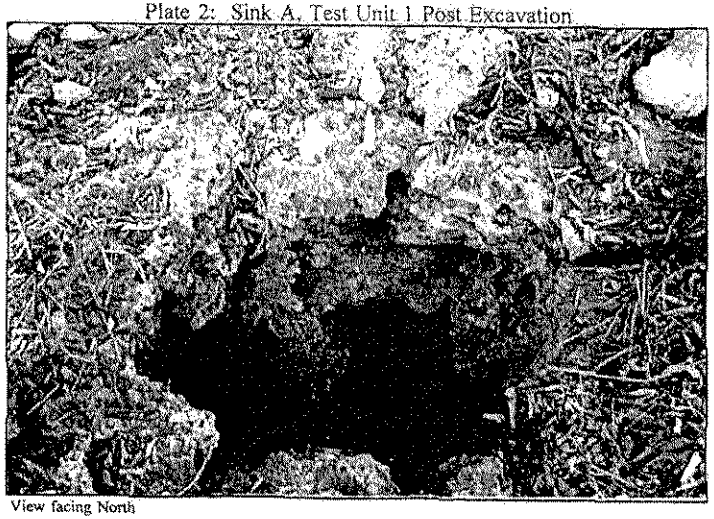
Plate 1: Sink A Prior to Excavation

View facing West

Plate 2: Sink A, Test Unit 1 Post Excavation



View facing North

removed from the level include a chunk of basalt, a basalt flake and a piece of basalt that may be debitage. Also many land snail shells were present in this level. Vertebrate material included 1.9g of a medium procellariid, 0.4g of a medium bird, 0.1g of a medium and/or large bird, 0.2g of *Rattus exulans*, 2g of *Felis catus* and 0.8g of a small and/or medium vertebrate. The unit began to take on an odd shape as it reflects the shape of the sinkhole. The walls of the sinkhole began to widen at this point but the unit maintained a straight walled descent in conjunction with the general walls of the sinkhole as they drop from the upper ground surface.

Layer IB/5

Layer IB, level 5 ran from 175-185cmbd. There was not a distinct Layer change although the soil became slightly more gray at this point changing to a brown/dark brown (7.5YR 4/2) fine powdery silty clay loam. The soil also now contains more coral fragments. This level contained land snail fragments and several vertebrate bone fragments including 0.1g of *Bufo marinus*, 0.3g of *Pterodroma phaeopygia* and a medium procellariid, a trace amount of a small passeriform, 0.5g of a medium bird, 0.2g of *Rattus exulans*, a trace amount of *Mus musculus*, 0.1g of a small and/or small-to-medium mammal and 1.5g of a small and/or medium vertebrate. The western one-third of the unit is an extrusion of coral, though it appears that the sink continues to drop down in the remainder of the unit.

Layer IB/6

Layer IB, level 6 ran from 185 to 195cmbd. The soil is again filled with bits of coral and is a brown/dark brown (7.5YR 4/2) fine powdery silty clay loam. Excavation was now only possible in the eastern half of the unit because of the aforementioned coral extrusion at the bottom of the unit. This level contained very little bone but did include trace amounts of a small passeriform and a medium and/or large bird, and 1g of a small and/or medium vertebrate. Invertebrate material consisted of 1.4g of *Cypraea* sp., 0.1g of *Periglypta* sp. and one fragment of a possibly worked mother of pearl type shell.

Layer IB/7

Layer IB, level 7 ran from 195 to 205cmbd. The soil continues to be full of bits of coral and is a brown/dark brown (7.5YR 4/2) fine powdery silty clay loam. There is again very little bone, but the level did contain 0.3g of a medium bird and 0.9g of a small and/or medium vertebrate. Invertebrate material included 9.4g *Cypraea* sp., 2.1 *Conus* sp., 0.3 *Brachidontes* sp. and a small amount of indeterminate shell. Excavation continued down in a 50x60cm unit in the eastern half of the sink due to the coral extrusion. Maneuvering within the unit became difficult due to the narrowness of the sinkhole and the depth of the unit. Excavation was forced to cease at 205cmbd.

Test Unit 2, Sink B

Sink B located *mauka* in Parcel 1, *makai* of Sink A, and 22 meters south of the drainage canal, was first presumed to be a sinkhole and was excavated. However, further investigation, including the excavation of Test Unit 2, revealed that it was not a sinkhole. Instead it was a shallow depression that was brought about through the interaction with

meandering freshwater from the stream and bulldozer action associated with the making of the adjacent road and drainage canal. This was further evidenced by the fact that this unique formation continued *makai* from Sink B along the road for several meters. A similar fault line like formation was observed on the north side of the drainage canal as well. Abbreviated results from the excavation of this depression follow.

Test Unit 2 was excavated from 130 to 190cmbd, after the removal of detritus and garbage lying on the surface. Modern material was present in great quantities throughout the test unit, along with chunks of coral and basalt. Modern debris included rusted metal fragments, a great deal of glass, beer bottles, plastic, cellophane and a 1980-penny at 165cmbd. No historically significant cultural materials were encountered. (See Figure 7 and Plates 3 and 4).

Test Unit 3, Sink C

Test Unit 3 was excavated within Sink C, a sinkhole located in the central portion of Parcel 1. Sink C appeared to be intentionally filled, as there was a great deal of coral debris in it. Modern debris also lay on top of the sinkhole including a large ceramic pipe, the fender of a car, glass and aluminum. Once all the debris was removed excavation of the test unit began. (See Figures 8 and 9 and Plates 5 and 6).

Layer I/1

Layer I, level 1 began at 45cmbd and ran to 55cmbd. Modern debris, coral and vegetal detritus make up this level. No real soil was encountered. Debris included rusted metal, pop tabs, a coat hanger, plastic, car parts, ceramic and much more. A few small bone fragments were also encountered: 0.6g of a medium and/or large bird, 0.2g of *Rattus exulans* and 0.1g of a small and/or medium vertebrate.

Layer I/2

Layer I, level 2 ran from 55 to 65cmbd. More coral and modern debris were encountered as well as the first signs of soil. The soil was a brown/dark brown (10YR 4/3) silt loam.

Layer I/3

Layer I, level 3 ran from 65 to 75cmbd. The soil continued as a brown/dark brown (10YR 4/3) silt loam. The amount of modern debris decreased while the amount of soil and coral chunks increased. Modern debris of note included a marble and a toy wheel from a plastic army jeep.

Layer I/4

Layer I, level 4 ran from 75 to 85cmbd. The soil continued as a brown/dark brown (10YR 4/3) silt loam although it is "fill-like" and contains many colors and textures (including brown/dark brown (7.5YR 4/2 and 7.5YR 4/3) silt loam and brown (7.5YR 5/3) sand), and many coral chunks. The level contained only a small amount of modern debris. A coral outcropping emerged in the western corner of the unit.

Figure 7: Plan View of Test Unit 2, Sink B

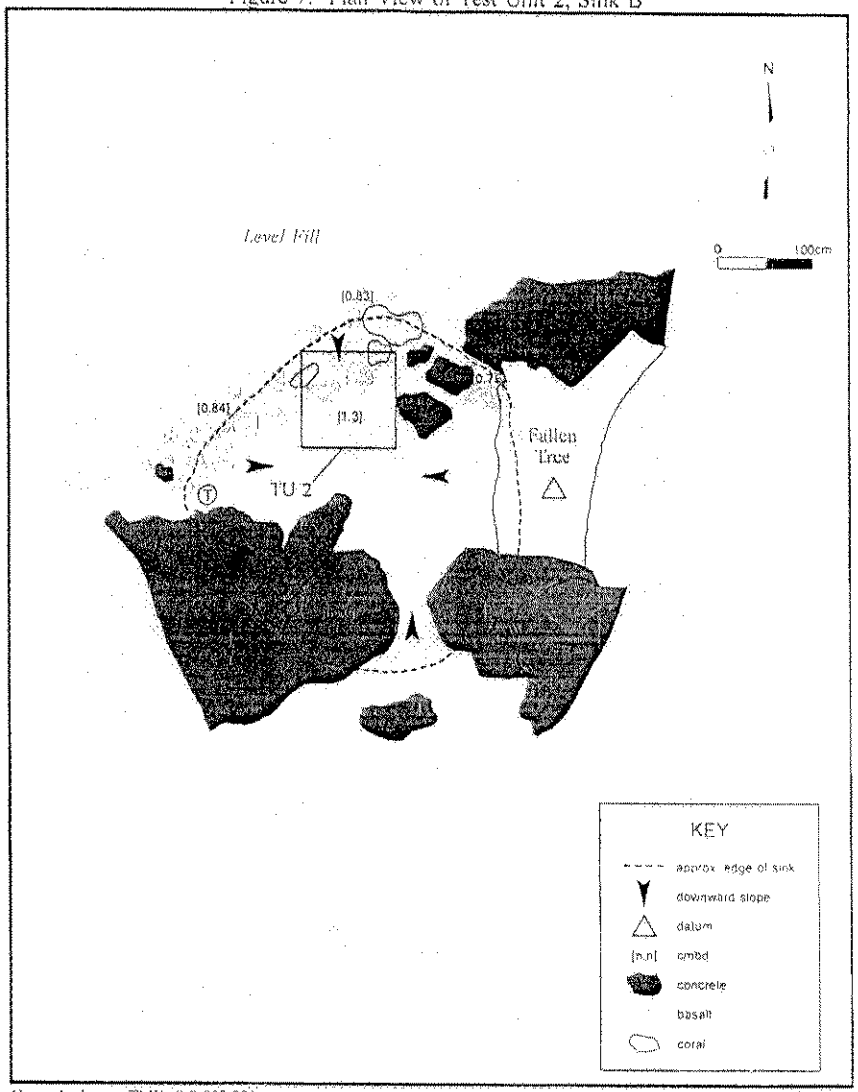


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Plate 3: Sink B Prior to Excavation

View facing Southwest

Plate 4: Sink B, Test Unit 2 Post Excavation

View facing North

Figure 8: Plan View of Test Unit 3, Sink C

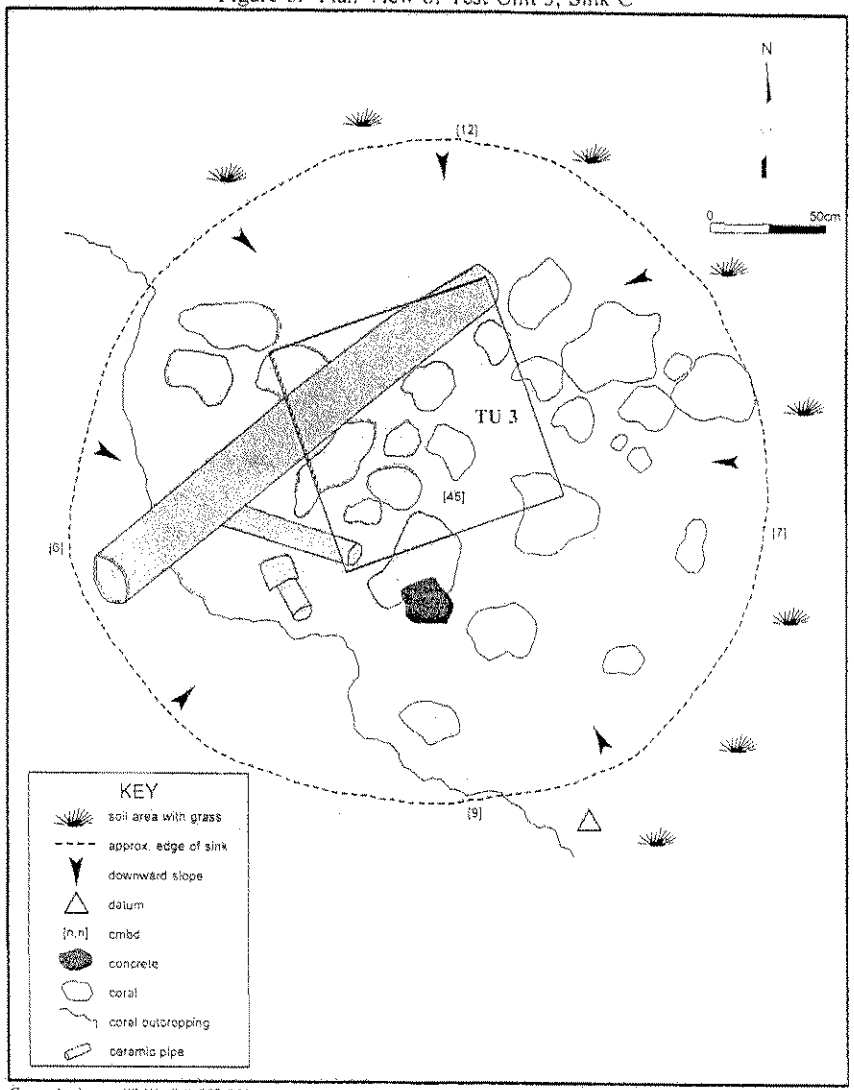

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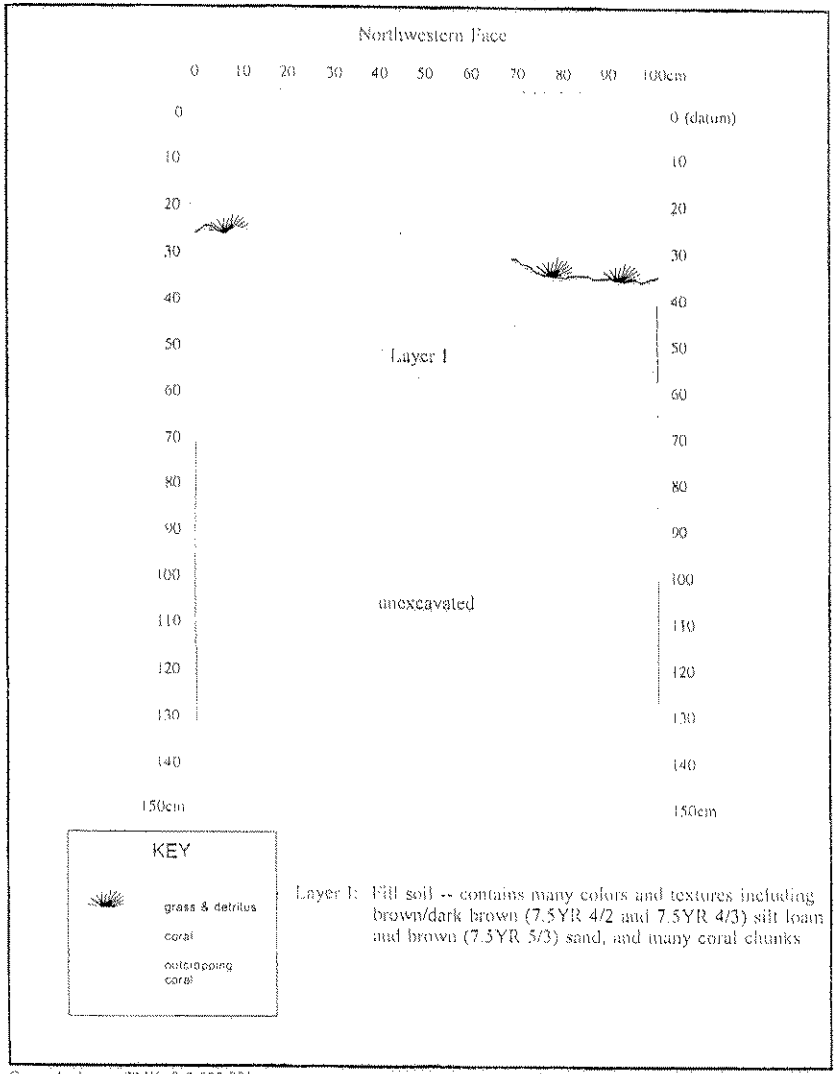
Figure 9: Profile of Test Unit 3, Sink C



Layer I: Fill soil -- contains many colors and textures including brown/dark brown (7.5YR 4/2 and 7.5YR 4/3) silt loam and brown (7.5YR 5/3) sand, and many coral chunks

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Plate 5: Sink C Prior to Excavation

View facing Northeast

Plate 6: Sink C, Test Unit 3 Post Excavation

View facing North

Layer I/5

Layer I, level 5 ran from 85 to 100cmbd. The soil is again a brown/dark brown (10YR 4/3) silt loam but contains many colors and textures (including brown/dark brown (7.5YR 4/2 and 7.5YR 4/3) silt loam and brown (7.5YR 5/3) sand and coral chunks. Twenty-plus brown and white glass fragments and two to three metal fragments were encountered. 100cmbd is roughly the base of the sinkhole. A small crevice in the coral continued down along the northeastern edge of the unit but was too small to excavate.

Test Unit 4, Sink D

Test Unit 4 was excavated within Sink D, a sinkhole also located in the central portion of Parcel 1, 10 meters south of Sink C. Sink D and C are physically close and also quite similar in appearance. Since Test Unit 3 was entirely filled with modern debris the excavation of Test Unit 4 was slightly altered. Test Unit 4 was dug without using arbitrary 10cm levels. It was planned to dig through the modern debris and then resume the standard 10cm levels if and when a pre-modern deposit was encountered. However, a pre-modern deposit was never encountered. The sinkhole was also lacking any invertebrate or unaltered invertebrate materials (See Figures 10 and 11 and Plates 7 and 8).

Layer I

Layer I, ran from 0 to 75cmbd. This layer contained a great deal of modern debris. This debris included bottle glass, whole bottles, window glass and melted glass; metal, metal wire, nails, and a metal chain frame; ceramics including a "Gold Wheat" ceramic; plastics, and objects like a bike pedal and a battery. Two metal-sawed bone fragments totaling 8.7g were recovered. Ziegler identified them as a limb bone fragment and an undetermined bone fragment of a medium mammal or a large mammal. When soil was encountered it was mixed and included brown/dark brown (7.5YR 4/2 and 7.5YR 4/3) silt loam and brown (7.5YR 5/3) sand among others. All of this mixed soil was filled with coral chunks. A coral outcropping began to protrude from the eastern wall. Tree trunks also began to protrude out of the southwestern corner making excavation in that corner impossible.

Layer II

Layer II ran from 75 to 100cmbd. At about 75cmbd the modern debris dissipated leaving only the mixed soils and coral chunks mentioned above. At 100cmbd a new coral outcropping was encroaching on almost the entire floor of the unit and excavation was terminated.

Figure 10: Plan View of Test Unit 4, Sink D

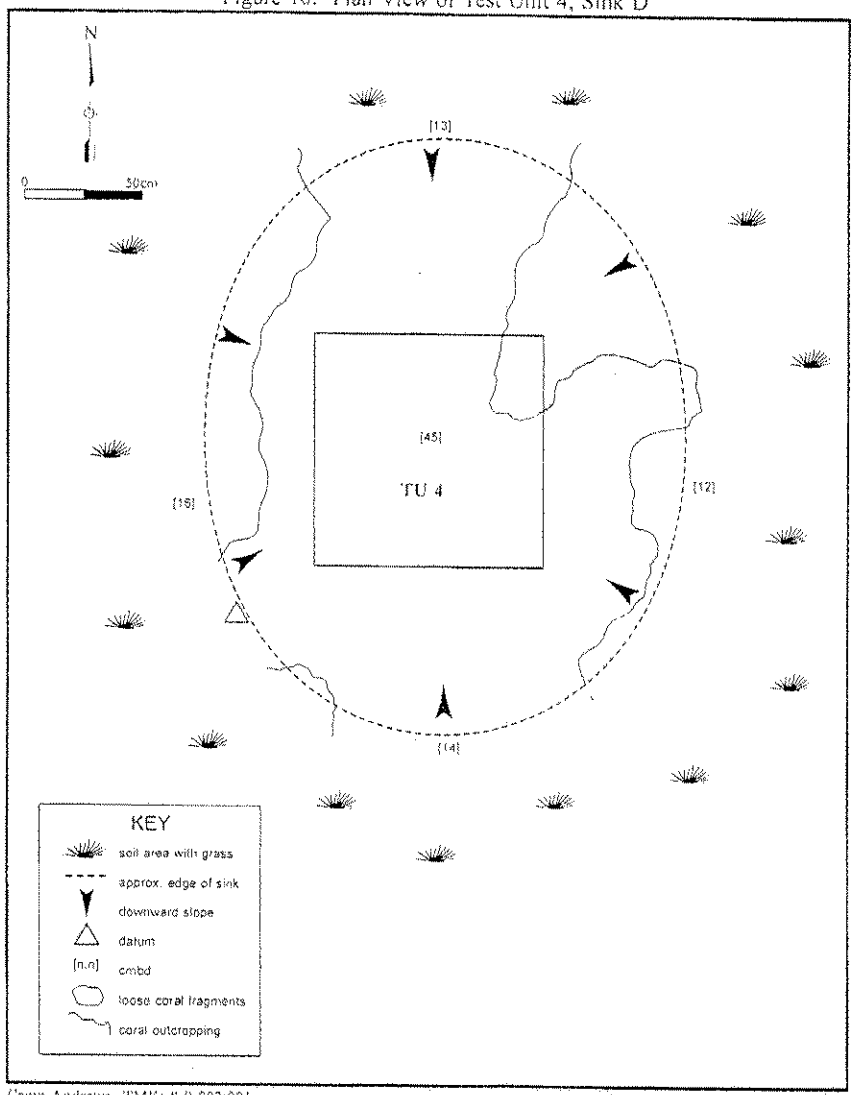

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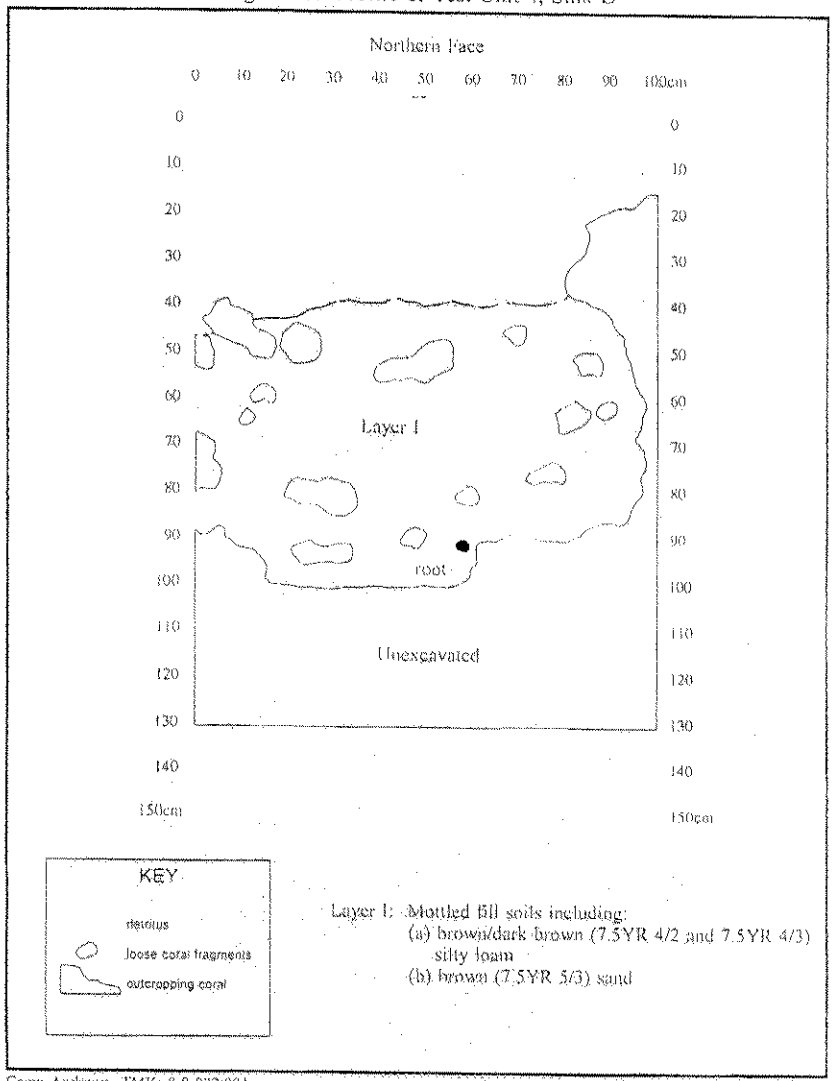
Figure 11: Profile of Test Unit 4, Sink D



Layer I: Mottled fill soils including:
(a) brown/dark brown (7.5YR 4/2 and 7.5YR 4/3) silty loam
(b) brown (7.5YR 5/3) sand

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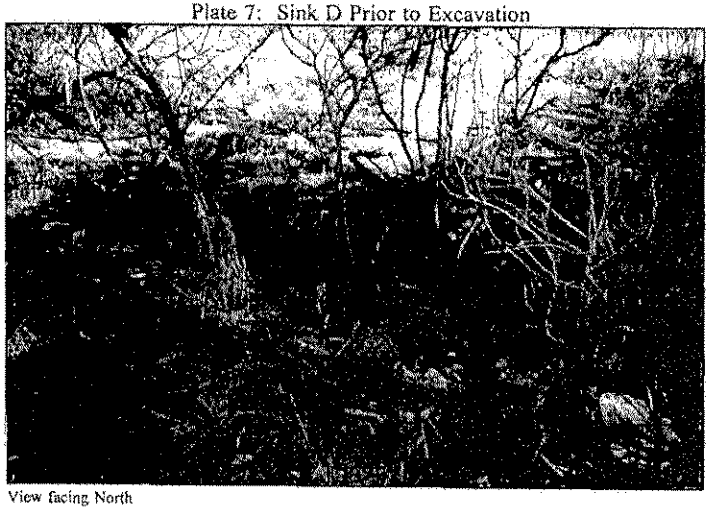
Plate 7: Sink D Prior to Excavation



View facing North

Plate 8: Sink D, Test Unit 4 Post Excavation

View facing North

Section 5.3: Test Unit Descriptions, Parcel 2

Parcel 2 fell within ACP's project limits but was investigated and excavated by CSH in March and April of 2001. Six sinkholes were present on Parcel 2, Sink #3 (Test Unit 4), Sink #4 (Test Unit 5), Sink #5 (Test Unit 8), Sink #6 (Test Unit 10), Sink #13 (Test Unit 11), Sink # 15 (Test Unit 13). The results of these excavations, as provided by CSH in their report "Archaeological Inventory Survey of the Proposed 15-Acre Nanakuli IV Elementary School Site (A Portion of the Former Camp Andrews), Nanakuli Ahupua'a, Wai'anae District, Island of O'ahu (TMK: 8-9-02:65)" are as provided below (McDermott *et al.* 2001:79 through 121). All vertebrate analyses for Parcel 2 can be found in Section 5.4, Table 3; invertebrate analyses in Section 5.5, Table 5; and artifactual analyses in Section 5.6, Table 7.

Sink #3
Test Unit #4
Sink Dimensions: 2.6m N/S by 2.3m E/W
Excavation dimension: 1m X 1m (see Figure 26).

Stratum IA
65/85-127/130 cmbd — (Dry) 7.5 YR 3/1 very dark gray; non-coherent, gravelly, cobbly sandy loam; weak, fine blocky structure; contains roots and rootlets, modern glass, tin cans, rotted wood and metal fragments; lower boundary is abrupt and wavy; modern fill deposit

Stratum Ib
127/130-150/155 cmbd — (Dry) 7.5 YR 3/1 very dark gray; non-coherent, gravelly, cobbly sandy loam; weak, fine blocky structure; containing roots and rootlets, modern glass, broken bottles, cans, rotted wood, rusty metal fragments, high concentration of trash; lower boundary is abrupt and wavy; historic/modern fill/rubbish deposit

Stratum II
150/155-170/172 cmbd — (Dry) 10YR 5/3 brown; not coherent; gravelly, sandy silt; structureless; contains historic trash, animal bones, a coral file (appears traditional); lower boundary is abrupt and wavy; "B" horizon

Stratum III
172-178 cmbd — (Dry) 10 YR 3/4 dark yellowish brown; slightly hard; sandy loam; structureless; contains historic trash (decreasing with depth), glass, plastic, animal bones, marine shell, no charcoal or artifacts; lower boundary is abrupt and wavy; variant of Stratum II, probably contaminated from upper layers

Stratum IV
178-220 cmbd — (Dry) 10 YR 7/4 very pale brown; hard; gravelly, cobbly, sandy silt, structureless; contains inclusions of limestone, few roots or rootlets, no apparent cultural material; lower boundary is abrupt and smooth; "C" horizon, decomposing limestone bedrock

Summary by Strata of Recovered Material from Sink 3

Stratum II – Historic artifacts – 8 pieces including ceramic, plastic, cloth, cellophane, and glass fragments; glass bottle; and metal can
Total marine midden – 6.2g including 5.4g of shell midden 0.8g of fish

Total bird – 4.5g including 1 prehistorically extinct species, 1 extant species
Total mammal – 0.9g including Polynesian cat, dog
Unidentified medium vertebrate – 0.4g

Stratum IIb – Historic artifacts – 10 items including metal can, glass bottle, cellophane fragment
Total marine midden – 0.5g including 0.2g of shell midden, 0.3g unidentified fish
Total bird – 2.1g including 1 prehistorically extinct species, 2 only identified by size
Total mammal – 2.0g including Polynesian rat, historically introduced rat

Stratum IV Historic Artifacts – 6 items including metal fragments and glass bottle fragments
No faunal remains found

Before backhoe removal of the rubble fill material, Sink 3 contained abundant modern and historic garbage-primarily rusted metal cans. There was also animal bone, amorphous rusted metal, glass, and plastic. Stratum Ia consists of the garbage deposit. Stratum Ib is also a garbage deposit-but also contains some fine grained sediment and abundant limestone boulders and cobbles. Both Strata Ia and Ib were removed with the backhoe. Strata II and III contain decreasing amounts of historic garbage with increasing depth. Stratum II contains one traditional Hawaiian artifact, a coral file. Stratum IV contains historic artifacts, which may or may not have trickled down from overlying strata. Stratum II and III are the B horizon. Stratum IV is the in situ decomposing base of the sink itself.

Sink 3 has no potential for additional excavation as Test Unit 4 removed nearly all the sediment. The nearly non-existent traditional Hawaiian cultural deposit and paleontological deposit do not indicate that further excavation would be productive.

Sink #4
Test Unit #5
Sink Dimensions: 3.1m N/S by 1m E/W
Excavation dimension: 1m X 75cm (See Figure 27)

Stratum IA
0-10 cmbs (Dry) 7.5 YR 2.5/2 very dark brown; weakly coherent; cobbly gravelly sandy loam; moderate, medium granular structure; containing leaf litter, kiawe branches, 30% coral cobbles and modern trash; lower boundary is abrupt and wavy; modern "O" horizon

Stratum Ib
10-12/17 cmbs (Dry) 7.5 YR 4/3 brown; slightly hard; gravelly, sandy silt; weak, medium, granular structure; containing high concentrations of limestone pebbles and modern trash; lower boundary is abrupt and wavy; "A" horizon

Stratum II
12/17 – 24/35 cmbs (Dry) 10 YR 5/3 brown; slightly hard; gravelly, sandy, silt; structureless; containing waterworn stones, urchin, pearl shell; lower boundary is abrupt and wavy; "B" horizon, in situ developed

Stratum III
24/35 – 47/53 cmbs (Dry) 10 YR 7/3 very pale brown; hard; gravelly, sandy, silt; structureless; containing sparse land snails, urchin, charcoal flecks in top 15cm of layer; lower boundary is diffuse and wavy; "C" horizon

Stratum IV
47/53 84/95 cmbd (Dry) 10 YR 6/3 pale brown; very hard; cobbly, gravelly, sandy silt; structureless; containing basalt pebbles and decomposing bedrock; lower boundary is wavy; sterile

Summary by Strata of Recovered Material in Sink 4

No indigenous artifacts were encountered in Sink 4

Stratum Ia – Historic Artifacts – 7 pieces glass marble and bottle, metal bullet, and vinyl record
Charcoal – none
No faunal remains

Stratum Ib – Historic Artifacts – 2 glass fragments
Charcoal 0.2g, small flecks
No faunal remains

Stratum II – Historic Artifacts – none
Charcoal – none
Total marine midden – 6.1g including 4.4g of shell midden, 1.7g marine invertebrate
Total Bird – none
Total mammal – none

Stratum III – Historic Artifacts – none
Charcoal – 0.1g, small flecks
Total marine midden – 0.2g of marine invertebrate
Total bird – none
Total mammal – none

Stratum IV – Historic Artifacts – none
Charcoal – none
No faunal remains

The sediments of Sink 4 are, for the most part, natural and appear to have weathered in situ from the limestone parent material of the sink itself-especially Strata II, III, and IV. Stratum I is the A horizon and also appears to have developed in situ although modern refuse has been incorporated into this surface layer in a manner consistent with modern land use. There appears to have been little deposition in this sink-more differentiation of the sediments in place. Sink 4 offers little potential for additional excavation.

Sink #5
Test Unit #8
Sink Dimensions: 2.7 m NW/SE by 1.5 m NE/SW
Excavation dimension: 1m X 1m (See Figures 28, 29, and 30)

Stratum IA
20/40 – 40-60 cmbd (Dry) Consists of cement brick fragments, modern garbage (plastic bags, metal fragments) and partially decomposed chicken skeletons; lower boundary is clear and smooth; historic/modern fill material, almost entirely garbage, little or no fine grained sediments

Stratum Ib
40/60 – 80/87 cmbd (Dry) 7.5 YR 3/2 dark brown; weakly coherent; stony, cobbly, gravelly sandy loam; strong, medium, subangular, blocky structure; containing limestone gravels, cobbles, and boulders, animal bones, plastic, glass, rusted metal, leaf and twig litter from kiawe, chicken feathers and bones; lower boundary is abrupt and smooth; recent "A" horizon that formed with sink during the decomposing of garbage and fill material

Stratum IIA
80/87 – 80/92 cmbd (Dry) 10 YR 4/2 dark grayish brown; non coherent; gravelly, cobbley, silty sand; weak, fine granular structure; containing plastic, modern trash, rotted wood, limestone cobbles; lower boundary is abrupt and wavy; high organic content, filtered material

Stratum IIb
80/92 – 115 cmbd (Dry) 10 YR 4/3 brown; non coherent; gravelly, sandy silt; moderately fine, granular structure; lower boundary is abrupt and wavy; soil is probably tree mold

Stratum III
80/93 – 90/123 (Dry) 10 YR 4/3 brown; weakly coherent; gravelly sandy silt; structureless; contains charcoal, rodent bones, wana, bird bones, high concentration of various land snails, pipipi shell and roots; lower boundary is abrupt and wavy.

Stratum IV
92/123 - 125/140 cmbd (Dry) 10 YR 7/2 light gray; hard to very hard; cobbly, gravelly, sandy silt; structureless; containing one bone fragment, becomes sterile at base of excavation; lower boundary is bedrock; decomposing limestone "C" horizon

Summary by Strata of Recovered Material in Sink 5

One indigenous artifact – limestone abrader - on surface near Sink 5. Otherwise no indigenous artifacts in Sink 5

Stratum Ia – Historic Artifacts – Modern materials observed but not collected
Charcoal - none
Modern chicken bones (still with plumage) observed, but not collected

Stratum Ib – Historic Artifacts – Modern materials observed but not collected
Charcoal – none
Modern chicken bones (still with plumage) observed, but not collected

Stratum IIa – Historic Artifacts – 2 pieces including 1 ceramic knob, 1 plastic fragment
Charcoal – 0.8g, small to large flecks and chunks
No faunal remains

Stratum IIb Historic Artifacts – none
Charcoal - 0.2g, small flecks
Total marine midden - 0.2g of marine invertebrate
Total bird – none
Total mammal – none

Stratum III Historic Artifacts – 1 glass fragment
Charcoal – 1.5g, small flecks
Total marine midden - 8.5g including 5.4g of shell midden, 2.9g of marine invertebrate, 0.2g of unidentified fish
Total Bird – 7.6g including 3 prehistorically extinct species
Total Mammal – 1.7g of Polynesian rat

Stratum IV Historic Artifacts - none
Charcoal – none
No faunal remains

Prior to excavation Sink 5 was filled with limestone rubble, modern garbage, and dead chickens from the adjacent cock-fighting ring. This material was removed as Stratum I using the backhoe. Stratum Ia is the modern garbage-plastic bags etc. The underlying Stratum Ib contains limestone boulders and cobbles with intermixed fine sediments making up a modern A horizon. Stratum III contains a sparse cultural deposit and the remains of a few prehistorically extinct bird species. This avian material is fairly broken up and there are few diagnostic skeletal remains. The sediments within the sink appear to have differentiated in place from the parent material of the sink itself. It is likely additional significant deposits - particularly palaeontological ones – exist within the sinkhole. Consequently, data recovery work is recommended for the recovery of such remains.

Sink #6
Test Unit 010
Sink Dimensions: 1.65 m NW/SE by 2.9 m NE/SW
Excavation dimension: 1m X 1m (See Figure 31)

Stratum I
53-64 cmbd (Dry) 7.5 YR 3/2 dark brown; non-coherent; cobbly, gravelly, silty loam; structureless; containing very recent mongoose, chicken and pig bones (not collected) within surface debris; lower boundary is abrupt and wavy

Stratum II
64 - 72/89 (Dry) 7.5 YR 4/3 brown; non-coherent; gravelly, cobbly, sandy silt; structureless; contains marine shell midden, charcoal and land snails; lower boundary is abrupt and wavy

Stratum III
72/89 97/105 cmbd (Dry) 10 YR 5/3 brown; slightly hard; gravelly, cobbly, sandy silt; structureless; containing some large roots; lower boundary is bedrock

Summary by Strata of Recovered Material in Sink 6

No historic artifacts or indigenous artifacts were encountered in Sink 6.

Stratum I – Charcoal – none
Total marine midden – 0.7g of shell midden
Total bird – none
Total mammal 0.7g of historically introduced cat

Stratum II – Charcoal - 0.2g, small flecks
Total marine midden – 2.0g including 1g of shell midden, 1g of marine invertebrate
Total bird - 0.1g, only identified by size
Total mammal – none

Stratum III – Charcoal – none
No faunal remains recovered

Before excavation, Sink 6 contained modern garbage-including a baby stroller, plastic bags, etc. There were also abundant *Kiawe* branches. A northern, narrow portion of Sink 6 contained limestone boulder and cobble fill material. Prior to excavation the floor of the sink was a dense mat of *Kiawe* branches and twigs. The sediments of this sink all appear to have differentiated in situ from the limestone parent material. There is little indication of significant deposition into the sink from outside. Further excavation within this sink is unwarranted.

Sink #13
Test Unit #11
Sink Dimension: 2.2m N/S by 3.8 m E/W
Excavation dimension: 1m X 1m (See Figures 42, 43, and 44)

Stratum IA
3 – 15 cmbd — (Dry) 7.5 YR 3/2 dark brown; dry, non coherent; cobbly, gravelly, silty loam; structureless; containing a high concentration of leaf litter, rotten wood, charcoal, kiawe seed pods, grubs, and limestone cobbles; lower boundary abrupt and wavy; "O" horizon

Stratum Ib
15 - 30 cmbd — (Dry) 7.5 YR 3/3 dark brown; non coherent; gravelly, silty sand; structureless; containing a square nail, land snails, roots and rootlets, limestone cobbles and pebbles, rotten wood; lower boundary is abrupt and wavy

Stratum II
30 - 54 cmbd — (Dry) 7.5 YR 6/4 light brown; slightly hard; gravelly, cobbly sandy silt, structureless; generally sterile with bedrock at base layer, some large roots; lower boundary is bedrock; decomposing bedrock

Summary by Strata of Recovered Material in Sink 13

No indigenous artifacts were encountered in Sink 13.

Stratum Ia = Historic Artifacts – 2 pieces including metal nail and pop top
No faunal remains; 0.3g Charcoal

Stratum Ib = Historic Artifacts – none
No faunal remains

Stratum II = Historic Artifacts – none
Total marine midden – 1.3g of shell midden
Total bird – none
Total mammal – 0.1g of Polynesian rat

Sink 13 is similar to Sink 12 in that it consists of an amorphous, larger than average sink, that lacks a rubble fill layer on the surface. Sink 13 contains several *Kiawe* trees and the soil surface within the sink is only approximately 20 to 30 cm below the surrounding land surface. Like Sink 12, based on surface appearance and excavation results, Sink 13 has a relatively shallow sediment deposit. Prior to excavation, the Sink 13 surface contained a pronounce[d] layer of *Kiawe* leaves and branches. There was no historic garbage visible on the sink surface.

With the exception of 2 historic/modern artifacts in Stratum Ia and a few pieces of marine shell and Polynesian rat bone in Stratum II, Sink 13 was sterile. The three strata observed in Test

Unit 11 all appear to have developed in place from the limestone parent material of the sink sidewalls. No further investigation of Sink 13 is warranted based on excavation results.

Sink #15
Test Unit #13
Sink Dimension: 3.5 m N/S by 1.8 m E/W
Excavation dimension: 1m X 1m (See Figure 46)

Stratum IA
30 – 32/37 cmbd — (Dry) 7.5 YR 3/2 dark brown; non-coherent; silty loam; structureless; contains a high concentration of kiawe debris, modern aluminum cans, plastic fragments; lower boundary is abrupt and wavy; modern "O" horizon

Stratum Ib
32/37 - 43/43 cmbd — (Dry) 7.5 YR 4/3 brown; non-coherent; cobbly, sandy silt; structureless; containing modern trash, charcoal, landsnails, cobbles and pebbles; lower boundary is abrupt and wavy; A-horizon

Stratum II
43/43 53/59 cmbd — (Dry) 7.5 YR 5/3 brown; weakly coherent; gravelly, sandy silt; structureless; contains charcoal and numerous landsnails, cobbles and pebbles, lower boundary is gradual and wavy; B-horizon

Stratum III
53/53 – 90 cmbd — (Dry) 7.5 YR 7/3 pink; weakly coherent, silt, structureless; contains few landsnails; lower boundary is bedrock; C-horizon

Summary by Strata of Recovered Material in Sink 15

No indigenous artifacts, or faunal remains were encountered in Sink 15.

Stratum Ia — Historic Artifacts – observed, but clearly modern, not collected

Stratum Ib — Historic Artifacts – 8 pieces including metal fragments and pop top
Charcoal 4.1g small to medium flecks

Stratum II – Historic Artifacts – 1 piece, metal pop top
Charcoal 0.3[g] small flecks
Nothing else was recovered in the underlying strata.

Sink 15 contains no limestone rubble fill layer. It is another of the relatively shallow sinks. All sediments appeared to have developed/differentiated in situ from the limestone parent material. The few historic artifacts found in Strata Ia, Ib and II were found near the current land surface and probably are intrusive through bioturbation. Sink 15 contains no indigenous artifacts or faunal remains. Based on excavation results, further investigation of Sink 15 is unwarranted.

The six sinks on Parcel 2 investigated by CSH document the presence of cultural and palaeontological deposits, constituting Site 5947. Sinks 3, 13 and 15 were sterile or nearly sterile and Sinks 4 and 6 did not warrant any further investigation. CSH does, however, recommend the further investigation of Sink 5 stating, "It is likely additional significant deposits – particularly palaeontological ones – exist within the sinkhole. Consequently, data recovery work is recommended for the recovery of such remains" (McDermott *et al.* 2001:88).

Section 5.4: Vertebrate Faunal Remains Encountered

Parcel 1 had a total of 17.5g of vertebrate material. (Please see Table 2 for a detailed vertebrate faunal analysis). In contrast to Parcel 2 and the adjacent subject property, no prehistorically extinct species were encountered, and the sinks do not appear to have been utilized by humans in the past. Presented below are Dr. Alan Ziegler's comments on the faunal material recovered from the sinks.

> TYPE OF SITE USAGE. The vertebrate remains strongly suggest none of the excavated areas was ever an area of significant human use. At least TU-1 and, possibly TU-3 seem to have been primarily utilized as a roosting or denning area by a raptorial bird and/or a nonhuman carnivorous mammal. Thus, at least some of the recovered material probably represents food remains of these animals. Because I understand that at least TU-1 is a sink hole, the vertebrate remains from it probably also include bones of seabirds falling into or otherwise being trapped in the structure. No human remains or artifactual material appear in TU-1 and TU-3, and only two metal-sawed bones appear in TU-4, which was conceivably sparingly used as a discard area for human refuse.
>
> TIME OF SITE USAGE. There are no vertebrate remains (such as those of prehistorically extinct species) from any excavated area that would obviously restrict the time of deposition to early pre-Contact time (although *Pterodroma phaeopygia* [Hawaiian Petrel] apparently became extinct on O'ahu at about the time of Contact). On the other hand, in TU-1 several vertebrate species that were introduced only after Contact are represented. These are *Bufo marinus* (Giant Neotropical Toad), *Rattus norvegicus* and/or *Rattus rattus* (Norway and/or Roof Rat), *Mus musculus* (House Mouse), and *Felis catus* (House Cat). Thus, deposition of vertebrate remains in TU-1 seems to have spanned both the Polynesian and Historic Periods.
>
> The deposition time of the TU-3 vertebrate material is largely uncertain, although the remains of the Polynesian-introduced Rattus exulans (Polynesian Rat) had to have been laid down only after arrival of Polynesians on O'ahu. In regard to TU-4, all that can be said is that the metal-sawed bones were obviously deposited sometime in the Historic Period.

Parcel 2 had a total of 24.7g of vertebrate midden. Sink #3 had 11.2g of vertebrate material, which included fish (1.1g), reptile (0.2g), bird (6.6g) and mammal (2.9g) species such as the prehistorically extinct *Branta* sp., and the extant Medium procellariid, Polynesian rat, historically introduced rat and dog. Sink #4 had no vertebrate material. Sink #5 had 12.6g of vertebrate material, which included fish (0.2g), bird (10.3g) and mammal (2.1g) species such as unidentified fish, birds such as *Bulweria bulwerii*, Small passeriform, Medium procellariid, small and medium bird, and one mammal, the Polynesian rat. Three prehistorically extinct bird species *Porzana ziegleri*, *Corvus* sp., and *Pterodroma phaeopygia* were also recovered in Sink #5. Sink #6 was less productive and contained only 0.8g of vertebrate material limited to 0.7g of historically introduced cat, and 0.1g of Medium bird. Sink #13 was equally unproductive, producing only 0.1g of Polynesian rat. Finally Sink #15 had no vertebrate material at all. The vertebrate results for Parcel 2 have been extrapolated from CSH's complete results (McDermott *et al.* 2001) and are presented in Table 3.

Of the vertebrate material on Parcel 2 Dr. Ziegler (McDermott *et al.* 2001)had several comments. Although fish material was scarce, it was cultural. The Scombrid

Table 2: Vertebrate Faunal Analysis Parcel 1

Sink	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink C	TOTAL
Test Unit	TU1	TU1	TU1	TU1	TU1	TU1	TU1	TU1	TU1	TU3	
Layer/Level	IA/1	IA/2	IA/3	IA/4	IB/5	IB/6	IB/7	IB/7	IB/7	I/1	
Depth (cmbd)	135-145	145-155	155-165	165-175	175-185	185-195	195-205	195-205	195-205	45-55	
Amphibia											
Order Anura											
Bufo marinus					0.1						0.1
Aves											
Order Procellariiformes											
Family Procellariidae											
Pterodroma phaeopygia					0.3						0.3
Medium procellariid		1.5		1.9	0.3						3.7
Family Indeterminate											
Small passeriform					trace	trace				trace	trace
Order and Family Indeterminate											
Small or Medium bird		0.1									0.1
Medium bird		0.3		0.4	0.3	trace		0.3			1.3
Medium and/or Large bird			0.3	0.1						0.6	1
Mammalia											
Order Rodentia											
Family Muridae											
Rattus exulans				0.2	0.2					0.2	0.7
Rattus norvegicus and/or *R. rattus*		trace									trace
Rattus sp.											trace
Mus musculus		trace			trace						trace
Order Carnivora											
Family Felidae											
Felis catus			trace	2							3
Order Artiodactyla											
Family Suidae											
Sus scrofa	2.4										2.4

Table 2: Vertebrate Faunal Analysis Parcel 1, continued

Sink	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink A	Sink C	TOTAL
Test Unit	TU1	TU1	TU1	TU1	TU1	TU1	TU1	TU3	
Layer/Level	1A/1	1A/2	1A/3	1A/4	1B/5	1B/6	1B/7	1/1	
Depth (cmbd)	135-145	145-155	155-165	165-175	175-185	185-195	195-205	45-55	
Order and Family Indeterminate									
Small and/or Small-to-medium mammal					0.1				0.1
Small-to-medium mammal		0.4							0.4
Class Indeterminate									
Small vertebrate		trace							trace
Small and/or Medium vertebrate			0.1	0.8	1.5	1	0.9	0.1	4.4
TOTAL VERTEBRATE MATERIAL	2.4	3.3	0.5	5.4	2.8	1	1.2	0.9	*17.5*

Weight in grams

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Table 3: Vertebrate Faunal Analysis Parcel 2

Sink	Sink #3	Sink #3	Sink #4	Sink #4	Sink #5	Sink #5	Sink #5	Sink #6	Sink #6	Sink #13	TOTAL
Test Unit	TU4	TU4	TU5	TU5	TU8	TU8	TU8	TU10	TU10	TU11	
Stratum	II	III	II	III	IIB	III	III	I	II	II	
Depth (cm)	150-170	170-178	17/35-24/35	24/35-47/53	90/92-115	80/93-90/97	90/97-92/123	53-64	64-72/89	10/12-38/51	
Chondrichthyes/Osteichthyes											
Scombrid	0.5										**0.5**
Unidentified fish	0.3	0.3					0.2				**0.8**
Amphibia											
Order Anura											
Bufo marinus		0.2									0.2
Aves											
Order Procellariiformes											
Family Procellariidae											
Bulweria bulwerii							0.2				**0.2**
Pterodroma phaeopygia *						0.1	0.1				**0.2**
Medium procellariid	0.2				0.4	1.8	1				**3.4**
Order Anseriformes											
Family Anatidae											
Branta sp. *	2.9	1.4									**4.3**
Order Gruiformes											
Family Rallidae											
Porzana tiegleri *						0.2	0.1				**0.3**
Order Passeriformes											
Family Corvidae											
Corvus sp. *						0.1					**0.1**
Family Indeterminate											
Small passeriform					0.1	0.1	0.1				**0.3**
Order and Family Indeterminate											
Small bird						0.1					**0.1**
Medium bird	0.4	0.2			2.1	1.6	2.1		0.1		**6.5**
Large bird	1	0.5									**1.5**

Table 3: Vertebrate Faunal Analysis Parcel 2, continued

Sink	Sink #1	Sink #2	Sink #4	Sink #5	Sink #4	Sink #5	Sink #6	Sink #5	Sink #5	Sink #13	TOTAL
Test Unit	TU4	TU4	TU5	TU5	TU8	TU8	TU10	TU8	TU10	TU11	
Stratum	II	III	II	III	IIB	IIB	I	III	II	II	
Depth (cm)	150-170	170-178	17/35-24/35	24/35-47/53	90/92-115	80/95-90/97	55-64	90/97-92/125	64-72/89	10/12-38/51	
Mammalia											
Order Rodentia											
Family Muridae											
Rattus exulans	0.1	0.4		0.4	0.3	1.4				2.7	5
Rattus norvegicus and/or *R. rattus*		1									1
Order Carnivora											
Family Canidae											
Canis familiaris	0.3										0.3
Family Felidae											
Felis catus							0.7				0.7
Order and Family Indeterminate											
Small-to-medium mammal	0.5	0.6									1.1
Class Indeterminate											
Medium vertebrate	0.4										0.4
TOTAL VERTEBRATE MATERIAL	6.6	4.6	0	0	3	4.3	5.2	0.7	0.1	0.1	**24.6**

Weight in grams

Cultural Surveys of Hana, Inc. 2001

* Denotes prehistorically extinct species on Oahu

would have to have been taken off shore through trolling. There were no historically introduced bird species in the Parcel 2 sinks. Dr. Ziegler believes it is highly likely that the Small and Medium passeriform, *Porzana ziegleri*, and *Rattus exulans* were most likely deposited in the sinks as the prey of predator birds and cats. Dr. Ziegler also suggests that post-contact mammals (such as *Rattus rattus* and/or *Rattus norvegicus*, cat and mongoose) appear to be limited to the upper Strata.

Section 5.5: Invertebrate Faunal and Floral Remains Encountered

Parcel 1 invertebrate faunal remains were extremely limited. In fact, only Test Unit 1 contained any shells at all. This may be due to the fact that Test Unit 1 was the only sinkhole that appeared to have not been mechanically filled in at some point in the past. The 12.3g of invertebrate material included *Cypraea* sp., *Conus* sp., *Brachidontes* sp., *Perigdypta* sp., and a small amount of indeterminate shell. Please see Table 4 for a complete invertebrate faunal analysis.

Table 4: Invertebrate Faunal and Floral Remains Analysis Parcel 1

	Sink	Sink A			
	Test Unit	TU 1			TOTAL
	Layer/Level	1A/3	1B/6	1D/7	
	Depth (cmbd)	155-165	185-195	195-205	
Gastropoda					
Cypraea sp.		8.0	1.4		9.4
Conus sp.				2.1	2.1
Bivalvia					
Brachidontes sp.				0.3	0.3
Perigdypta sp.			0.1		0.1
Indeterminate Shell				0.4	0.4
TOTAL MARINE MATERIAL		8.0	1.5	2.8	*12.3*

Weight in grams

Archaeological Consultants of the Pacific, Inc.

Parcel 2 proved to be more productive. In Sinks 3, 4, 5, 6, and 13 CSH recovered a total of 24.4g of marine invertebrates. Sink 15 was sterile of marine invertebrates. These marine invertebrates were primarily recovered from Strata 2 and 3 of the Sinks. Middden recovered in this category included *Cellana* sp., *Cypraea cepmuserpentis*, *Nerita picea*, *Brachidontes crebristriatus*, *Periglypta reticulata*, *Tellina palatam*, *Pterlaeca* sp., some unidentified shell, Echinoderm, and Crustacea. The invertebrate results for Parcel 2 have been extrapolated from CSH's complete results (McDermmit *et al.* 2001) and are presented in Table 5.

Table 5: Invertebrate Faunal and Floral Remains Analysis Parcel 2

Sink	Sink #3	Sink #3	Sink #4	Sink #4	Sink #5	Sink #5	Sink #5	Sink #6	Sink #6	Sink #13	TOTAL
Test Unit	TU4	TU4	TU5	TU5	TU8	TU8	TU8	TU10	TU10	TU11	
Layer	II	III	II	III	IIIB	III	III	I	II	II	
Depth (cm)	150-170	170-178	17/35-24/35	24/35-47/53	90/92-115	80/93-90/97	90/97-92/123	53-64	64-72/89	10/12-38/51	
Gastropoda											
Cellana sp.		0.2				0.3	4				4.5
Nerita sp.	0.8		0.6			0.8					2.2
Cypraea sp.	4.2							0.7	0.4		5.3
Bivalvia											
Brachidontes sp.						0.2	0.1		0.1		0.4
Pteriacea sp.			1.6								1.6
Tellina sp.	0.4		0.9						0.5		1.8
Periglypta sp.			1.3							1.3	2.4
Indeterminate Shell			0.2								0.2
Total Shell Midden	5.4	0.2	4.4	0	0	1.3	4.1	0.7	1	1.3	*18.4*
Echinoderm			1.7	0.2		1.5	1.2				4.6
Crustacea					0.2	0.2			1		1.4
TOTAL MARINE MATERIAL	5.4	0.2	6.1	0.2	0.2	3	5.3	0.7	2	1.3	*24.4*

Section 5.6: Artifactual Remains Encountered

On Parcel 1, historically significant artifactual remains were limited to Sink A, as Sink A was the only sinkhole excavated that did not consist entirely of fill. Layer I, levels 4 and 6 contained a basalt flake, a piece of possible basalt debitage, and a possible worked shell. Please see Table 6 for a detailed artifact analysis.

Parcel 2's sinkholes were equally unproductive of significant historic artifacts. CSH Sink #3 produced a coral file in Stratum II. A limestone abrader was found on the surface near CSH Sink #5, similarly a basalt core was found on the surface near Sink #13, but no indigenous artifacts were found within these sinkholes (McDermott *et al.* 2001). A summary of indigenous artifacts recovered from Parcel 2 has been extrapolated from CSH's complete results (McDermott *et al.* 2001) and is presented in Table 7.

Table 6: Summary of Artifacts Recovered Parcel 1

Test Unit	Sink	Layer/ Level	Depth (cmbd)	Object	Weight (g)	Size (cm) Length	Size (cm) Width	Size (cm) Thickness	Count	Description	Artifact Number
TU5	Sink A	IA/1	135-	indeterminate iron	13.8				1	corroded	CAN-001
		IA/2	145-	woven fabric	trace				1	cotton?	CAN-002
		IA/3	155-	indeterminate metal	trace				3	rusted	CAN-003
		IA/4	165-	basalt flake	0.2	1.1	1.1	0.2	1		CAN-004
				basalt possible debitage	0.4	1.5	0.9	0.5	1		CAN-005
		IB/6	185-	possible worked shell	0.1	1	0.6	0.2	1	quadrangular pearl shell	CAN-006
TU4	Sink O	IVarious	145-170	metal-sawed bone	8.7				2	One limb bone fragment and one undetermined bone fragment of "Medium mammal" or "Large mammal" both metal-sawed.	CAN-007

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Table 7: Summary of Indigenous Artifacts Recovered Parcel 2

Test Unit	Sink	Layer/ Level	Depth (cmbd)	Object	Weight (g)	Size (cm) Length	Size (cm) Width	Size (cm) Thickness	Count	Description	Artifact Number
TU4	Sink #3	II	150-170	Limestone file	12.5	3.5	2.6	0.4	0.6	1	CSH-4
n/a	near Sink #5	n/a	surface	Limestone abrader	716.0	13.1	7.9	8.8	1		CSH-5
n/a	near Sink #13	n/a	surface	Basalt core	1664.0	16	10	8.6	1		CSH-8

Cultural Surveys of Hawaii, Inc. 2001

Section 6: Discussion

The historic background research and findings on the subject property provide an interesting look into the historical background and land use in Nanakuli. It is clear that the land was utilized during traditional times as well as during the post-Contact period. During the traditional times (prior to Western influence, from pre-Contact to the mid-eighteen hundreds), this area was utilized for agriculture, aquaculture, habitation, burial and ritualistic purposes. The upper valley areas, especially in the later pre-Contact, appear to have been much more heavily utilized than the lower valley areas, where the current subject property lies. This is likely due to the presence of more permanent sources of water inland. During the post-Contact period there was a marked shift in land use, and Nanakuli became a center for ranching activities. Later, the Government opened up the land for native Hawaiian settlement, which led to a drastic increase in the Nanakuli population. During WWII, Nanakuli, including portions of the current subject property were home to the military rest and relaxation camp, Camp Andrews. In modern times, it appears that the current subject property has become a dumping site for the local community's garbage.

The research into the former Camp Andrews (Site 50-80-07-5946) has yielded an interesting glimpse into the leeward coast during WWII. Informant interviews, newspaper articles, and historic documents as presented in McDermott *et al.* (2001) have provided a detailed view of the subject property and surrounding areas that would not have been possible without the existence of the camp.

Research into Site 50-80-07-5947, the cultural and palaeontological deposits located within the subject property's and adjacent subject property's sinkholes, poses many interesting questions. One area to address is the distribution of sinkholes across the site. North of the drainage canal, 17 sinks have been located, south of the drainage canal, only three. The morphology of the land explains this discrepancy in sinkhole distribution. The sinkholes appear to be almost exclusively limited to a "plateau" of land that covers only the *mauka* sections of the subject property and the adjacent subject property. The majority of Parcel 1 on the current subject property is not on this plateau; it lies on a slightly lower elevation and thus contains only three sinks. The two sinks, Sinks C and D, not on the plateau are different in morphology from the sinks on the plateau in that they are somewhat wider at the mouth and more shallow. Only Sink A, which does lie on the plateau, of the current study is similar to the sinks originally defining the site.

Looking only at the sinks that fall within the current subject property, these sinks have almost no potential to yield significant information. For the entire property there was only 4.9g of prehistorically extinct avifauna, 6 indigenous artifacts, 36.7g of invertebrate fauna, and 42.1g of vertebrate fauna. Only Sink #5 from the CSH study was recommended for further study. The only significant potential find would be burials in as yet undiscovered sinks. However, on the current subject property this seems unlikely given the morphology of the land discussed earlier. This in conjunction with the numerous modern disturbances, the filling in of sinks, areas of earth moving including

the two man made ditches and the present day dumping, have had a negative impact on the portions of the site within the current subject property and its potential to yield significant information.

Section 7: Significance Criteria Evaluation

The previous archaeological investigations conducted by CSH and the current work for the project, documented two sites of significance to the interests of historic preservation, Site 50-80-07-5946 and Site 50-80-07-5947. Site 5946, the former Camp Andrews, has been determined to be significant by CSH based upon its "information content" (McDermott *et al.* 2001:133) (Criterion "D" of the National Register of Historic Places criteria). "Site 50-80-07-5946 has yielded important information, in the form of historic maps, newspaper articles, historic documents, historic photographs, local informant interviews, and current photographs and written descriptions, which detail existing conditions at the former camp. The remaining State and National Register Criteria do not apply to the remains of Camp Andrews" (McDermott *et al.* 2001:133).

Site 50-80-07-5947, the cultural and palaeontological deposits within the subject property's sinkholes, was determined to be significant by CSH based upon several criteria. McDermott *et al.* 2001 had this to say about the site:

> It [Site 50-80-07-5947] is significant under Criterion D, for its information content. During the inventory survey investigation Site 50-80-07-5947 yielded general information regarding traditional Hawaiian land use in the project area. It also yielded information about the extinct avifauna that were once part of the Nanakuli environment. The site also yielded important information about the formation processes of the sinks and the depositional and taphonomic processes that act on sink features and their contents. State Site 50-80-07-5947 is also significant under Criterion E, for its traditional cultural importance to an ethnic group. The human skeletal remains that were located in Sinks 2 and 9 [the remains were outside the current subject property], based on the available evidence, are native Hawaiian. For native Hawaiians, the physical remains of their ancestors have strong traditional cultural significance (McDermott *et al.* 2001:133).

The portion of Site 50-80-07-5947 that lies on the current subject property did not contain the human skeletal remains. Refer to Table 8 for a summary of site significance evaluations.

Table 8: Summary of Site Significance Evaluations

Site	Description	Function	Significance Evaluations
50-80-07-5946	The remains of the former Camp Andrews, a WWII military rest and relaxation camp	M	D
50-80-07-5947	The cultural and palaeontological deposits within the subject property's sinkholes	B and H	D and E

Functional Interpretations

M: Military
B: Burial
H: Habitation

Code for Significance Evaluation Criteria

A: Site is associated with events that have made a significant contribution to the broad patterns of history.
B: Site is associated with the lives of persons significant in the past.
C: Site embodies the distinctive characteristics of a type, period, or method of construction; or is the work of a master; or possesses high artistic values; or presents a significant and distinguishable entity.
D: Site has yielded or is likely to yield information in prehistory or history.
E: Site has Cultural Significance (*heiau*, shrine, burial, etc.).
NS: Not Significant.
NLS: No Longer Significant.

Criteria A-D represent National Register of Historic Places criteria.
Criterion E represents Hawaii Register of Historic Places criterion.
NS and NLS represent designations acceptable to the DLNR-SHPD.

Section 8: Mitigation Recommendations

Because the proposed development of the subject property will likely have an adverse effect on significant historic properties located on the parcel it is recommended that several steps be taken in order to help mitigate that effect. As determined in the significance evaluations, the cultural deposits that make up Site 50-80-07-5947 still hold the potential to yield important scientific information regarding traditional Hawaiian cultural deposits and palaeontological deposits. Therefore it is recommended that Data Recovery take place at the site, but only on Parcel 2. CSH, in consultation with SHPD Archaeology Branch has recommended that only Sink #5 on Parcel 2 receive Data Recovery work. Parcel 1, does not require Data Recovery.

It is likely that additional as yet undiscovered sinks exist on the subject property. In order to help mitigate the adverse effect of construction activities to undiscovered sinks that may exist at the site, it is recommended that all subsurface construction activities be monitored by a qualified archaeologist. It is also recommended that a Monitoring Plan detailing the expected finds and methods of treatment be prepared which will be submitted to the DLNR-SHPD for approval.

In regards to Site 50-80-07-5946, the remains of the former Camp Andrews, the previous survey by CSH (McDermott *et al.* 2001) and the current survey have adequately documented the site. CSH's work on the site included "historic accounts, oral interview data, historic and modern maps, historic and modern photographs, and written descriptions. Accordingly, no further historic preservation work is recommended for Site 50-80-07-5946" (McDermott *et al.* 2001:134).

Conclusions

An Inventory Survey with subsurface testing has been conducted on property located in Nanakuli on the Island of O'ahu. The purpose of the investigations was to determine if significant historic properties exist within the project limits and, if present, properly document and evaluate those sites.

These investigations, in addition to the previous investigations conducted by CSH, resulted in the discovery of two sites on TMK: 8-9-002:001, Site 50-80-07-5947 and Site 50-80-07-5946. Site 50-80-07-5947 represents the cultural and paleontological deposits within the subject property's sinkholes. Site 50-80-07-5946 is the remains of the former Camp Andrews, a WWII military rest and relaxation camp.

Based upon the results of the current investigations, Archaeological Consultants of the Pacific, Inc. recommends that a determination be made that future construction activities would have an adverse effect on significant historic properties (Site 50-80-07-5947). It is also recommended that mitigation of the potential "adverse effect" consist of additional archaeological investigations in the form of Data Recovery (Sink #5 on Parcel 2). In addition, due to the potential of encountering as yet undiscovered sinks, it is recommended that future subsurface construction activities be monitored by a qualified archaeologist.

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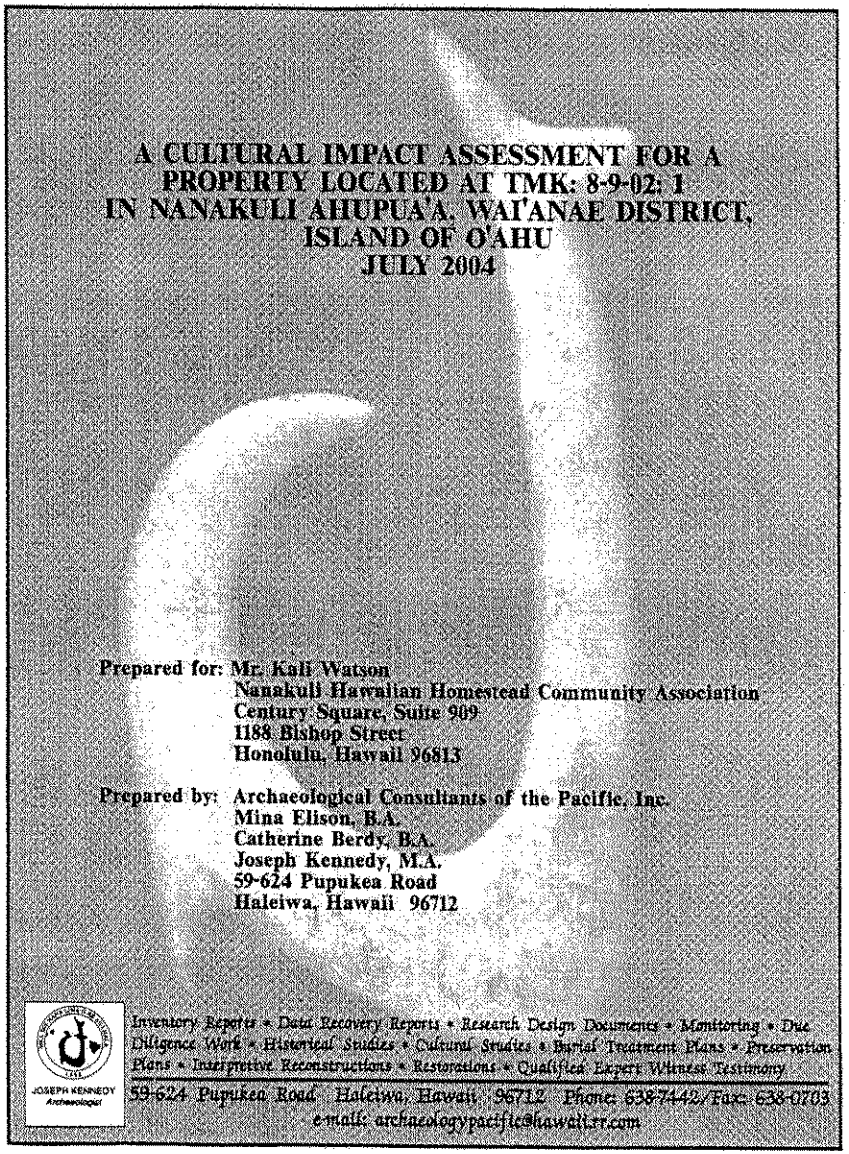

A CULTURAL IMPACT ASSESSMENT FOR A PROPERTY LOCATED AT TMK: 8-9-02: 1 IN NANAKULI AHUPUA'A, WAI'ANAE DISTRICT, ISLAND OF O'AHU
JULY 2004

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MEA IKE HANA LIMA O KEAU I HALA
1980

ARCHAEOLOGICAL CONSULTANTS OF THE PACIFIC, INC.

JOSEPH KENNEDY
Principal Archaeologist

July 8, 2004

Mr. Kali Watson, Project Director
Nanakuli Hawaiian Homestead Community Association
Century Square, Suite 909
1188 Bishop Street
Honolulu, Hawaii 96813

Dear Mr. Watson,

Please find enclosed three bound copies of "A Cultural Impact Assessment for a Property Located at TMK: 8-9-02: 1 in Nanakuli Ahupua'a, Wai'anae District, Island of O'ahu". Please feel free to use this report to fulfill all OEQC and environmental assessment needs.

Thank you for the opportunity to assist the Community Association in the historic preservation process. If you have any questions, please feel free to phone or fax.

Sincerely,

Mina Elison

Mina Elison
Archaeologist
ACP, Inc.

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Abstract

A Cultural Impact Assessment has been conducted for TMK: 8-9-02: 1, located in the *ahupua'a* of Nānākuli on the Island of O'ahu. The subject property is scheduled for Community and Commercial development. The purpose of these investigations was to gather information about cultural practices and cultural features that may be affected by actions subject to Chapter 343, HRS, and to promote responsible decision-making.

The current study took the form of a historic background study and community consultations. The historic background research addresses traditional accounts and land use for Nānākuli Ahupua'a while community consultations address concerns of community members regarding the affect of the proposed construction on places of cultural or traditional importance.

As a result of the current study, recommendations regarding the impact of proposed development on cultural practices and features associated with the project area have been made. Community consultations were conducted with Mr. Michael Kahikina and Mr. Kamaki Kanahele. Raised in Nānākuli and active leaders of the community, Mr. Kahikina and Mr. Kanahele are knowledgeable of the subject area which was used, and subsequently altered, by the military. Because of these alterations, Mr. Kahikina and Mr. Kanahele are confident that neither sites of traditional or cultural importance nor access to these sites would be affected by the proposed construction activites. An archaeological inventory survey with subsurface testing has been conducted (Berdy, Elmore & Kennedy 2002) and no further archaeological work was deemed necessary.

Table of Contents

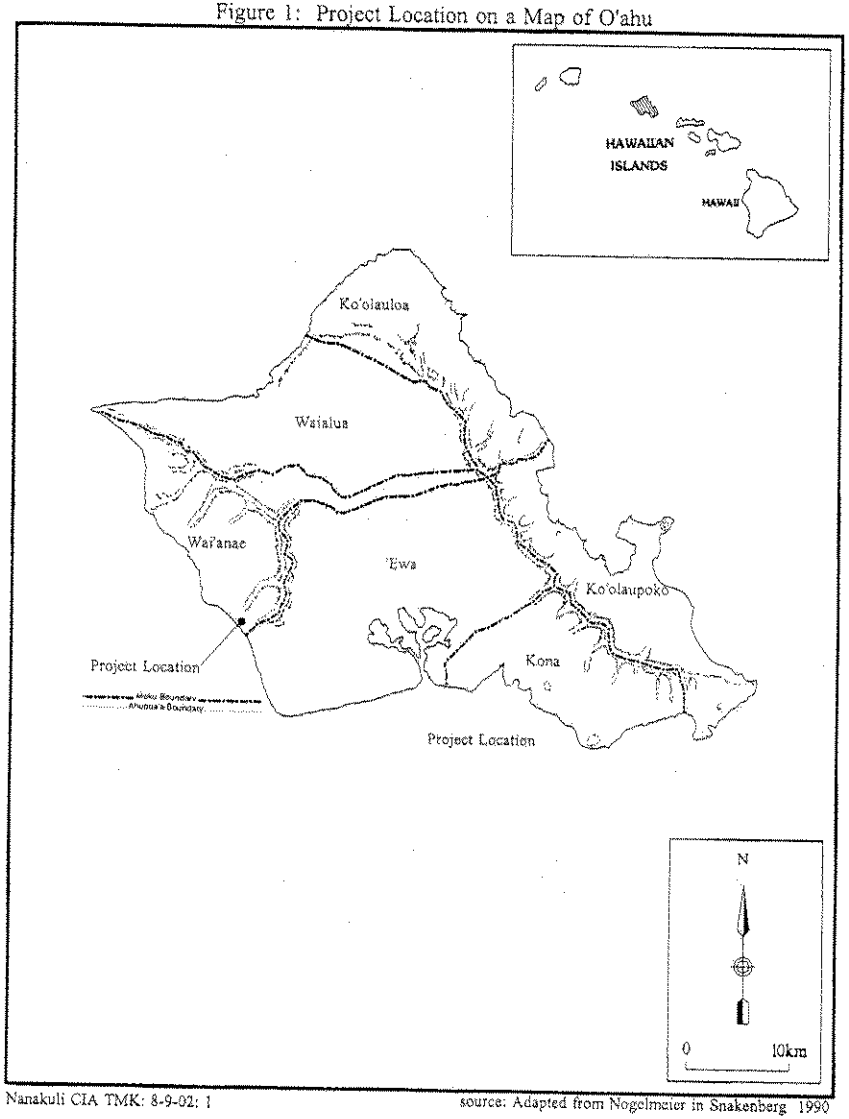
A Cultural Impact Assessment for a Property Located at TMK: 8-9-02: 1, in Nānākuli Ahupua'a, Wai'anae District, Island of O'ahu

Section 1: Introduction

At the request of Mr. Kali Watson of the Nānākuli Hawaiian Homestead Community Association, Archaeological Consultants of the Pacific, Inc. (ACP) has conducted a Cultural Impact Assessment for TMK: 8-9-02: 1 located in the *ahupua'a* of Nānākuli, district of Wai'anae, Island of O'ahu (see Figures 1 & 2). The subject property is currently owned by Hawaiian Homesteads. The subject area is planned for a Community/ Commercial Village.

The purpose of this document is to comply with the requirements of Chapter 343, HRS, as administered by the office of Environmental Quality Control as part of the Environmental Assessment process which requires that environmental assessments (EA) and impact assessments (EIS) identify and assess the potential effects of "a proposed action on cultural practices and features associated with the project area." These investigations were conducted in an effort to promote and preserve cultural beliefs, practices, and resources of native Hawaiians and other ethnic groups.

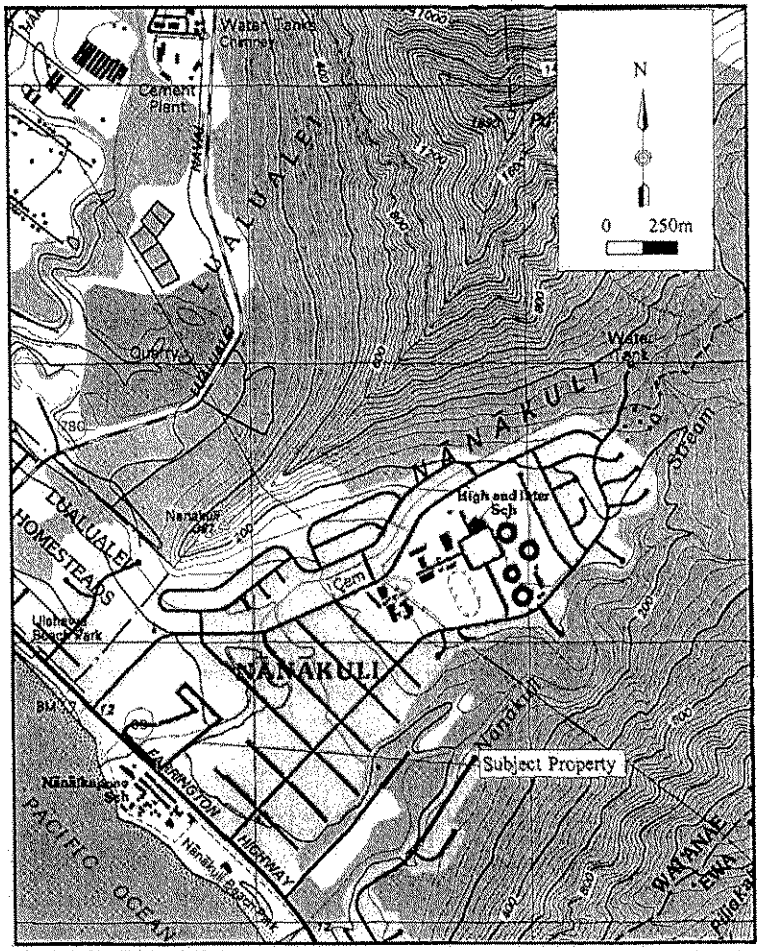
Figure 1: Project Location on a Map of O'ahu



Nanakuli CIA TMK: 8-9-02: 1

source: Adapted from Nogelmeier in Snakenberg 1990

Figure 2: Location of the Subject Property on a U.S.G.S. Topographic Map



Nanakuli CIA TMK: 8-9-02: 1

source: U.S.G.S. 7.5 Minute Series (Topographic) Map
Schofield Barracks Quadrangle 1998

Section 2: Physical Setting

The subject property (TMK: 8-9-02: 1) is located in the *ahupua'a* of Nānākuli, current district of Wai'anae, Island of O'ahu. The project area is located at geographic grid coordinates 21° 23' 02" North by 158° 08' 37" West and UTM (Universal Transverse Mercator) coordinates 588752mE by 2364780mN. The property is bordered by Farrington Highway along its western (*makai*) border, by the Nānākuli Flood Control Drainage Canal along most of its northern border, and by privately owned and developed lots along its eastern (*mauka*) and southern borders. The elevation on the property ranges from 12 to 20 feet above mean sea level (McDermott, Chiogioji & McGuire 2001:5).

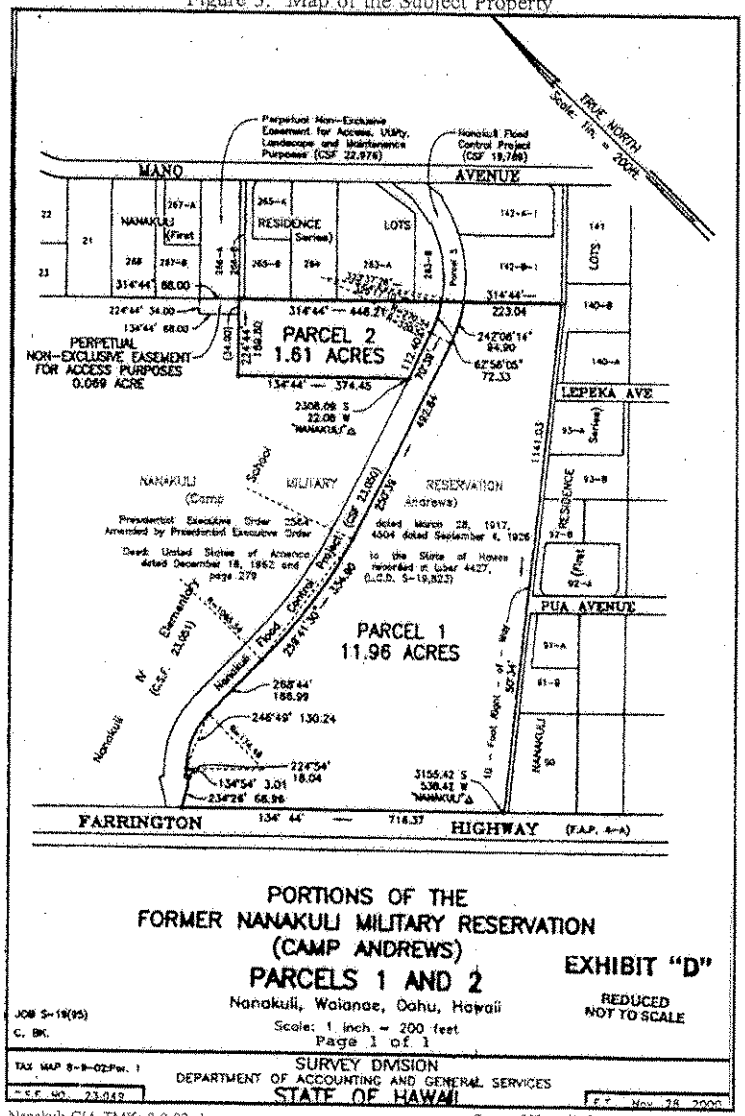
The property is comprised of two parcels encompassing an area of 13.57 acres. Parcel 1 is the bulk of the property, it lies entirely to the south of the Nānākuli Flood Control Drainage Canal and is 11.96 acres. Parcel 2 is just 1.61 acres at the Northeast corner of the property on the opposite side of the drainage canal (see Figure 3).

The property is mostly level with a moderate rise leading up to the *mauka* end of the property. There are, however, man made disturbances such as two ditches across the property and a bulldozed area running northwest to southeast that alter the lay of the land.

Currently the subject property is quite arid, receiving only 10 to 15 inches of rain a year (Armstrong 1973:56). The landscape is dominated by wild tamarind (*huele kea; Leucaena leucocephala*), mesquite (*kiawe; Prosopis pallida*), the occasional banyan tree (*Ficus berghalensis*) and sparse, mostly dead, grasses and weeds. Another dominant feature of the landscape is the trash strewn across the entire subject property. This debris is so thick in some areas it covers the ground surface entirely.

Foote, Hill, Hill, Nakamura and Stevens (1972) describe the coral outcrops which are made of coral or cemented calcareous sand and are formed in shallow ocean water during the time the ocean stand was at a higher level (Foot *et al.* 1972:29). One feature of the emergent reef is the presence of sinkholes. Although there is some debate as to the number of factors involved, it is generally accepted that sinkholes are formed during the downward percolation of rainwater or surface runoff through limestone, or coral rock. Water derived from the atmosphere is slightly acidic. This weak acid is able to dissolve the carbonates, which constitute limestone and coral rock. In areas where surface runoff occurs (due to the intensity of rainfall exceeding the infiltration capacity of the exposed reef) the water will flow for short distances overland until it flows underground along lines of weakness, or joints, in the rock. Through time the water erodes the rock to form depressions or sinkholes. Usually these depressions collect sediment, which is deposited as the water flows into the permeable rock.

Figure 3: Map of the Subject Property



Nanakuli CIA TMK: 8-9-02: 1 source: State of Hawaii, Survey Division 2000

Section 3: Method of Evaluation

The current assessment was conducted in May/June of 2004. The project was conducted under the direction of the Principal Investigator, Joseph Kennedy, M.A.. Community consultations were conducted by Mina Elison, B.A.. Report preparation was completed by Mina Elison, B.A., Catherine Berdy, B.A. and Joseph Kennedy, M.A..

The current study includes the entire *ahupua'a* of Nānākuli. Research of the historic background of Nānākuli Ahupua'a was conducted including an examination of traditional accounts, land use from earliest occupation to present day, archaeological investigations and a summary of settlement patterns. This research was conducted by means of researching historical texts and documents, such as (but not limited to) *Sites of O'ahu* (Sterling & Summers 1978), Beckwith's *Hawaiian Mythology* (1970), "Heiau and Heiau Sites Throughout the Hawaiian Islands" (Thrum 1907), Handy's *The Hawaiian Planter* (1940), *Native Planters on Old Hawaii* (Handy & Handy 1972), *Archaeology of O'ahu* (McAllister 1933) and *Place Names of Hawaii* (Pukui, Elbert & Mookini 1974). An examination of Land Commission Awards was completed by researching the Board of Commissioners to Quiet Land Titles (1846-1855) Native and Foreign Registers and Testimonies Award Books at the Archives of Hawai'i in Honolulu. Research relating to previous archaeological investigations was conducted at the Department of Land and Natural Resources, State Historic Preservation Division (DLNR-SHPD) library in Kapolei.

Individuals and organizations with expertise concerning cultural resources, practices and beliefs in Nānākuli, as well as those knowledgeable of the area potentially affected by the proposed residential development, were identified and contacted, and willing individuals were consulted. Mr. Kali Watson, Project Director of the Nanakuli Hawaiian Homestead Community Association recommended Mr. Michael Kahikina and Mr. Kamaki Kanahele to be interviewed. Mr. Kahikina was interviewed on May 17, 2004 at the Boys and Girls Club office in Honolulu while the interview with Mr. Kanahele was conducted on June 7, 2004 at the Butler Building in Nānākuli.

A list of interview questions was compiled for the cultural consultations. These included the informant's full name, address, birth date, birthplace, ethnicity, historical and geographical associations with the place in question, and finally, how the proposed residential development would affect or physically alter any place of cultural/traditional importance, or access to any such place. Cultural consultations were conducted in person, and the interviews were recorded by audio-cassette. This report provides complete transcriptions of all cultural consultations.

Section 4: Historical Background of Nānākuli Ahupua'a

The leeward lands of Wai'anae are comprised of steep sided valleys with relatively level valley floors, which are fronted by sandy beaches. A comprehensive review of the District of Wai'anae has been presented in Cordy's (1998) *Ka Moku O Wai'anae: He Mo'olelo O Ka Wa Kahiko*. The earliest use of the land was probably temporary campsites utilized in relation to fishing and resource gathering. One site near Kaupuni Stream at Poka'i Bay contained a surprisingly early date of A.D. 600's-800's (Cordy 1998:6). Permanent habitation probably did not occur until after A.D. 1000. Cordy discusses initial permanent habitation in Wai'anae:

> In Wai'anae, one might expect the earliest permanent settlements to have been in Wai'anae Valley at Pokai Bay in association with its flowing stream (Kaupuni) and at Kamaile with its spring (Kelo'o) – as these were the two best watered coastal lands in the moku. Then perhaps Makaha and parts of Lualualei with at least upland flowing waters, and perhaps perennial streams, would have been settled, and then the rest of the district (Cordy 1998).

Evidence for use of the land for *lo'i* behind the coastal habitation areas in Wai'anae Kai Ahupua'a dates to as early as A.D. 1100's-1200's (Cordy 1998:8), whereas agricultural use "in Nanakuli, dry fields in the upper valley began to be built in the A.D. 1200s-1400s and permanent habitations in the 1300s-1400s and ... these sites seem likely to reflect later population spread from a somewhat earlier settlement along the shore" (Cordy 1998:8). As population on O'ahu grew during the 1400s-1700s, permanent habitations likely increased and cultivation of *lo'i* and dry-land agriculture likely expanded.

In addition to the utilization of littoral resources, numerous fishponds provided a valuable resource. During the 1400's-1500's:

> Coastal fishponds ... were ... probably constructed in these years under the sponsorship of the rule of high chiefs. A fishpond in Honouliuli along Pearl Harbor in 'Ewa, Loko Paweo II in Waikiki, Moli'i and Nu'upia fishponds in Kane'ohe Bay all have their initial constructions dated back to this period.[54] Some of the lineal marshlands behind the coastal dunes in the moku of Wai'anae also may have been in use as fishponds at this time— perhaps in 'Ohikilolo and Wai'anae (Cordy 1998).

Also during this time, more and larger *heiau* were likely built in association with the rise of the O'ahu Kingdom. In the district of Wai'anae, numerous *heiau* have been recorded along the coast and in both the lower and upper portions of the valleys.

Traditional Prehistoric Accounts

The district of Wai'anae has a prominent place in the Hawaiian oral tradition; its place names figure in central mythological cycles and in the stories of the ruling chiefs, suggesting perhaps a relatively early occupation of this land.

Stories of the demigod Maui are found throughout Polynesia, with local variations from each of the Hawaiian Islands. On O'ahu, these stories are centered in Wai'anae. Maui and his two brothers, Maui-mua and Maui-ikiiki, are said to have been born in Wai'anae.

Hina, their moon-goddess mother, lived in a cave on the southern side of Wai'anae where she made the famous fishhook with which Maui tried to bring all of the Hawaiian Islands together, the snare for catching the sun and her own tapa cloth (Beckwith 1982:232).

The famous pig god, Kamapua'a, is known for his exploits in Wai'anae. He and his grandmother Kamaunuaniho, are said to have lived together on Mount Ka'ala where they could look down into Wai'anae. During the night, Kamapua'a would sneak down and steal taro from the patches in the valley. When the people of Wai'anae discovered that a pig was stealing their taro, they caught him and tied him to a rock named Pahoa. On the day set for killing him, the people found him gone from the rock and roaming about in the taro patches again. They caught him once again and took him to Pu'u Kahea where the *imu* (underground pit oven) had been prepared for his roasting. At this time many *kiwalao* (supernatural bodies) crossed the plains and devoured the men of Wai'anae who had not fled (Sterling & Summers 1978:72).

Another story tells of Kamohoali'i, a shark god, who begot a half-man, half-shark child with a woman of Wai'anae. Many people were devoured before this shark-man was finally caught and killed (Hammatt, Borthwick & Shideler 1987:12).

Early Historic Period

People along the Wai'anae Coast in January 1778 were the first to spot the ships of Captain James Cook as he discovered the Hawaiian Islands for the western world (McGrath, Brewer & Krauss 1973). Cook did not stop in Wai'anae, but continued on to Kauai. Some years later, we have our first discoverer's account of the Wai'anae Coast. In March, 1793 Captain George Vancouver's ship was off the coast of Wai'anae and he had this to say of the experience:

> The few inhabitants who visited us from the village earnestly entreated our anchoring, and told us, that if we would stay until morning, their chief would be on board with a number of hogs and a great quantity of vegetables; but that he would not visit us then because the day was *taboo pooy*. The face of the country did not however, promise an abundant supply; the situation was exposed" (Vancouver in McAllister 1933:113).

Vancouver sailed on and did not take a favorable impression of the Wai'anae coast with him, he further noted that the entire coast was "one barren rocky waste nearly destitute of verdure, cultivation or inhabitants" (McGrath *et al.* 1973:17). The only village he observed was at Wai'anae (McAllister 1933:112) the rest of the coast held a "few straggling fisherman's huts" and "a small grove of shabby cocoanut trees" (Handy & Handy 1972:270-271).

Vancouver did note that the valley beyond Wai'anae presented a "fertile, cultivated aspect" (McGrath *et al.* 1973:17). Unfortunately this did not clue Vancouver into the fact that had he gone ashore his negative impressions would have been belied. The inhabitants of Wai'anae led a comfortable life. "An overland traveler who visited the village some years later wrote, 'This is a very beautiful place, opening on an extensive valley . . . having a view of the sea. On the left is a grove of coconuts on low ground through the midst of which runs a beautiful stream of clear water from the mountains. Houses are scattered here and

there in the grove and clumps of sugar cane and rows of bananas are interspersed'" (McGrath *et al.* 1973:17).

Handy and Handy also had a more favorable opinion of Wai'anae Valley:

> Wai'anae Valley supported a number of areas where wet taro was planted, watered by streams from the Wai'anae range, streams whose flows were probably constant owing to the high bogs on top of the mountains . . . Undoubtedly there were also small settlements subsisting mainly on sweet potato, in the valleys where constant streams were lacking [Nanakuli and Makua]. In famine times, then, there was reef fishing, and the Wai'anae Mountains had wild banana, *ti*, fern, and other roots that were edible . . . (Handy & Handy 1972:275-276).

Noted historian John Papa 'I'i makes an early mention of a settlement in Nānākuli. In his book "Fragments of Hawaiian History ('I'i 1983:26-27), 'I'i describes visits to his aunt. One visit was in Nānākuli when 'I'i was a boy. During that visit he noted that breadfruit trees were present and that fishing activities were occurring in the village (*ibid*).

In 1804 a cholera epidemic called *mai oku'u* swept across the Hawaiian islands. The effects of the epidemic were devastating to the population (McGrath *et al.* 1973). During the same period of time another sort of epidemic began, the sandalwood trade. Demand for sandalwood became so great that often the day-to-day work of subsistence was overlooked. The greed of some chiefs for wealth was so great that "famine was experienced from Hawai'i to Kaua'i . . ." (historian Kamakau in McGrath *et al.* 1973:18). The Wai'anae Range had "extensive stands of sandalwood" but the over harvesting during this period of time has left sandalwood nearly extinct on the Wai'anae Coast (McGrath *et al.* 1973:18).

By this point in time, missionaries had made their way to the islands. One useful aspect of their work was that they were the first to attempt a census of the islands. Their work was conducted from 1831-1832 and 1835-1836. Figures for Wai'anae, which most likely included Nānākuli, were 1,868 in the first census and 1,654 in the second (McDermott *et al.* 2001).

Land Acquisition Awards

In the Great Mahele of the 1840's the *ahupua'a* of Wai'anae, which at that time included Nānākuli was claimed as Crown lands, the personal property of King Kamehameha III. Five land court awards were filed by natives, which were all subsequently unawarded. The following table provided by McDermott *et al.* (2001:24) details the five claims.

Table 1: Land Commission Claims

LCA	Claimant	'Ili	Land-Use Information from *Mahele* records
830	Mahiki	--	3 *Apana*, 1 House lot-references to cairns, streams, and other house lots, land given by Kahele
833	Kahaanui	Kaape	4 *Apana*, 1 House lot-reference to cairns, streams, and other house lots, land given by Kahele
846	Awa	--	5 *Apana*, 1 House lot-reference to streams and other house lots, land given by Kahele
7455	Kuluahi	Hapai	1 *Apana*, 1 *Kula*, 1 House lot, 1 *Wauke*-"a *muliwai*, a pond, a cultivate (sic) *kula* and for firewood also, a valley planted in *wauke mauka*, and *kula* house lot" (Native Register 342v5)
8153	Haulula	Kuamookahi	1 *Apana*, 1 *Kula*, 1 House lot, 1 *Wauke*, 1 Sweet Potatoes

(From McDermott et al. 2001:24)

Based on these claims we know that *kula* land was being used, and crops such as *wauke* and sweet potatoes were being grown in Nānākuli, along Nānākuli Stream, or one of its tributaries (McDermott *et al.* 2001). The exact location of the five claims is not known, however, Cordy's (1997) work in the region would support the idea that these claims were located in the upper part of the valley (McDermott *et al.* 2001). This is based on the discovery of "permanent habitation features" in the upper valley (McDermott *et al.* 2001:24). McDermott *et al.* argues that "there is no indication that any of the apana, or land divisions, of the five LCA claims were located in the vicinity of the current Nānākuli IV Elementary School project area" (McDermott *et al.* 2001:24).

Late Historic Period to Present:

In the latter half of the nineteenth century, land use in Wai'anae shifted from traditional agriculture to large-scale ranching and sugar production. According to an 1863 missionary report, most of the land in the Wai'anae District was being used for grazing and had been divided into six or seven large land divisions under long term lease or sold in fee simple. In Nānākuli this was the case with the Dowsett and Robinson families. Only one hundred acres were reportedly left under taro in Wai'anae Valley (McGrath *et al.* 1973:31). By the late 1870s, ranching had become the leading industry on the coast. McGrath *et al.* (1973) reports that George Bowser in research for a book found ranches in a number of places along the Wai'anae coast including Nānākuli during the years 1880-1881. Bowser says this of his visit through Nānākuli:

> From the Laulaulei Valley to the Nānākuli Valley I had a rather dreary ride of three miles. The intervening country towards the sea is barren, with a little pasturage at the base of the mountains. The track, however, is in very good order, much better than I expected to find it, looking to the mountainous and rocky character of the country through which it passes. At Nānākuli and at Ho'ae'ae, close adjoining, the Messers. Robinson have cattle ranches. The pasture here cannot be compared with that in the valleys I had just left behind, but inland among the mountain ranges it is much better (Bowser 1880:494).

Sugarcane was first cultivated on O'ahu by John Emerson earlier in the century in Waialua (McDermott, Kikiloi, Creed, Schideler & Hammatt 2000). In 1878, Hermann A. Widemann, a German immigrant and judge, began Wai'anae Plantation (also called Wai'anae Sugar Co.), the first large-scale sugar plantation on O'ahu. Sixty acres were cleared and planted not far from Wai'anae Village, and a mill was built by 1880. In 1879, the plantation leased most of Wai'anae Kai for 25 years, brought in twenty local Hawaiians, fifteen Caucasian technicians and almost 60 Chinese laborers (McDermott & Hammatt 2000b:26). Twenty-four new houses were built in Wai'anae Valley to house these workers, and "a plantation camp was built at Kamaile on the site of the old Native Hawaiian village" (Flood, Klieger, Lebo, Dixon, Clark & Parry 1994:38). [*Note: All documents relating to sugar plantations on O'ahu have been compiled by the Hawaii Sugar Planters Association which are currently housed at Hamilton Library at the University of Hawaii-Manoa.*]

Flood *et al.* (1994:39) discuss some of the problems Widemann faced:

> Probably the greatest challenge for Wai'anae Co. was locating more water. Wai'anae Stream did not have enough water to accommodate all the new sugar fields popping up. The answer to this problem was drilling, a new process designed to tap artesian water. The process was discovered in nearby 'Ewa in 1879. Widemann took the opportunity to make use of this new discovery. He contracted the three McCandless brothers, pioneers in this field, to drill 33 wells into his property at a cost of $50,000.00 to $75,000.00. They could only charge him full price if they found water and half price if they found nothing (Pratt 1939:275). The resulting volume of water was insufficient, forcing the company to augment with whatever surface water they could find.

McGrath *et al.* (1973:75) further elaborate on methods used in obtaining water:

> ... The expensive well drilling campaign had developed a nest of 18 wells at Kamaile. They produced about 3,000,000 gallons daily. But the water was more salt than fresh. So the drive to buy up more water rights and to develop new sources grew more intense instead of less.
>
> In the 1890s a new leader began guiding this relentless search for water. He was John M. Dowsett, Widemann's son-in-law... Reports credit him with pushing a plan to reforest upper Wai'anae Valley in order to create a watershed area. Workmen planted trees, then fenced off the lower slopes of the mountains to keep out the cattle, so the vegetation would grow. Meanwhile, they dug an elaborate network of ditches to catch the runoff. ... By 1897 the ditches were producing 2,200,000 gallons of water a day. ... [Dowsett] had his men build a reservoir at the base of the mountains. He installed a hydro-electric plant ... about two miles below the pali (cliffs) and the reservoir. He dropped the water from the reservoir to the hydro-electric plant in a sluice 7,000 feet long. The fall of the water developed 440

> horsepower, enough to generate 300 kilowatts of electricity. This electrical power drove the plantation's water pumps at the wells, operated the mill generators in the off season and provided electric lights for the plantation manager's house at a time when many people in Honolulu were still using kerosene lamps.
>
> A four-inch pipe from the hydro-electric plant to the village provided a domestic fresh water supply for the plantation camps. The rest of the water ran off in open ditches to sweeten brackish irrigation water being pumped from the Kamaile wells. Other pumps lifted the mixture into a network of flumes and ditches which led to cane furrows as far away as Lualualei.

Despite the water problem, the sugar boom revived the economy of Wai'anae, and by 1884 it was the largest settlement outside of Honolulu. In 1890, the Wai'anae Plantation had 600 acres under cultivation and the population of Wai'anae had increased. In 1895, O.R. & L. railroad, started by Dillingham in 1889, reached the Wai'anae Sugar Company and connected it to the Ewa mill; by 1898 the railway would eventually extend around Ka'ena Point and link up with Waialua. Wai'anae Village grew and was the center of population and activity (Kuykendall 1967:100 and McGrath *et al.* 1973).

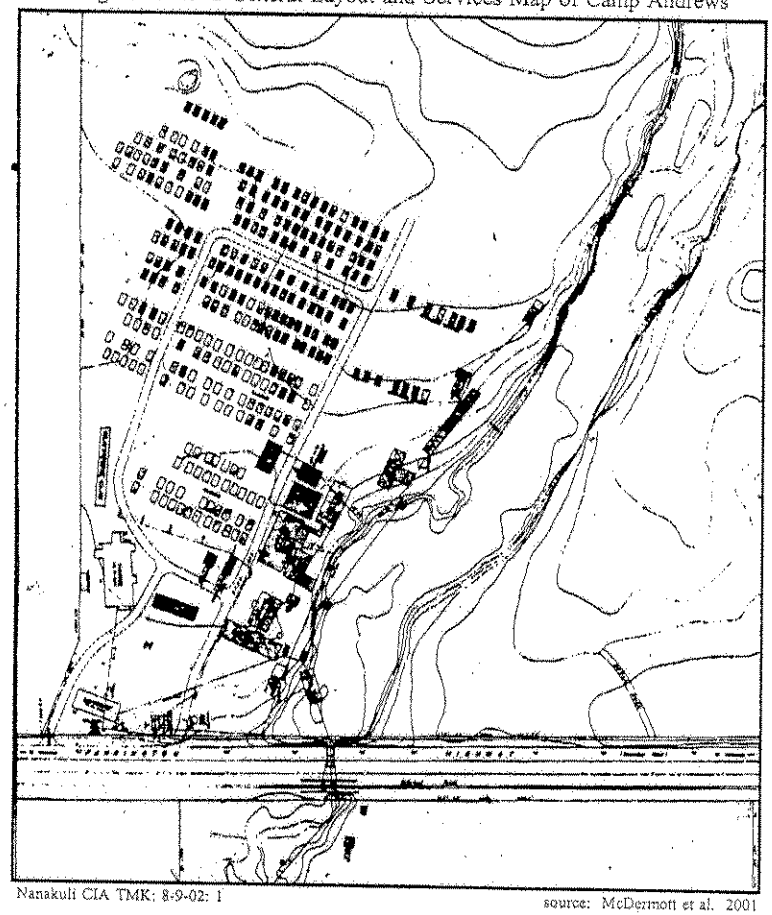
Coffee cultivation was also attempted in Wai'anae during this period. In 1886, August Ahrens planted 45 acres of coffee in the lee of Mount Ka'ala at the head of Wai'anae Valley. Coffee did not turn out to be as lucrative as sugarcane. The local economy continued to be dominated by sugar into the twentieth century (McGrath *et al.* 1973).

In the early 1900's the Government decided to "open up land in Lualualei for homesteads" (McDermott *et al.* 2001:28). Large tracts were purchased by well-known families such as the Von Holt, McCandless, and Dowsett, smaller lots were purchased by roughly 40 working class families (McDermott *et al.* 2001:28). Between 1917 and 1921, leases on 200,000 acres of government land in Wai'anae District expired. An area of land in central Wai'anae Kai was turned into Wai'anae Homesteads, residential plots for people of Hawaiian ancestry. Nānākuli, home to only 10 residents in the mid 1920's was also opened up to native Hawaiian settlement. "By 1930 over 200 residential lots had been taken" (McDermott *et al.* 2001:29). However, lack of water was still an issue in the region.

During World War II, the sugar industry in Wai'anae declined. The draft and abundant supply of defense jobs created a labor shortage on the plantation. The Wai'anae Coast was used as a location for practicing amphibious landings, a recreation center was set up at Poka'i Bay in addition to the rest and relaxation camp of Camp Andrews in Nānākuli (see Figure 4), and much of the sugarcane land was taken over by the military (McGrath *et al.* 1973:136). The military occupied much of the Wai'anae Coast and inflicted much damage along it (*ibid* 1973:138).

After the war, the Wai'anae Plantation was never able to turn a profit. Increasing labor and operational costs forced the company to liquidate in 1946. At the time, people thought that the collapse of the plantation would lead to the collapse of the revitalized Wai'anae Coast. In 1947, Chinn Ho, of Capital Investment Company, bought nearly 10,000 acres of land in Wai'anae, and subdivided the land into cheap beach lots in fee simple (McGrath *et al.* 1973:151).

Figure 4: 1942 General Layout and Services Map of Camp Andrews



Nanakuli CIA TMK: 8-9-02: 1

source: McDermott et al. 2001

In 1940, a government census counted 2,948 permanent residents along the Wai'anae Coast (McGrath *et al.* 1973:145). By 1950, the government census noted 7,024 permanent residents along the Wai'anae Coast (McGrath *et al.* 1973:151). Much of the population increase can be attributed to Ho's marketing of cheap lots.

In the 1950's and 1960's, the population continued to steadily increase in Wai'anae, much due to the work of Ho. A breakwater was built to protect fishing boats in Poka'i Bay, the water supply was improved and jobs opened up in "Ewa with the development of the Campbell Industrial Park" (McGrath *et al.* 1973:156).

Presently, Wai'anae is the home of a large community with the population concentrated along the coast and spreads up the flat bottoms of the valleys.

Section 4.1: Previous Archaeology

A substantial number of archaeological investigations have been conducted in the lower and upper valley portions of Nānākuli Ahupua'a. Thrum and McAllister conducted the earliest investigations in the *ahupua'a*, recording the location of Ilihune Heiau (Site 147, no longer present) towards the base of Pu'u Heleakala. Thrum describes it as a "small walled heiau of *pookanaka* class; used around 1860 by Frank Manini as a cattle pen, for which natives prophesied his poverty and death" (Thrum in McAllister 1933). Handy (1940) conducted an investigation of ethnographic agricultural practices in the upper valley area and found ruins of stone terraces, platforms and pavements related to Hawaiian habitation.

More recent archaeological Inventory Surveys have been conducted in undeveloped lands in the upper and lower valley areas (Cordy *et al.* 1990; Cordy and Pak 1990; Cordy 1998; Cordy 1997; McDermott & Hammatt 1999). The lower valley areas contained substantially fewer sites in comparison with the upper valley. The upper portion of the valley was found to contain numerous archaeological sites including agricultural features, temporary and permanent habitations, large enclosures, activity areas, and two possible religious sites (a small shrine and a possible *heiau*)(Cordy 1997). Pak and Cordy (1990:4) were able to run some radiocarbon analyses that "indicate that many of the sites were initially occupied in the A.D. 1500's and that some may have been occupied as early as the A.D. 1300's or 1400's."

An investigation in 1994 by Aki Sinoto Consulting noted extensive land alteration, and indicated that the expected findings would primarily include post-Contact agriculture, ranching and military sites (Nakamura & Pantaleo 1994).

An investigation was conducted the following year by Ogden Environmental and Energy Services Co. for the Department of the Navy (Schilz, Hurst, Shun, Clevenger, Pietrusewsky, Weisler & Ziegler 1995). The project was located on the south side of Nanakuli Stream *makai* of Farrington Highway. This investigation found no archaeological sites, although the subject property was not in a high probability area as the land was a

shallow, probably recent fill, on an emerged Pleistocene reef or beach rock (Schilz *et al.* 1995:11 & McDermott *et al.* 2001:36).

Though no sites were found during the coastal investigations in Nānākuli, scattered settlements are indicated in historic accounts:

> Archival records— although very limited— show that there was a settlement along the coast in Nanakuli. In the early 1800s, John Papa I'i visited his aunt here. Although he described very little of the coastal settlement, he did note that breadfruit trees were present. Also, his relatives were supervising "the fishing" at that time in the village.[128] Others passed through Nanakuli walking from Waimanalo Gulch in 'Ewa on their way to Wai'anae Valley. They provided general descriptions for the area from Nanakuli through Ulehawa and Ma'ili in Lualualei, without specifics. They noted houses were present on the shore. In 1818 Hunnewell walked by a "number of Indian villages," and in 1828, Chamberlain recorded that, "We passed several kauhale (clusters of houses)"[129] (Cordy 1998).

Evidence of these settlements have most likely been destroyed by activities such as cattle ranching and modern structures such as Farrington Highway, various houses, Nānāikapono Elementary School and Nānākuli Beach Park (Cordy 1997:12).

The 15 acres adjacent to the current subject property (TMK: 8-9-02: 65) have had an archaeological assessment (Hammatt, McDermott & Chiogioji 1999) and an Archaeological Inventory Survey (McDermott *et al.* 2001) by Cultural Surveys of Hawaii, Inc. (CSH). These surveys have resulted the discovery of two sites.

Site 50-80-07-5946 is the remains of Camp Andrews, a military rest and relaxation area. The camp was "constructed and utilized during the first half of the 20th century until it was deactivated and the land returned to the State of Hawaii in the late 1950s" (McDermott *et al.* 2001:40). The physical remains of the former camp consist of "numerous concrete slabs, some trash deposits, and a gateway structure" (McDermott *et al.* 2001:1).

The second site, Site 50-80-07-5947 is the "cultural and palaeontological deposits within the project area's sinkhole features" (McDermott *et al.* 2001:40). The report details the discovery of 17 emergent reef-limestone sinkholes, which contained a cultural midden, one complete burial and one small occurrence of isolated scattered human skeletal fragments, various artifacts and palaeontological deposits of extinct fauna (McDermott *et al.* 2001).

In 2002, an archaeological Inventory Survey was conducted on the current subject property by ACP (Berdy, Elmore & Kennedy 2002). Investigations took the form of a 100% surface survey and the excavation of four 1 x 1m test units. All test units were placed in sinkholes however only one unit produced bone, modern trash, marine shell but no significant cultural or paleontological remains. Recommendations were made that a determination be made that future activities would have an "adverse effect" on significant historic properties at Site 50-80-07-5947 and the cultural and paleontological deposits within the subject properties sinkholes. No further archaeological work was recommended for Site 50-80-07-5946.

Section 4.2: Settlement Patterns

Based upon the review of land use and archaeological studies discussed above, settlement patterns for Nānākuli Ahupua'a can be briefly summarized. A detailed summary of the settlement patterns for Wai'anae District may be found in Cordy's (1998) *Ka Moku o Wai'anae: He Mo'olelo O Ka Wa Kahiko*. Patterns of settlement across the *ahupua'a* of the district would have been somewhat similar, though occurring at differing times. The earliest settlements of the valleys began with small coastal populations utilizing littoral resources. Permanent habitation settlements then grew along the swampy backsides of the dunes and along the coastal trail, which roughly follows the route of Farrington Highway. By the 13th century, the populations had begun utilizing the inland portions of the *ahupua'a*. A change in the distribution of populations occurred in the following centuries when inhabitants moved from the coast to new population centers in the interior of the valleys where scattered clusters of permanent habitation sites are found in the areas surrounding Kaneaki Heiau in Makaha; along Kaupuni Stream and the *'ili* of Pu'u Kahea and Kamaile in Wai'anae Kai; in the upland valleys of Halona, Pahoa and Puhawai in Lualualei; and across the upper valley floor of Nānākuli. Several factors are cited as influencing this shift in the centers of population, the most compelling of which is proximity to agriculturally productive areas.

The post-Contact Period saw a decline in the native Hawaiian population followed by the abandonment of the traditional irrigated taro systems. In the late 1800's to early 1900's, the large-scale cultivation of sugarcane expanded onto the seaward portions of the valley floors. A list of taxpayers and contributions were recorded in 1855 by a tax collector named J.W. Makalena (McGrath *et al.* 1973:29). McGrath *et al.* discuss these figures:

> This list of taxpayers, generally adult males, provides a clue as to how the population of the Wai'anae Coast was distributed at that time. Here are the figures:
>
> | | |
> |---|---|
> | Wai'anae Kai | 62 |
> | Kamaile | 44 |
> | Makaha | 38 |
> | Makua | 21 |
> | Maili | 9 |
> | Nanakuli | 8 |
> | Total | 182 |
>
> If we assume a population of less than 800 for the area, and four persons to the average household, the number of taxpayers in Wai'anae Valley represent about 250 persons. We can also estimate that about 175 people lived at Kamaile, about 150 in Makaha Valley, almost 85 in Makua Valley, more than 35 in Maili, and over 30 in Nanakuli.
>
> ... There were two schools in Wai'anae Valley, each with about 25 students. ... the people of Nanakuli paid a total of $26 for school, poll and other taxes. Maili paid in $31. In Makua, the people paid $73.50; in Makaha, $92.25; at Kamaile, $177; and in Wai'anae Valley, $276.

From Makalena's records, it was also revealed that in some areas there were more horses than taxpayers. In Wai'anae Valley, 123 horses and nine mules and donkeys

were reported; 66 horses and four mules and donkeys in Kamaile; and 10 horses in Nanakuli (*ibid*).

Although it is probable that the coastal areas of Nānākuli contain cultural deposits, in recent years, modern residential and recreational developments have obscured earlier deposits.

Section 5: Community Consultations

Several individuals were consulted regarding their knowledge and concerns about the affect of the proposed construction on cultural practices and features associated with the project area. Interviews with these individuals were conducted in person. Maps were presented to the informants depicting the limits of the project area. Information gathered from each individual along with their concerns is discussed below.

Section 5.1: Mr. Michael Kahikina

Mr. Kahikina expressed his knowledge and association with the project area and Nanākuli Ahupua'a. Describing himself as a "*keiki o ka 'aina*," Mr. Kahikina has rooted himself deep into the Nānākuli soil; where he was raised, trained in the military, and currently resides. Mr. Kahikina is actively involved in the community at both local and state levels, currently holding the Vice-Chair position of the Nānākuli Hawaiian Homestead Community Association, the Director of the Nānākuli Boys and Girls Club of Hawai'i as well as being the 44th District State House Representative since 1994.

Mr. Kahikina learned about Hawaiian medicines (*la'au lapa'au*) and farming (*mahi'ai*) while working with the Hanakahi family who, according to Kahikina, had the only taro patches in Nānākuli. It was with *kupuna* where he heard the origin of the name Nānākuli, which means "to look at the knees" referring to how the people would ignore or "act deaf" when asked about water, being that it was so scarce and difficult to obtain. He also learned various legends which described the powerful, fierce and awesome women who fought battles and inhabited the area, those being the five wives of Pilila'au whose names currently are honored by the six roads in Nānākuli Valley. As a child, Mr. Kahikina recalled hearing the chants, talking and sometimes slack key guitar songs of night marchers who used to pass through his house and yard.

In regards to the subject property area (formerly Camp Andrews), Mr. Kahikina knows that Hawaiian families used to live across the river, however doesn't recall any structures which existed or are currently present within the area. Kahikina, who served in the U.S. Air Force from 1968-1972 remembers doing military exercises and basic training on the subject property before heading off to Vietnam.

When asked if the proposed construction would affect a place of traditional importance, Mr. Kahikina expressed that the community center would succeed in preserving the culture by "building a healthy community" and developing a place where people could gather, discuss various issues and plan for the future.

Interview with Mr. Michael Kahikina

Name: Michael Puamano Kahikina
Address: 89-416 Nānākuli Ave.
Birthdate: January 16, 1950
Birthplace: Honolulu
Ethnicity: Hawaiian/Spanish

Historical and Geographic Association with the area:

Michael Kahikina [MK]: "I'm a *keiki o ka 'aina*, born and raised in Nānākuli, it's been my play ground all my life. So historically, I am rooted in Nānākuli. ... I am part of the Hawaiian Homestead Community Association, I'm the Vice Chair. And also I am the President of the Kokua Ohana Center it's a non-profit that basically started in vision first now we have to bring out passing the *makana* over to the community center in itself. When we first started, the association didn't have a 501(c)(3). Our 501(c)(3) was created to help students, to help all families so we saw the opportunity at first to build a center on the high school for our kids, but the Boys and Girls Club, through my capacity here, we are building a teen center. So our vision turns into a community and we went to funds to do all the planning and stuff like that, in hope that we want to involve the community, yeah. Which I'm also on the Hawaiian Homelands, and so we went and pursued a 501(c)(3). Now that we have our 501(c)(3) that is where you come in because the city— money that we are able to have appropriated from the City and County of Honolulu will help take us to the next stage. And I am hoping to come out with a list of cost analysis of a community center, for when we have a commercial center and we have someone to manage it down the road. We are envisioning *kupuna*, you know, housing. But in this case we need the cost analysis and from there, we'd receive the permit to build."

Mina Elison [ME]: "When you were a child did you play in the area?"

MK: "Oh yes."

ME: "Were there any other structures in the area?"

MK: "Yes, well the place in particular, no, but right across of the river there were Camp Andrews, yeah. In this area we know they had some Hawaiian families living there. Where exactly, I don't know, but it was on this side ... [tape stops] But the project we'll be talking about is in this area. So I lived there, that was my parachute (?) that's where I got my basic training for combat, how to fight— bush combat, so when I went to Vietnam and when I went to basic training, I already had the feel for it."

ME: "Right on that property?"

MK: "All this property, in fact the army was the real, we used to— our mission was to go over there and steal all their rations, without getting caught. We would come in through the bushes in the back."

ME: "So you knew that families that used to live there, did you know of any structures that used to be there?"

MK: "No, I didn't."

ME: Do you know of any particular legends or history?

MK: "Not in that area per se, but I know there were a lot of legends like where my house is on third road, that on *Pukane* (?) night, that the marchers used to march right through my house, right through my yard. My sister used to see things and I used to hear them, it was really, really strange... I used to hear some nice slack key songs and I used to hear them talking, chanting and stuff and my sister would get all strange. But now we haven't had anything. But that's about all that I know. I know the legend from Kupuna Hanakahi, in fact his mom is in a lot of the books that they, you know people that interview you. They had the only taro patches in Nānākuli right across the street from my house. That's how I learned a lot of the, not only the *lā'au lapa'au* but also the *mahi'ai*. They did talk about--we got six roads yeah, and each of the roads the first five roads are all women's names, and then the sixth road is Pililā'au. And basically the uncle was saying that this was a place that was ruled by women and Pililā'au was the chief and that was his five wives. The women would go out to fight battles, that's what was said to us, that this was an awesome place, the women were very awesome. But of course Nānākuli means "to look at the knees" because the water is so scarce and the main water line is way up in the hill, the source. So when the people worked so hard to get the water that they weren't hospitable when people and strangers came and passed by. They would ask for water but you know it was precedent, hard work to get it. So they would just act like they don't know, they deaf, the *pepeiao kuli*, so they are looking at the knee. But it was really interesting because there's another *kupuna* that runs the Nānākuli Museum on Nānākapono. Her name is Mrs. Kapaku, she tells a story of this place called Nanaku'ulei. I can't verify it because the *kupuna* that I talked to never heard of that story, but she is now the *kupuna* and she tells about that. But um, other than sites and stuff in that particular area I don't know of any ... "

ME: "So, do you think the proposed construction would physically affect a place of cultural or traditional importance?"

MK: "Well that's the reason why we want to build it, to preserve the culture. To have a place that is central to the community, so they can use it in building a healthy community. Each community, it's not just developing houses it's developing the community in itself. And it needs a focal place where they can meet, gather, discuss problems, discuss goodness, and plan for the future. So that's what we are hoping to build a legacy here."

Section 5.2: Mr. Kamaki Kanahele

Growing up in Nānākuli, Mr. Kanahele has fond memories of diving, fishing, working in the taro patches and playing at the current subject property (formerly Camp Andrews) and was able to share some of his knowledge and *mana'o* regarding Nānākuli Ahupua'a and Wai'anae District. As a "community activist" and practicing *kahu*, Mr. Kanahele's serves as a leader in various community and state-wide organizations, committees and associations: the President of the Hawaiian Homestead Community Association, Director of the Native Hawaiian Traditional Healing Center of Wai'anae, and State Counselor of the Hawaiian Homestead Association.

With most of his life being "immersed in Hawaiian culture", Mr. Kanahele was able to learn from his mother and grandparents who were Hawaiian practitioners and traditional healers. From them, he is knowledgeable in the area of ancient healing arts including herbs, prayer, spirituality and *ho'oponopono*. He discussed the Nānākuli Valley being known for its herbalists, specifically the Honolulu-side if the Valley where the herbs grew "better" and mentioned that many chants describe this herb.

While most of his family was from Nānākuli, his mother, originally from Honolulu, was awarded a Hawaiian Homestead lot in the early 1950's. Mr. Kanahele recalled his geographical association with the subject property: jumping and playing in the large sinkholes, which would frequently be flooded with water, attending Nānāikapono Elementary School, which was located in military barracks in the 1950's, and the sixth-grade prom which all took place at Camp Andrews. He said that he knew the subject property very well because it was their "playground" and stated that they knew where there were some sites and bones and remembers one evening the bones "disappeared" and he suggested that the elders may have "taken care" of the bones. He also remembered making trips to a big tent at the park in Nānākuli to get fresh water. Growing up within the homestead community, Mr. Kanahele describe the close-knit Hawaiian families of which everyone took care of each-other and their children. According to Mr. Kanahele, " ... nobody worried because everybody knew where their children were at, at all times ... " In favor of the proposed construction, Mr. Kanahele hopes to revitalize this sense of community in Nānākuli.

Mr. Kanahele expressed that because he knew the area so well, the proposed construction would not have an affect on any traditional or cultural place of importance and would not affect the access to places of the like. He mentioned that military occupation of Camp Andrews had most likely destroyed any structures that may have existed.

Interview with Mr. Kamaki Kanahele

Name: Kamaki Awa Kanahele, III
Address: 22-9237 Kauwahi Ave.
Birthdate: January 14, 1945
Birthplace: Honolulu
Ethnicity: Hawaiian

Mina Elison [ME]: "Can you describe your historical association with Nanakuli and the Camp Andrews area near the proposed community center?"

Kamaki Kanahele [KK]: "About all of my life here ... Nānāikapono Elementary School, graduated from there and then went to Wai'anae High School. Camp Andrews I know very well. When I was in sixth grade that was where our prom was. And there was a building called the American Legion Hall. This entire site was all military, and half of Nānāikapono School was military barracks and tent barracks, and that was our classrooms, for elementary school in the early Fifties. And then, um, I knew Camp Andrews very well because they had a lot of sinkholes that many of us played in, in this whole area. And we knew it very well only because this was our playground. And we knew where there were some sites where there were bones and ------ with each other. We didn't know that they were ancient buried bones. And the state Burial Council is aware of that, so is our community. And of course when the state burial council directed that the bones be taken care of. I –and then one evening all of the bones disappeared. Which means the elders maybe decided to *malama* the bones and take care of it. And nobody knows who did it and nobody knows where to search for them and they are no longer there. And with that, the sink holes were filled and Nānāikapono Elementary school was built this side, and most of the sink holes were on that side."

ME: "So the bones were on the Camp Andrews site?"

KK: "Yes, probably because of the number of the Kona (?) side is mostly rock. And those sink holes were natural, coral, some of them went down about six feet, some four feet, some eight feet and the bottom was all sand. So we used to be able to jump right in and play and then climb out."

ME: "And your family is from Nanakuli?"

KK: "Most of my family is from Nānākuli, and my mother is from Honolulu. But she came out here in the early fifties and she got the award, Hawaiian Homestead lot. And so we were already down there."

ME: "And your father?"

KK: "He passed away long ago ... And I am still a community activist and I will continue to be here all my life. I've been the President of this association for sixteen years, and I am also founder of the state's largest Hawaiian Homestead Association, State Counselor of the Hawaiian Homestead Association, which began right here."

ME: "Do you know of any particular history or legends associated with Nānākuli?"

KK: "The Waikiki/Honolulu side of Nānākuli Valley is that side was pretty famous for its herbalists. Simply because when the sun rises, the sun rises on that side, so the herb seems to grow on that side better. And there were several chants that described the herb and the area out there. On this side of the valley where the sun hit it became drier. The archaeological survey that was done sixteen years ago cited an ancient village foundation up *mauka* side. So they completed the archaeological study up there, and published it, and I was part of that group that went up to, uh, because we had played there all our lives. Most of the valley here was very dry, no water. And as children we drank brackish water and we came down here to the park where they had a big tent, and got fresh water from the big tank."

ME: "Can you describe how you have obtained knowledge of this place?"

KK: "Parents, grandparents, and the old people that lived around here, I knew them all. Nānākuli Valley was all homesteaders, the rule was everybody takes care of each other's children. So you never went anywhere unless somebody knew where you were, what you were doing. Everybody was taking care of one another— feed them, even bathe [at] their house, sleep at their house— you could leave your house and nobody worried because everybody knew where their children were at, at all times, even if the valley was big, it was the rule. Unfortunately they don't do that. And then as kids we played not only here in Nānākuli but the whole Wai'anae coast was our playground. We would dive at Ka'ena Point, and then we would go taro— cleaning taro up in Wai'anae Valley. We'd lay our fishnets out here in Nānākuli. And we knew everybody, and everybody knew us. And my mother who is managing this building has been the head of Wai'anae Coast Culture and Arts Society for forty-one years. Most of my life has been immersed in Hawaiian culture. My mother and grandparents were practitioners and traditional healers. And I am the director of the Native Hawaiian Traditional Healing Center at the Wai'anae Coast Health Center. Only because of my knowledge of ancient healing arts, herbal, prayer, spiritual, *ho'oponopono*. So I just inherited all of my parents knowledge."

ME: "Do you think the proposed construction would physically alter a place of cultural or traditional importance?"

KK: "No, not really. And I'll tell you why, because I know every inch of that ground. And since we were kids, all of us can say that there would be nothing there that would be of significance, that we would worry about the community first. And if there were, we wouldn't even build it there. The community would not allow it, the elders would not allow it and neither would I. And as president of this Board, we would not allow that. So we are comfortable with using Camp Andrews for what ever we need to. The only thing about Camp Andrews was that it was always, always flooded. Every time there was rain, this was the lower part of the Valley, the *uwi*, the water would run down here and almost bury Camp Andrews underwater. All of the sinkholes and everything were always underwater. We knew where they were so we would swim out and then dive right into the sinkholes. And then run across to the ocean and dive into the ocean because we were dirty. We knew the

mauka side and we knew the *makai* side and all about the local divers. We knew how to fish and we knew how to eat from the mountain and climb. Because we had no hospitals here our parents knew about herbs and healing."

ME: "Would the proposed construction affect access to any place of cultural or traditional importance?"

KK: "No"

ME: "Do you have anything else to add?"

KK: "No, not really. Camp Andrews, there's not much there. It was always there when the military was there. Most of the things that may have been there pre-military are probably destroyed. Because all of those were military buildings and they dug everything up and buried everything and some of the sinkholes were used for their garbage."

Section 6: Summary and Recommendations

Summary

From the traditional accounts of the Nānākuli area, it can be seen that the area contains a rich background, with a Hawaiian settlement located along the Wai'anae coast.

During the course of interviewing ethnographic consultants, information regarding areas of cultural and traditional importance in the vicinity of the project area and in Nānākuli Ahupua'a was obtained from two Hawaiian individuals. Both informants were raised in Nānākuli and also active members of the community and knowledgeable of the Wai'anae coast. Mr. Michael Kahikina's discourse related primarily to his historical and geographical association with Nānākuli and the subject property which was formerly used by the military (Camp Andrews) where he trained for combat in the 1960's. When asked if the proposed construction would affect a place of traditional importance, Mr. Kahikina expressed that the community center would succeed in preserving the culture by "building a healthy community" and developing a place where people could gather, discuss various issues and plan for the future.

Mr. Kamaki Kanahele offered valuable information concerning the Wai'anae coast, Nānākuli Ahupua'a and Hawaiian culture. While most of his family was from Nānākuli, his mother, originally from Honolulu, was awarded a Hawaiian Homestead lot in the early 1950's. Mr. Kanahele recalls his geographical association with the subject property: jumping and playing in the large sinkholes, which would frequently be flooded with water, attending Nānāikapono Elementary School, which was located in military barracks in the 1950's, and the sixth-grade prom which all took place at Camp Andrews. Mr. Kanahele expressed that because he knew the area so well, the proposed construction would not have an affect on any traditional or cultural place of importance and would not affect the access to places of the like. He mentioned that military occupation of Camp Andrews had most likely destroyed any structures that may have existed.

Recommendations and Conclusions

Raised in Nānākuli and active leaders of the community, Mr. Kahikina and Mr. Kanahele are knowledgeable of the subject area which was used, and subsequently altered from its original state, by the military. Because of this, Mr. Kahikina and Mr. Kanahele are confident that neither sites of traditional or cultural importance nor access to these types of sites would be affected by the proposed construction activities. Both informants support the proposed construction on the subject property which was formerly Camp Andrews as a community center which would be utilized as a gathering and meeting place in order to "build a healthy community".

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URS

Report
Phase I Environmental
Site Assessment
Tax Map Key: 1-8-9-002:001 and 064
16 – Acre Vacant Lot
Waianae, Oahu, Hawaii
Nanakuli Kokua Ohana Center

Job Number 92-00100048.00
December 31, 2001

URS

December 31, 2001

Mr. Kali Watson
Nanakuli Kokua Ohana Center
Century Center, Suite 907
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Honolulu, HI 96813

Subject: Report, Phase I Environmental Site Assessment
16 – Acre Vacant Lot
TMK 1-8-9-002: 001
Waianae, Oahu, Hawaii
92-00100048.00

Dear Mr. Watson:

URS Corporation is pleased to submit this report on the Phase I Environmental Site Assessment (ESA) conducted for the Nanakuli Kokua Ohana Center. The ESA was conducted on the 16 – Acre Vacant Lot located at Nanakuli, Oahu, Hawaii, TMK 1-8-9-002: 001 and 064.

URS is please to have assisted the Nanakuli Kokua Ohana Center with this project. If you have any comments or require additional information, please do not hesitate to contact us.

Very truly yours,
URS Corporation

Watson Tanji
Environmental Scientist

Carol Mitsuyasu
Manager of Geosciences

Attachment

URS Corporation
615 Piikoi Street, Suite 900
Honolulu, HI 96814-3141
Tel: 808.593.1116
Fax: 808.593.1198

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SECTION ONE Introduction

1.1 PURPOSE

The purpose of this Phase I Environmental Site Assessment (ESA) is to identify the potential current presence of recognized environmental conditions at the site, including potential impacts from known releases in the surrounding area. The term "recognized environmental conditions (RECs)," as defined by ASTM Designation E 1527-00, means:

> the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the property or into the ground, ground water, or surface water of the property. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimus* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. Conditions determined to be *de minimis* are not recognized environmental conditions.

This ESA was performed according to the recommended guidelines established by ASTM Designation E 1527-00, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process." For the purpose of this report, hazardous substances and petroleum products are jointly referred to as "hazardous materials." The extent of research to identify recognized environmental conditions is limited by the scope of services.

1.2 SCOPE-OF-SERVICES

The scope of work for this ESA was outlined in URS Corporation's (URS) Proposal of October 5, 2001, and authorized by a signed Agreement for Professional Services received October 10, 2001. URS performed the following work:

1. Requested to review documents provided by the Nanakuli Ohana Kokua Center. No documents were available. However, URS performed a limited title and building permit search, records of which are provided in Appendix A.
2. Contracted with Environmental Data Resources, Inc. (EDR) to conduct a regulatory database search of known underground storage tanks (USTs); landfills; hazardous waste generation or treatment, storage, and disposal facilities; and subsurface contamination in the surrounding area within 1 mile of the approximate center of the site. The EDR report is included as Appendix B.
3. Requested to review available State of Hawaii Department of Health (DOH) hazardous materials files on the subject site. No files were available. A copy of the correspondence is included in Appendix C.

4. Reviewed geologic maps and literature on file in our office for information on the physical and hydrogeologic settings of the site.
5. Researched site history by (a) reviewing a chronology of selected aerial photographs covering the site and adjacent area available at R.M. Towill Corporation on October 25, 2001; and (b) contracting with EDR to research the availability of Sanborn Fire Insurance (SFI) maps of the site and vicinity. No SFI maps were available. A copy of the correspondence is included in Appendix D.
6. Performed a site reconnaissance for visual indications of recognized environmental conditions such as current hazardous materials storage or use; unusually stained soils, slabs, and pavements; drains, sumps, drums, tanks, and electrical transformers; stressed vegetation; and discarded hazardous materials containers. Select photographs taken on the day of the site reconnaissance on December 6, 2001 are included in Appendix E.
7. Interviewed Mr. Kali Watson, Project Director, and Mr. Myron Brumaghim, Vice-President of the Nanakuli Kokua Ohana Center (and Principal of Nanaikapono School), to inquire about past and present uses of the site.
8. Evaluated the information collected and prepared this report summarizing our findings, opinions, and conclusions.

1.3 SIGNIFICANT ASSUMPTIONS

No significant assumptions apply to this ESA.

2.1 LOCATION AND LEGAL DESCRIPTION

The site is located at 89-102 Farrington Highway, in Waianae, on the southwest part of the island of Oahu, Hawaii (the property, site) (Figure 1). The site is owned by the State of Hawaii Department of Hawaiian Homelands (DHHL), and is known as City and County of Honolulu (CCH), Real Property Assessment Division's (RPAD) Tax Map Key (TMK) Numbers 1-8-9-002:001 (Parcel 001) and 064 (Parcel 064). The property currently occupies approximately 16.02 acres. The northern portion of the property is divided by a drainage ditch that is aligned in the east-west direction.

2.2 SITE AND VICINITY GENERAL CHARACTERISTICS

The general vicinity in the area is a suburban community, consisting primarily of residential neighborhoods along the north side of Farrington Highway, and schools, stores, and beach parks along the south side of the highway.

2.3 CURRENT SITE USE AND SITE IMPROVEMENTS

The property is zoned for residential use. The majority of the property (16.02 acres) consists of Parcel 001, which is currently undeveloped (Figure 2) and mostly vegetated with shrubs and trees. The southern and eastern boundaries are fenced. However, the fence on the southeastern side is broken and has an opening large enough that the general public can potentially enter and drive onto the property. Parcel 001 is littered with trash and debris throughout the site with a few concentrated piles. Site improvements on Parcel 064 (located at the southern corner of the property) include a one-story building, leased to the Honolulu Community Action Program.

2.4 ENVIRONMENTAL SETTING

2.4.1 Site Topography

The property is located on the Schofield Barracks, Hawaii, 7.5-minute topographic quadrangle (U.S. Geological Survey, 1983). Elevations on the site range from about 5 feet above mean sea level (MSL) at the southwest side to 25 feet MSL at the northeast side. The site slopes to the southwest. A drainage channel flows along the property's northwest boundary, toward Nanakuli Beach Park and the Pacific Ocean, approximately 600 feet away. No surface water bodies are on the site.

2.4.2 Regional Geology and Hydrogeology

Soil underlying most of the project site is classified as Coral Outcrop (CR) by the Soil Conservation Service (SCS, 1972 and EDR, 2001). CR consists of coral or cemented calcareous sand, formed in shallow ocean water during the time the ocean stand was at a higher level. Soil underlying the southeast border and northwest corner of the project site is classified as Mamala stony silty clay loam, 0 to 12 percent slopes (MnC), usually not exceeding 6 percent. Stones, mostly coral rock fragments, are common in the surface layer and in the profile. A representative profile includes: dark reddish-brown stony silty clay loam surface layer approximately 8 inches thick; dark reddish-brown silty clay loam subsoil approximately 11 inches thick; and coral limestone and consolidated calcareous sand at depths of 8 to 20 inches. The soil is neutral to mildly alkaline. Permeability is moderate. Runoff is very slow to medium, and the erosion hazard is slight to moderate. Annual rainfall is approximately 18 to 40 inches (SCS, 1972).

As established by the DOH, the underground injection control (UIC) distinguishes areas DOH considers suitable for injection well installation. The groundwater oceanward of the UIC line generally has a high salinity concentration. Subject to agency approval, injection wells are permitted in these areas. The UIC line in this portion of Oahu runs approximately along the 200-foot elevation line. As stated previously, the property is approximately 5 to 25 feet above MSL. Therefore, the property is located below the UIC line, and groundwater under the property is considered suitable for injection well installation, and unsuitable for drinking water purposes (Uehara, 2001).

The DOH Solid and Hazardous Waste Branch (SHWB) has issued guidelines for response to hazardous material releases to the environment. The location of a release site relative to the UIC line, the Mink and Lau (1990) assessment of the aquifer, and the estimated annual rainfall are used to determine the stringency of chemical cleanup criteria applicable in remediating a release. Cleanup guidelines are predictably more stringent in areas where the release would threaten valued drinking water sources.

There are two aquifers identified in the vicinity of the property. The uppermost aquifer is classified as the Oahu Waianae Nanakuli basal (freshwater in contact with seawater), unconfined and sedimentary (non-volcanic lithology) aquifer. The deeper aquifer is classified as basal, confined and diked (aquifers in dike compartments). Neither aquifer is valued as drinking water source or an ecological resource. The uppermost aquifer is considered to be replaceable, and to have a high vulnerability to contamination. The lower aquifer is considered to be replaceable, and have a low vulnerability to contamination. The salinity of both aquifers is considered to be

high, between 5,000 and 15,000 milligrams per liter (mg/L) chloride concentrations (Mink and Lau, 1990).

EDR reported four Federal United States Geological Survey (USGS) wells located approximately ½ to 1 mile away from the project site. One well is located down-gradient of the project site and is a 30-foot deep, unused, single well built in 1962. However, the other three are located upgradient, and are described as follows: 1) a 61-foot deep, unused, single well built in 1949; 2) a 154-foot deep, unused, single well built in 1952; and 3) a 200-foot deep, irrigation well built in 1990. No other data on these wells was provided by EDR.

2.5 CURRENT ADJOINING PROPERTY USES

The property is bound by vacant, undeveloped land to the north-northwest, Farrington Highway to the southwest, the Honolulu Community Action Program to the south, and residential housing to the northeast and southeast. The State of Hawaii Department of Education's Nanaikapono Elementary School is located south of Farrington Highway.

The ASTM Practice suggests the ESA User/Client (Nanakuli Kokua Ohana Center) provide documents to the ESA preparer (URS). No documents were provided by the client. However, they did inform URS that the site will be used for: 1) a commercial retail center; 2) office buildings for State agencies (e.g., Office of Hawaiian Affairs); and 3) the Boys and Girls Club of America facilities.

3.1 TITLE RECORDS

The Client did not provide title records. However, URS reviewed the records for the site, prepared by the CCH, RPAD on October 23, 2001 (Appendix A). The records for Parcel 001 indicate the property was first developed in 1960 as a U.S. military reservation called Camp Andrews. The property was then transferred to the State of Hawaii in early 1963. In 1965, a portion of the parcel was set aside for Nanakuli High School, to be controlled by the State Department of Education (DOE). It was later determined in 1969 that the school did not require a portion of the site. The State DHHL was recently given ownership of the property in September 2001.

Parcel 064 was formerly part of Parcel 001, but was subdivided in 1992. It appears that a building, approximately 20,000 square feet in size and utilized by the Honolulu Community Action Program/Nanakuli Headstart Program as a classroom facility and fenced playground, was constructed in 1975 on this portion of the site.

3.2 BUILDING PERMITS

The Client did not provide building permit records. However, URS obtained the records for the site, prepared by the CCH, RPAD on October 23, 2001 (Appendix A). The records indicate 12 portables and one classroom were constructed on Parcel 001 sometime after June 1972 for the State of Hawaii, Nanakuli Intermediate and High Schools, respectively. Sometime after July 1974, a 980-square foot classroom was constructed on the property.

3.3 ENVIRONMENTAL LIENS, USE LIMITATIONS, OR VALUATION REDUCTION

The client stated they have no knowledge of valuation reduction associated with the site, past environmental issues regarding the site, or any use limitations affecting the site.

4.1 REGULATORY RECORDS

4.1.1 Regulatory Database Search Report

A regulatory database report was obtained from EDR for the property, in accordance with the ASTM recommended guidelines, and is included in this ESA as Appendix B. The EDR report presents the results of a search of federal or State databases, including a description of each database, the addresses of sites of known USTs; landfills; hazardous waste generation or treatment, storage and disposal facilities; and subsurface contamination in the surrounding area up to within 1 mile of the approximate center of the site, and a figure showing the search radii for the databases searched.

The objective of the database report review is to identify if the property of interest is included on one or more of the databases and if properties in the vicinity have known and documented environmental problems that may impact the subject site. URS' criteria for considering a listed facility to be a potential concern include the following:

1. The facility is listed on one or more of the databases of reported hazardous materials releases (Federal NPL, Federal CORRACTS, Federal CERCLIS, State SPL, State SCL, State LUST, State Deed Restrictions, and State Toxic Pits), is located potentially upgradient of the subject site, and is not listed in the database as "closed" or "no further action" (including NFRAP).
2. The facility is listed as a solid waste landfill and located potentially upgradient of the subject site (not including transfer stations).
3. The facility adjoins the subject site and is listed as a RCRA large-quantity hazardous waste generator, a CERCLIS NFRAP site, or an UST operator.

No facilities, as reported by EDR met these criteria.

4.1.2 Health Department Records

On October 24, 2001, URS requested DOH Environmental Planning Office records for 89-102 Farrington Highway, Waianae, Hawaii 96792, and was notified via letter dated November 1, 2001 (Appendix C) that DOH records were not available for this address.

URS also searched the following online DOH databases. The subject property was not found on any of these databases:

- Release Notifications – releases of hazardous substances to the environment reported to HEER since 1988;

- HEPCRA Facilities – facilities that have submitted Tier II and Form Rs as a reporting requirement to the Hawaii Emergency Planning and Community Right-to-Know Act (HRS 128E);
- Sites – facilities, sites, or areas in which HEER has an interest, has investigated, or may investigate under HRS 128D (includes CERCLIS sites);
- HEER Database – includes data on all three sets listed above;
- CERCLIS Sites – list of potential hazardous waste sites which are being or have been evaluated using the EPA's Hazard Ranking System;
- USTs – list of underground storage tanks;
- LUSTs – list of leaking underground storage tanks; and
- Wells – list of wells.

4.2 SITE HISTORICAL USE INFORMATION

Identification of historical uses of the property and adjoining properties was accomplished by reviewing readily available material, including historical aerial photographs as described below. SFI maps were not available for the project site; correspondence from EDR stating "no coverage" is included as Appendix D.

4.2.1 Aerial Photographs

URS reviewed aerial photographs of the site and vicinity available at R.M. Towill Corporation on October 25, 2001. The photographs reviewed were those from the years 1949, 1966, 1970, 1974, 1977, 1988, 1999, 1992, and 1997. They were reviewed for evidence of previous development and use of the subject property that could have resulted in hazardous substance storage or use at or near the subject property.

In the 1949 photograph, the southern area of the site is cleared with no development and minor vegetation along the borders of the site. Seven concrete pads are located on the cleared area with a building on the northeastern concrete pad. One large structure is located at the western edge of the site, adjacent to Farrington Highway. Sparse residential housing surrounds the site to the north, south, and west. Pua and Lepeka Avenues are present to the south of the site with Quonset huts scattered in the area. Long rectangular buildings and small square structures are located south of Farrington Highway.

In the 1966 photograph, the site is not visible. The area near Pua and Lepeka Avenues show increased development.

In the 1970 photograph, the concrete pads are no longer present. The portable classrooms for Nanakuli Intermediate/High Schools discussed in Section 3.2 appear present in the southern corner of the site. There is an increase in residential housing surrounding the site. The large building located at the western edge of the site in the 1949 photgraph, adjacent to Farrington Highway is no longer present. Nanaikapono Elementary School is present to the south across Farrington Highway.

In the 1974 photograph, one structure is present on site. Some of the residential area off of Pua Avenue has been cleared.

In the 1977 photograph, no significant changes from the 1974 photograph are observed on the subject property or adjoining properties.

In the 1988 photograph, a drainage channel is aligned along the northwestern boundary of the site. The southern corner of the site adjacent to Farrington Highway is paved and parked cars are present. The northern corner of the west adjacent forested area is cleared.

In the 1992 photograph, no significant changes from the 1988 photograph are observed on the subject property. Haleakala Avenue is present to the west.

In the 1997 photograph, no significant changes from the 1992 photograph are observed on the subject property or adjoining properties.

No RECs were identified in the historical photographs. No debris piles (described in Section Five) were discernable in the historical photographs.

4.2.2 Fire Insurance Maps

URS contracted with EDR to research the availability of fire insurance maps of the site and vicinity. No maps were available in the Sanborn Fire Insurance Map archives (see correspondence letter in Appendix D). Typically, fire insurance maps were produced only for urban areas and industrial facilities.

5.1 METHODOLOGY AND LIMITING CONDITIONS

Prior to performing the site reconnaissance, URS personnel obtained a limited right-of-entry permit from the State DHHL, valid for December 6 and 7, 2001 (DHHL, 2001). Special conditions of the permit required URS to: 1) remove all equipment and litter brought onto the property or caused by URS activities; 2) indemnify the Stated from any liability resulting from URS activities on the property; 3) exercise caution in not disturbing archaeological sites while on the property; and 4) not perform construction of any kind.

In response to the third requirement, URS contacted the archaeological consultant hired by the Nanakuli Ohana Kokua Center for a map showing the locations of possible cultural features at the site. Mr. Joe Kennedy of Archaeological Consultants of the Pacific (ACP) provided a map via facsimile that showed a total of nine sinkholes, generally located at the northern portion of the site (Figure 3). Formal results of the archaeological survey can be obtained directly from ACP.

URS personnel, Ms. Bernice Pabingwit and Mr. Watson Tanji, conducted an unescorted site reconnaissance on December 6, 2001. Copies of select photographs taken during the reconnaissance are included in Appendix E. The observations are described in present tense; however, conditions may have changed since the time of the site visit.

The reconnaissance of the perimeter and interior of the site was conducted by vehicle and on foot. The property is large and it was impractical to walk the entire property; therefore, the reconnaissance was limited to the perimeter and six interior transects. The ground surface was uneven, and heavy vegetation (e.g., trees) and large debris piles interfered with ground surface viewing in four areas of the property.

5.2 OBSERVATIONS

The site is comprised of two contiguous TMK Parcels 001 and 064 (Figure 2). Parcel 001 is an irregularly shaped property that is bounded on the south-southwest by Farrington Highway and Parcel 064. The northern portion of the parcel is dissected by the Nanakuli Flood Control Project Drainage Ditch. This ditch is the northern most boundary for the majority of the parcel. Residential (single-family) land use is on the northeastern and southeastern boundary of Parcel 001.

Parcel 064 is bounded to the northeast and northwest by a fence separating Parcel 064 and Parcel 001. Residential land use borders Parcel 064 to the southeast and Farrington Highway is the southwest boundary.

The property is undeveloped, relatively level, and readily accessible from Farrington Highway. There is a dirt and gravel road on Parcel 001 that is aligned from the entrance on Farrington Highway, along the Nanakuli Flood Control Project Drainage Ditch. Kiawe trees and sparse vegetation covers most of the site.

Parcel 001 is currently vacant with no onsite activities present. The Nanakuli Flood Control Project Drainage Ditch, a concrete-lined feature, is aligned east to west through the northern portion of the site. No water was observed flowing through the ditch during the site reconnaissance and the bottom edges of the ditch contained sparse vegetation. Debris such as shopping carts, abandoned vehicles, appliances, tires, and remnants of a rusted, unlabeled 55-gallon drum were scattered throughout the drainage ditch. No stressed vegetation was observed in the vicinity of the debris. There are also two, shorter, natural ditches that are aligned east-west and parallel with Pua Avenue from east to west (Figure 3). The northern ditch was labeled ditch #1 and the southern ditch was labeled ditch #2. In ditch #1, three empty, rusted, unlabeled 55-gallon drums were found. In ditch #2, two empty, partially rusted, unlabeled 55-gallon drums were found.

Debris was scattered around the site, but appeared concentrated in seven centralized areas. The largest debris pile was located north of the Honolulu Community Action Program building. The concentrated debris areas included objects such as tires, car batteries, broken concrete slabs, refrigerators, scrap metal and wood, and water heaters. A few of the car batteries had the lead exposed with no visible dielectric fluid. No visible evidence of stains or stressed vegetation was observed in the vicinity of the debris. Eight rusted, unlabeled drums and some drum remnants were also found scattered around the site. The drums contained no liquid and some of the drum remnants seemed to be used as trash containers, planters, or for burning material. On the eastern edge of Parcel 001, along the Nanakuli Flood Control Project Ditch, a very small area (approximately 12 square feet) of burned ground was observed.

There were no structures observed on Parcel 001, however on the ambiguous southeast boundary, makeshift structures (e.g., horse pen, storage sheds, etc.) that were apparently constructed and utilized by nearby residents and observed. Squatters and trespassers were also seen on the property and were observed living in a concrete structure on the vacant property to the north of the Nanakuli Flood Control Project Drainage Ditch.

There is no potable water supply or sewage disposal system on Parcel 001. No ASTs, USTs, vent pipes, fill pipes, or UST access ways were observed on Parcels 001 and 064. No unusual odors were observed at the time of the site reconnaissance. No standing surface water, pools, pits, sumps, lagoons, stained soil or pavement were observed. The vegetation appeared

uniformly stressed likely due to lack of rain. Fill areas or graded areas; wastewater discharges, or wells were not observed. No functioning electrical or hydraulic equipment was observed on the subject property; however, these types of equipment may have been buried within any of the various debris piles and would not have been observed.

5.3 ADJACENT PROPERTIES

Farrington Highway borders the property to the southwest side. South of Farrington Highway is Nanaikapono Elementary School (Figure 2). The structures located to the property's south side are part of the Honolulu Community Action Program. The northern boundary of the main portion of Parcel 001 is the Nanakuli Flood Control Project Drainage Ditch with a vacant, undeveloped lot north of the ditch.

Residential housing borders the northeastern, and eastern edges of the property. Most of the houses appear to be occupied. There appeared to be an abandoned house and what appeared to be a chicken coop to the northeast of the property.

6.1 CLIENT REPRESENTATIVE

URS interviewed Mr. Kali Watson, Project Director, of the Nanakuli Kokua Ohana Center by telephone on October 23, 2001. URS requested copies of available environmental investigations and previous/current tenants at the project site. He referred URS to Mr. Myron Brumaghim, Vice-President of the Nanakuli Kokua Ohana Center and Principal of the Nanaikapono Elementary School, as the one who would be most knowledgeable on these subjects.

On October 24, 2001, URS contacted Mr. Brumaghim, who stated that he had no knowledge of any previous environmental investigations. He also stated that the project site was vacant, undeveloped, with no tenants.

6.2 REGULATORY AGENCY REPRESENTATIVE

On October 24, 2001, URS requested DOH records for 89-102 Farrington Highway, Waianae, Hawaii 96792, and was notified via telephone conversation on November 1, 2001 and later via letter dated November 1, 2001 (Appendix C) that DOH records were not available for this address (see Section 4.1.2.).

URS has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-00 of 89-102 Farrington Highway, in Waianae, on the southwest part of the island of Oahu, Hawaii, the site. Any exceptions to, or deletions from, this practice are described in the Limitations and Exceptions section of this report.

URS did not find direct evidence of soil or groundwater impacts at the site; however some potential RECs were identified. The following summarizes known or suspect environmental conditions associated with the site, which may include RECs, historical RECs and *de minimis* conditions:

- Unsecured property boundaries, allowing ease of access by the general public to potentially enter and dispose of solid waste. Large quantities of trash and debris were observed throughout the entire property, including, but not limited to, tires, batteries, drums, vehicles, appliances, equipment, metal, concrete slabs, wood. No evidence of significant staining was observed on the soil and there was no evidence of buried solid waste. There is no record of materials that may have been discarded and subsequently removed. Unauthorized dumping of solid waste is a potential REC;
- Close proximity of the property adjacent to a drainage channel that discharges into the ocean less than a mile away. No hazardous materials were observed in the channel and the channel is concrete-lined but unsecured boundaries allow for potential future unauthorized dumping upstream that may impact the site; however no industrial uses were identified upstream; and
- Based on a conversation with Mr. Kennedy, the historical Camp Andrews, operated by the U.S. Army, included the property that is the subject of this report. It appeared from the aerial photographs reviewed by URS that the U.S. Army development (barracks-like structures) was adjacent to and not on the subject property. The inclusion of the property within historical military lands is an REC. It is possible that some fuel or hazardous substance storage occurred at the adjacent property, however quantities and storage locations could not be determined during the time requirements of this report. URS attempted to contact the U.S. Army Real Estate office in Hawaii and no response was received to date. Should they respond, URS will forward the information to Mr. Kali Watson, Project Director, of the Nanakuli Kokua Ohana Center. If no response is received, URS recommends additional interviews or document review to identify historical military uses of the property and adjacent lands.

Archaeological Consultants of the Pacific, Inc. 2001. *Draft archaeological features map.* December 6, 2001.

Archaeological Consultants of the Pacific, Inc. 2001. *Personal Communication: Telephone Interview with Mr. Joe Kennedy.* December 6, 2001.

American Society for Testing Materials, 2000. *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process: Designation E 1527-00,* 27p.

Brumaghim, Myron, 2001. Department of Education. *Personal Communication: Telephone Interview,* October 24, 2001.

City and County of Honolulu, Real Property Assessment Division, 2001. *Tax map 8-9-02; ownership history 8-9-02:001 and 064; and residential appraisal card 8-9-02:001.* Reviewed on October 23, 2001.

Department of Hawaiian Home Lands, 2001. *Limited Right-of-Entry Permit, provided by Mr. Noel Akamu.* November 30, 2001.

Environmental Data Resources, Inc., 2001. *The EDR Radius Map with Geocheck, Nanakuli Kokua Ohana Center Phase I ESA, 89-102 Farrington Highway, Waianae, Hawaii 96792.* October 25, 2001.

Mink, John F. and L. Stephen Lau, 1990. *Aquifer Identification and Classification for Oahu: Groundwater Protection Strategy for Hawai'i.* February 1990.

R.M. Towill Corporation. *Aerial Photographs: May 8, 1949, April 22, 1966, July 26, 1970, December 3, 1974, December 29, 1977, February 3, 1988, November 10, 1990, September 26, 1992, February 17, 1997.*

Uehara, Norris, State of Hawaii Department of Health, Safe Drinking Water Branch, 2001. *Personal Communication: Telephone Interview.* October 24, 2001.

U.S. Department of Agriculture, Soil Conservation Service, 1972. *Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii.*

U.S. Geological Survey, 1983. *7.5-minute Topographic Map of the Schofield Barracks Quadrangle, Hawaii: scale 1:24,000.*

Watson, Kali, Nanakuli Ohana Kokua Center, 2001. *Personal Communication: Telephone Interview.* October 23, 2001.

This report and the associated work have been provided in accordance with the principles and practices generally employed by the local environmental consulting profession. This is in lieu of all warranties, express or implied.

This ESA is not a regulatory compliance audit or an evaluation of the efficiency of the use of any hazardous materials at the site. No evaluation for the presence of asbestos-containing building materials, urea-formaldehyde foam insulation, lead-based paint, or other hazardous building materials; methane; radon gas; lead in drinking water; wetlands; cultural and historic resources; industrial hygiene and health and safety; ecological resources and endangered species; indoor air quality; or high voltage power lines is included in our assessment.

Our findings and opinions are based on information available from public sources on specific dates (historical photographs, maps, and regulatory agency files, lists, and databases); this information is changing continually and is frequently incomplete. Unless we have actual knowledge to the contrary, information obtained from interviews or provided to us by the Nanakuli Ohana Kokua Center has been assumed to be correct and complete. URS does not assume any liability for information that has been misrepresented to us or for items not visible, accessible or present on the site at the time of the site reconnaissance.

URS cannot warrant or guarantee that not finding indicators of hazardous materials means that hazardous materials do not exist on the site. There is no investigation that is thorough enough to preclude the presence of materials on the site that presently, or in the future, may be considered hazardous. Because regulatory evaluation criteria are constantly changing, concentrations of contaminants present and considered to be acceptable may, in the future, become subject to different regulatory standards and require remediation.

Where records indicate that prior remedial work or tank removals have occurred, there is a risk that the work may not have been performed correctly or completely. In these cases, if the regulatory agency has approved the closure of the tank or other work done, we have assumed that the work was done correctly and completely. Opinions and judgments expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions.

This report has been prepared for use solely by the Nanakuli Kokua Ohana Center. This report shall not be relied upon by or transferred to any other party, or used for any other purpose, without the express written authorization of URS.

10.1 CORPORATE

URS Corporation is a publicly held corporation listed on the New York and Pacific Stock Exchanges. URS provides professional planning, architectural and engineering design, and program and construction management services for infrastructure projects involving surface and air transportation, facilities, and water resources. In addition, URS offers a full range of environmental services, including environmental management, pollution control, natural resource management, and solid and hazardous waste management. Utilizing staff resources of 15,000 employees in a network of office worldwide, URS serves a variety of public sector clients at the local, municipal, state, and federal levels and private sector clients in the oil, petrochemical, natural gas, chemical, forest products, mining, power, and manufacturing industries.

10.2 INDIVIDUAL

The qualifications of the Project Manager and of the other Environmental Professionals involved in this Phase I ESA meet the URS corporate requirements for performing ESAs.

DETAILED ORPHAN LISTING

Site	Database(s)	EDR ID Number EPA ID Number
EARLE M. JORGENSEN (Continued)		S104657411

Site_ : Galvanizing Operation
Operator : Same as Owner
Current : Not reported
Compounds : Not reported
Oname : Earle M. Jorgensen Company 91-104 Kalaoa Blvd Ewa Beach, HI 96707 Craig Woods (808) 682-2026

HAWAII PROJECT MANAGEMENT
KAOMI LOOP ROAD
KAPOLEI, HI 96707

SHWS S104534181
N/A

SHWS:
File Section : Central
Type : Private
Department 1 : Campbell Industrial Park
Department 2 : Not reported
Department 3 : Not reported
Table : Sitelist
Island : Oahu
Zip : Not reported
Discovery Assesment and Remediation : Not reported
Initial Site Screening Team Lead : Not reported
ISST Assigned : Not reported
ISST Date : 12/21/94
ISST Priority : Low
ISST Letter : Not reported
Env Justice Eligible : Not reported
Preliminary Assesment : No
PA Lead : Not reported
PA Date : Not reported
PA Result : Not reported
Site Investigation : No
SI Lead : Not reported
SI Date : Not reported
SI Result : Not reported
Remediation Action Planned : Not reported
VRP : Not reported
Brownfields : Not reported
Agreement : Not reported
Remedial Investigation : Not reported
RAA : Not reported
Response Action Memo : Not reported
REM Lead : Not reported
REM Date : Not reported
REM Last Update : 01/09/95
Input By : MJM
Case : Not reported
Fed Id : Not reported
UST : Not reported
Permits : Not reported
RCRA : Not reported
Program : HEER
Priority : Low
Lat/Long : Not reported
Cost : Not reported
CU QNTY Site : Not reported
Enforcement : Not reported
CU Method : Not reported

Site	Database(s)	EDR ID Number EPA ID Number

HAWAII PROJECT MANAGEMENT (Continued) S104534181

Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

PEPPER INDUSTRIES INC. SHWS S104657495
91-294 KAUHI ST. N/A
KAPOLEI, HI 96706

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assessment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	3/11/96
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number

PEPPER INDUSTRIES INC. (Continued) S104657495

REM Last Update :	03/11/96
Input By :	MJM
Case :	Not reported
Fed Id :	HIT160010021
UST :	Not reported
Permits :	Oil Collector; #SW130128
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	21 18 35 / 158 06 00
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Private - land leased from Campbell Estates.
Tax Map Key :	9-1-32-27
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 10/01/80 PA1 02/01/86 PA2 11/02/88 SI1 09/12/90
Notes :	Not reported
Site :	Not reported
Site_ :	Transporter & temporary storer of hazardous waste. Also did waste oil collecting and industrial tank cleaning.
Operator :	Pepper Industries, Inc 91-294 Kauhi St, Ewa Beach, Hi 96706 R.N.Hart - Area Manager (808) 682-2431
Current :	Not reported
Compounds :	Not reported
Oname :	Estate of James Campbell 828 Fort Street, Suite 500 Honolulu, Hi 96813 Walter Yoshimitsu (808) 536-1961

LEEWARD AUTO WRECKERS, INC. SHWS S104657464
91-209 KUHELA ST. N/A
KAPOLEI, HI 96706

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assessment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	2/12/96
ISST Priority :	Medium
ISST Letter :	Not reported
Env Justice Eligible :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
LEEWARD AUTO WRECKERS, INC. (Continued)		S104557464
Preliminary Assesment : No		
PA Lead : Not reported		
PA Date : Not reported		
PA Result : Not reported		
Site Investigation : No		
SI Lead : Not reported		
SI Date : Not reported		
SI Result : Not reported		
Remediation Action Planned : Not reported		
VRP : Not reported		
Brownfields : Not reported		
Agreement : Not reported		
Remedial Investigation : Not reported		
RAA : Not reported		
Response Action Memo : Not reported		
REM Lead : Not reported		
REM Date : Not reported		
REM Last Update : 03/05/96		
Input By : MJM		
Case : Not reported		
Fed Id : HID980369656		
UST : Not reported		
Permits : Not reported		
RCRA : Not reported		
Program : Not reported		
Priority : Not reported		
Lat/Long : Not reported		
Cost : Not reported		
CU ONTY Site : Not reported		
Enforcement : Not reported		
CU Method : Not reported		
Ownership : Not reported		
Tax Map Key : Not reported		
Form : Tom/Tricia		
EPCRA : Not reported		
EPCRA FIL : Not reported		
Pathways : Not reported		
Targets : Not reported		
Manager : Not reported		
REM Result : Not reported		
Identifier : Not reported		
Site Code : Not reported		
Event : Not reported		
Event Type : DS1 08/19/91 PA1 01/13/93		
Notes : Not reported		
Site : Not reported		
Site_ : Not reported		
Operator : Not reported		
Current : Not reported		
Compounds : Not reported		
Oname : Not reported		

Site	Database(s)	EDR ID Number EPA ID Number
TEXACO MALAKOLE STREET PIPELINE EXC MALAKOLE ST KAPOLEI, HI 96707	SHWS	S104657515 N/A
SHWS:		
File Section : Central		
Type : Private		
Department 1 : Not reported		
Department 2 : Not reported		
Department 3 : Texaco Barbers Point Sales Terminal		
Table : Sitelist		
Island : Oahu		
Zip : Not reported		
Discovery Assesment and Remediation : Not reported		
Initial Site Screening Team Lead : Not reported		
ISST Assigned : Not reported		
ISST Date : 10/8/98		
ISST Priority : NFA		
ISST Letter : Not reported		
Env Justice Eligible : Not reported		
Preliminary Assesment : Yes		
PA Lead : Steve Okoji		
PA Date : 10/6/98		
PA Result : NFA		
Site Investigation : Not reported		
SI Lead : Not reported		
SI Date : Not reported		
SI Result : Not reported		
Remediation Action Planned : Not reported		
VRP : Not reported		
Brownfields : Not reported		
Agreement : Not reported		
Remedial Investigation : Not reported		
RAA : Not reported		
Response Action Memo : Not reported		
REM Lead : Not reported		
REM Date : Not reported		
REM Last Update : 10/9/98		
Input By : Marsha Graf		
Case : 19980710-1548		
Fed Id : Not reported		
UST : Not reported		
Permits : Not reported		
RCRA : Not reported		
Program : Not reported		
Priority : NFA		
Lat/Long : Not reported		
Cost : Not reported		
CU ONTY Site : Not reported		
Enforcement : Not reported		
CU Method : Not reported		
Ownership : Not reported		
Tax Map Key : Not reported		
Form : Not reported		
EPCRA : Not reported		
EPCRA FIL : Not reported		
Pathways : Not reported		
Targets : Not reported		
Manager : Not reported		

Site	Database(s)	EDR ID Number EPA ID Number

TEXACO MALAKOLE STREET PIPELINE EXC (Continued) S104657515

REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Part of Chevron Refinery Free Product Plume.
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Dname :	Not reported

MARISCO LTD
91 607 MALAKOLE RD
KAPOLEI, HI 96707

RCRIS-SQG 1000601535
FINDS HID984467712
SHWS

RCRIS:
Owner: FRED ANAWATI
(808) 682-1333
Contact: JOHN STEWART
(808) 682-1333
Record Date: 09/16/1996
Classification: Small Quantity Generator, Hazardous Waste Transporter
Used Oil Recyc: No

Violation Status: Violations exist

Regulation Violated:	Not reported
Area of Violation:	Generator-All Requirements
Date Violation Determined:	08/14/1996
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	Not reported

There are 1 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection (CEI)	Generator-All Requirements	

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)
Permit Compliance System (PCS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number

MARISCO LTD (Continued) 1000601535

ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	8/7/96
Input By :	Marsha Mealey
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Dname :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
DEEP DRAFT HARBOR PIER 5 CRUDE OIL **PIER 5 BARBORS POINT DEEP DRAFT HAR** **KAPOLEI, HI 96707**	SHWS	S104657409 N/A

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	7/4/97
Input By :	Marsha Graf
Case :	19970623-1516
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Amy Baylor

Site	Database(s)	EDR ID Number EPA ID Number
DEEP DRAFT HARBOR PIER 5 CRUDE OIL (Continued)		S104657409

REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

SINGLE BUOY MOORING BARBERS POINT H **SINGLE BUOY MOORING BARBERS POINT H** **KAPOLEI, HI 96707**	SHWS	S104657510 N/A

SHWS:

File Section :	Not reported
Type :	Private
Department 1 :	Tesoro
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	9/28/98
Input By :	Marsha Graf
Case :	19980824-2107
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported

Site	Database(s)	EDR ID Number / EPA ID Number
SINGLE BUOY MOORING BARBERS POINT H (Continued)		S104657510

Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Curtis Martin
REM Result :	Not reported
Identifier :	Not reported
Site Code :	EN
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

TOLEDO TWIN PINE DAIRY
85-443A WAIANAE RD
MAILE, HI 96792

SHWS 1000483130
N/A

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	4/4/96
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported

Site	Database(s)	EDR ID Number / EPA ID Number
TOLEDO TWIN PINE DAIRY (Continued)		1000483130

Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	12/01/93
Input By :	Adia/tom
Case :	Not reported
Fed Id :	HID984466029
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Private
Tax Map Key :	Not reported
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 06/07/90 PA1 04/22/91 PA2 05/08/91
Notes :	Not reported
Site :	Not reported
Site_ :	Dairy Farming & small scale agricultural activities.
Operator :	Same as Owner Fred Pereira - Equipment Supervisor (808)696-5505 or Pager#2882246
Current :	Not reported
Compounds :	Not reported
Oname :	Toledo Dairy 85-443A Waianae Road Michelle Toledo - Owner (808) 696-5505

UNOCAL SERVICE STATION, FORMER #524
84-1114 FARRINGTON HWY
MAKAHA, HI 96792

SHWS S104657527
N/A

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Unocal
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
UNOCAL SERVICE STATION, FORMER #524 (Continued)		S104657527

ISST Date :	Not reported
ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	9/21/98
Input By :	Sharon Leonida
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	UST #9-201478, TMK 6-4-13:2
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Cname :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
KAISER CEMENT CORP WAIANAE PLT LUALAULEI ACC RD E OF FARR HWY NANAKULI, HI 96792	CERC-NFRAP	1003879109 HID009109612

CERCLIS-NFRAP Classification Data:

Site Incident Category:	Not reported	Federal Facility:	Not a Federal Facility
Non NPL Code:	NFRAP		
Ownership Status:	Unknown	NPL Status:	Not on the NPL

CERCLIS-NFRAP Assessment History:

Assessment:	DISCOVERY	Completed:	06/01/1981
Assessment:	PRELIMINARY ASSESSMENT	Completed:	02/01/1985
Assessment:	PRELIMINARY ASSESSMENT	Completed:	05/04/1990
Assessment:	SITE INSPECTION	Completed:	03/29/1991

TOP OF THE TRIANGLE MAILI OAHU, HI 96792	SHWS	S104534393 N/A

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	3/11/96
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	03/11/96
Input By :	MJM
Case :	Not reported
Fed Id :	HID984466037
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number

TOP OF THE TRIANGLE (Continued) S104534393

Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 06/07/90 PA1 03/05/91
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

WAIANAE ARMY RECREATION CENTER UST U003541855
BLDG 230 N/A
WAIANAE, HI 96792

UST:

Facility ID:	9-202190	Tank ID:	R-230-1
Tank Status:	Permanently Out of Use		
Tank Capacity:	550	Installed:	Not reported
Date Closed:	09/10/1993	Substance:	Diesel
Owner:	U.S. ARMY ENGINEER DIVISION		

P & S SANITARY HAULING INC. SHWS S104534332
87-746 FARRINGTON HWY. N/A
WAIANAE, HI 96792

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assessment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	3/25/96
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No

Site	Database(s)	EDR ID Number EPA ID Number

P & S SANITARY HAULING INC. (Continued) S104534332

PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	Not reported
Input By :	Not reported
Case :	Not reported
Fed Id :	HI000629527
UST :	Not reported
Permits :	Solid Waste Permit: #SW-122114
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Private
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 02/01/80 PA1 09/01/84
Notes :	Not reported
Site :	Not reported
Site_ :	Waste oil collector & Transporter
Operator :	Same as Owner
Current :	Not reported
Compounds :	Not reported
Oname :	Frank and Maureen Pustka 87-746 Farrington Hwy Waianae, Hi 96792 Mr & Mrs Pustka - Owners (808) 668-2378

Date of Government Version: 07/26/01
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 08/06/01
Date of Next Scheduled EDR Contact: 11/05/01

FINDS: Facility Index System/Facility Identification Initiative Program Summary Report
Source: EPA
Telephone: N/A
Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 07/13/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 10/08/01
Date of Next Scheduled EDR Contact: 01/07/02

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4525
Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 03/31/01
Database Release Frequency: Annually

Date of Last EDR Contact: 07/23/01
Date of Next Scheduled EDR Contact: 10/22/01

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 05/29/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 10/08/01
Date of Next Scheduled EDR Contact: 01/07/02

MINES: Mines Master Index File
Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959

Date of Government Version: 08/01/98
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 10/01/01
Date of Next Scheduled EDR Contact: 12/31/01

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 08/21/01
Date of Next Scheduled EDR Contact: 11/19/01

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/30/01
Database Release Frequency: Annually

Date of Last EDR Contact: 08/13/01
Date of Next Scheduled EDR Contact: 11/12/01

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 08/13/01
Date of Next Scheduled EDR Contact: 12/10/01

TRIS: Toxic Chemical Release Inventory System
Source: EPA
Telephone: 202-260-1531
Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/98
Database Release Frequency: Annually

Date of Last EDR Contact: 09/24/01
Date of Next Scheduled EDR Contact: 12/24/01

TSCA: Toxic Substances Control Act
Source: EPA
Telephone: 202-260-1444
Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/98
Database Release Frequency: Every 4 Years

Date of Last EDR Contact: 09/12/01
Date of Next Scheduled EDR Contact: 12/10/01

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-564-2501
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/19/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/25/01
Date of Next Scheduled EDR Contact: 12/24/01

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
Source: EPA
Telephone: 202-564-2501

Date of Government Version: 07/19/01
Database Release Frequency: Quarterly

Date of Last EDR Contact: 09/25/01
Date of Next Scheduled EDR Contact: 12/24/01

STATE OF HAWAII ASTM STANDARD RECORDS

SWF/LF: Permitted Landfills in the State of Hawaii
Source: Department of Health
Telephone: 808-586-4245
Solid Waste Facilities/Landfill Sites. SWF/LF type records typically contain an inventory of solid waste disposal facilities or landfills in a particular state. Depending on the state, these may be active or inactive facilities or open dumps that failed to meet RCRA Subtitle D Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/03/99
Date Made Active at EDR: 05/25/99
Database Release Frequency: Annually

Date of Data Arrival at EDR: 05/10/99
Elapsed ASTM days: 15
Date of Last EDR Contact: 08/01/01

LUST: Leaking Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 07/01/01
Date Made Active at EDR: 08/27/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/14/01
Elapsed ASTM days: 13
Date of Last EDR Contact: 10/01/01

UST: Underground Storage Tank Database
Source: Department of Health
Telephone: 808-586-4228
Registered Underground Storage Tanks. UST's are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA) and must be registered with the state department responsible for administering the UST program. Available information varies by state program.

Date of Government Version: 07/01/01
Date Made Active at EDR: 08/27/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/14/01
Elapsed ASTM days: 13
Date of Last EDR Contact: 10/01/01

SHWS: Sites List
Source: Department of Health
Telephone: 808-586-4249
Facilities, sites or areas in which the Office of Hazard Evaluation and Emergency Response has an interest, has investigated or may investigate under HRS 128D (includes CERCLIS sites).

Date of Government Version: 03/16/01
Date Made Active at EDR: 04/30/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 03/26/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 10/09/01

EDR PROPRIETARY DATABASES

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

Disclaimer Provided by Real Property Scan, Inc.

The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

HISTORICAL AND OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Oil/Gas Pipelines/Electrical Transmission Lines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines and electrical transmission lines.

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1999 from the U.S. Fish and Wildlife Service.

GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NANAKULI KOKUA OHANA CENTER PHASE 1 EAS
89-102 FARRINGTON HWY
WAIANAE, HI 96792

TARGET PROPERTY COORDINATES

Latitude (North):	21.382080 - 21° 22' 55.5"
Longitude (West):	158.143021 - 158° 8' 34.9"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	588840.1
UTM Y (Meters):	2364537.5

EDR's GeoCheck Physical Setting Source Addendum has been developed to assist the environmental professional with the collection of physical setting source information in accordance with ASTM 1527-00, Section 7.2.3. Section 7.2.3 requires that a current USGS 7.5 Minute Topographic Map (or equivalent, such as the USGS Digital Elevation Model) be reviewed. It also requires that one or more additional physical setting sources be sought when (1) conditions have been identified in which hazardous substances or petroleum products are likely to migrate to or from the property, and (2) more information than is provided in the current USGS 7.5 Minute Topographic Map (or equivalent) is generally obtained, pursuant to local good commercial or customary practice, to assess the impact of migration of recognized environmental conditions in connection with the property. Such additional physical setting sources generally include information about the topographic, hydrologic, hydrogeologic, and geologic characteristics of a site, and wells in the area.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata. EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property: N/A
Source: USGS 7.5 min quad index

GENERAL TOPOGRAPHIC GRADIENT AT TARGET PROPERTY

Target Property: General SSW

Source: General Topographic Gradient has been determined from the USGS 1 Degree Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
HONOLULU, HI	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property:	1500010100C / CBPP
Additional Panels in search area:	Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
NOT AVAILABLE	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

AQUIFLOW®

Search Radius: 2.000 Miles.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

Era: -
System: -
Series: -
Code: Data not available (*Era, System & Series*)

GEOLOGIC AGE IDENTIFICATION

Category: -

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec. Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps. The following information is based on Soil Conservation Service STATSGO data.

Soil Component Name: MAMALA

Soil Surface Texture: stony - silty clay loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Well drained. Soils have intermediate water holding capacity. Depth to water table is more than 6 feet.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Soil does not meet the requirements for a hydric soil.

Corrosion Potential - Uncoated Steel: MODERATE

Depth to Bedrock Min: > 8 inches

Depth to Bedrock Max: > 20 inches

Soil Layer Information

	Boundary			Classification			
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil	Permeability Rate (In/hr)	Soil Reaction (pH)
1	0 inches	8 inches	stony - silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	Kaolinitic suffix for CL.	Max: 2.00 Min: 0.60	Max: 7.30 Min: 6.60
2	8 inches	19 inches	stony - silty clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200). Clayey Soils.	Kaolinitic suffix for CL.	Max: 2.00 Min: 0.60	Max: 7.80 Min: 7.40
3	19 inches	23 inches	unweathered bedrock	Not reported	Not reported	Max: 6.00 Min: 0.20	Max: 0.00 Min: 0.00

OTHER SOIL TYPES IN AREA

Based on Soil Conservation Service STATSGO data, the following additional subordinant soil types may appear within the general area of target property.

Soil Surface Textures: silty clay loam
silty clay
stony - silty clay

Surficial Soil Types: silty clay loam
silty clay
stony - silty clay

Shallow Soil Types: No Other Soil Types

Deeper Soil Types: silty clay
silty clay loam

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

According to ASTM E 1527-00, Section 7.2.2, "one or more additional state or local sources of environmental records may be checked, in the discretion of the environmental professional, to enhance and supplement federal and state sources... Factors to consider in determining which local or additional state records, if any, should be checked include (1) whether they are reasonably ascertainable, (2) whether they are sufficiently useful, accurate, and complete in light of the objective of the records review (see 7.1.1), and (3) whether they are obtained, pursuant to local, good commercial or customary practice." One of the record sources listed in Section 7.2.2 is water well information. Water well information can be used to assist the environmental professional in assessing sources that may impact groundwater flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile

FEDERAL USGS WELL INFORMATION

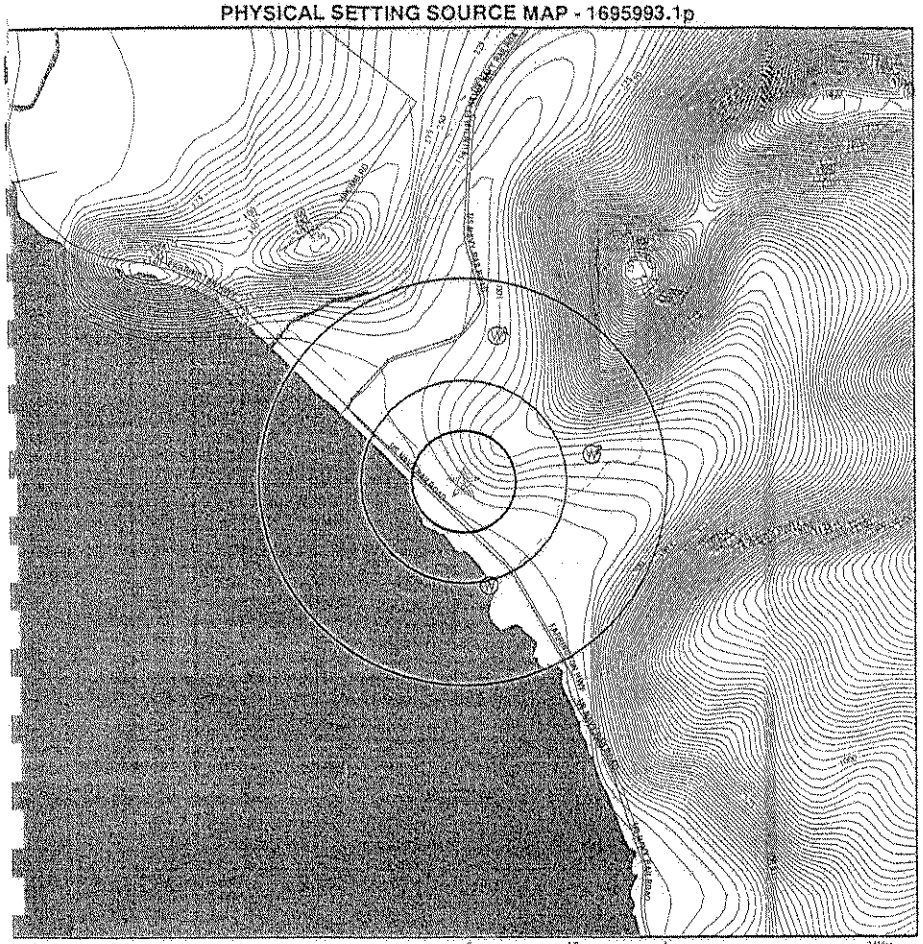
MAP ID	WELL ID	LOCATION FROM TP
1	212240158083601	1/2 - 1 Mile SSE
2	212314158081001	1/2 - 1 Mile ENE
A3	212342158083601	1/2 - 1 Mile North
A4	212347158083301	1/2 - 1 Mile NNE

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

PHYSICAL SETTING SOURCE MAP - 1695993.1p



- Major Roads
- Contour Lines
- Water Wells
- Public Water Supply Wells
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Cluster of Multiple Icons
- Earthquake epicenter, Richter 5 or greater

TARGET PROPERTY:	Nanakuli Kokua Ohana Center Phase 1	EAS CUSTOMER:	URS Corporation
ADDRESS:	89-102 Farrington Hwy	CONTACT:	Bernie Pabingwit
CITY/STATE/ZIP:	Waianae HI 96792	INQUIRY #:	1695993.1p
LAT/LONG:	21.3821 / 158.1430	DATE:	October 25, 2001 7:29 am

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
1 SSE 1/2 - 1 Mile Lower	FED USGS	212240158083801

BASIC WELL DATA

Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1962	County:	Honolulu
Altitude:	10.00 ft.	State:	Hawaii
Well Depth:	30.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Unused
Date Measured:	Not Reported	Prim. Use of Water:	Unused

2 ENE 1/2 - 1 Mile Higher	FED USGS	212314158081001

BASIC WELL DATA

Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1949	County:	Honolulu
Altitude:	60.00 ft.	State:	Hawaii
Well Depth:	61.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Unused
Date Measured:	Not Reported	Prim. Use of Water:	Unused

A3 North 1/2 - 1 Mile Higher	FED USGS	212342158083801

BASIC WELL DATA

Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1952	County:	Honolulu
Altitude:	115.00 ft.	State:	Hawaii
Well Depth:	154.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Unused
Date Measured:	Not Reported	Prim. Use of Water:	Unused

A4 NNE 1/2 - 1 Mile Higher	FED USGS	212347158083301

BASIC WELL DATA

Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1990	County:	Honolulu
Altitude:	128.00 ft.	State:	Hawaii
Well Depth:	200.00 ft.	Topographic Setting:	Hillside (slope)
Depth to Water Table:	128.00 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	02091990	Prim. Use of Water:	Irrigation

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

Federal EPA Radon Zone for HONOLULU County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Zip Code: 96782

Number of sites tested: 5

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.300 pCi/L	100%	0%	0%
Living Area - 2nd Floor	0.200 pCi/L	100%	0%	0%
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 1999 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 1998 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW® Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the national Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

ADDITIONAL ENVIRONMENTAL RECORD SOURCES

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: In November 1971 the United States Geological Survey (USGS) implemented a national water resource information tracking system. This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on more than 900,000 wells, springs, and other sources of groundwater.

RADON

Area Radon Information: The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

EPA Radon Zones: Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels

OTHER

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
EWA	S104657424	HAWAIIAN ELECTRIC CO, INC. KAHE GEN	89-900 FARRINGTON HWY	96792	SHWS	
EWA	S104657423	HAWAIIAN ELECTRIC CO, INC. KAHE GEN	89-900 FARRINGTON HWY	96792	SHWS	
EWA BEACH	S104534114	CHEMWOOD TREATMENT CO, INC.	91-476 KOMOHANA ST, CAMPBELL INDUS	96707	SHWS	
HONOLULU	S104657440	KAENA POINT SATELITE TRACKING STATI	33 MI NW OF HONOLULU ON RTE 930	96792	SHWS	
HONOLULU COUNTY	S103763636	HONOLULU DISPOSAL SERVICE, INC.	1059 MAKEPONO, SAND IS.		SWF/LF	
HONOLULU COUNTY	S103393750	KMCAS LANDFILL	MCBH KANEOHE BAY, FACILITIES DEPT.,		SWF/LF, LUST	9-203384
HONOLULU COUNTY	S103763637	KAWAILOA TRANSFER STATION	SITE OF KAWAILOA SAN LF		SWF/LF	
KAPOLEI	S104534090	BARBERS POINT HARBOR.	BARBERS POINT HARBOR	96707	SHWS	
KAPOLEI	S104657411	EARLE M. JORGENSEN	91-104 KALAELOA BLVD.	96707	SHWS	
KAPOLEI	S104534181	HAWAII PROJECT MANAGEMENT	KAOMI LOOP ROAD	96707	SHWS	
KAPOLEI	S104657435	PEPPER INDUSTRIES INC.	91-294 KAUHI ST.	96706	SHWS	
KAPOLEI	S104657464	LEEWARD AUTO WRECKERS, INC.	91-209 KUHELA ST.	96706	SHWS	
KAPOLEI	S104657515	TEXACO MALAKOLE STREET PIPELINE EXC	MALAKOLE ST	96707	SHWS	
KAPOLEI	1000601535	MARISCO LTD	91 607 MALAKOLE RD	96707	RCRIS-SQG, FINDS, SHWS	
KAPOLEI	S104657409	DEEP DRAFT HARBOR PIER 5 CRUDE OIL	PIER 5 BARBORS POINT DEEP DRAFT HAR	96707	SHWS	
KAPOLEI	S104657510	SINGLE BUOY MOORING BARBERS POINT H	SINGLE BUOY MOORING BARBERS POINT H	96707	SHWS	
MAILE	1000483130	TOLEDO TWIN PINE DAIRY	85-443A WAIANAE RD	96792	SHWS	
MAKAHA	S104657527	UNOCAL SERVICE STATION, FORMER #524	84-1114 FARRINGTON HWY	96792	SHWS	
NANAKULI	1003879109	KAISER CEMENT CORP WAIANAE PLT	LUALAULEI ACC RD E OF FARR HWY	96792	CERC-NFRAP	
OAHU	S104534393	TOP OF THE TRIANGLE	MAILI	96792	SHWS	
WAIANAE	U003541855	WAIANAE ARMY RECREATION CENTER	BLDG 230	96792	UST	9-202190
WAIANAE	S104534332	P & S SANITARY HAULING INC.	87-746 FARRINGTON HWY.	96792	SHWS	
WAIANAE	1000688446	TEXACO STATION 611000093	87 1942 FARRINGTON HWY	96792	RCRIS-SQG, FINDS, SHWS	
WAIANAE	1000423973	USARMY MAKUA MILITARY RESERVATION	FARRINGTON HWY	96792	CERCLIS, RCRIS-SQG, FINDS, RCRIS-TSD, CORRACTS	
WAIANAE	1003842418	NANAKULI ELEMENTARY SCHOOL	89-778 HALEAKALA AVE	96792	FTTS	
WAIANAE	1003634505	NANAKULI ELEMENTARY SCHOOL	89-778 HALEAKALA AVE	96792	FINDS	
WAIANAE	1001475695	MAILI KAI EMERGENCY ACCESS ROAD SITE	MAILI KAI EMERGENCY RD	96792	CERCLIS, SHWS	
WAIANAE	S104534216	INDUSTRIAL TECHNOLOGY TIRE PILE	87-459 MAILILI RD	97682	SHWS	
WAIANAE	1003842419	NANAKULI INTERMEDIATE/HS	89-980 NANAKULI	96792	FTTS	
WAIANAE	1003451069	NANAKULI INTERMEDIATE/HS	89-980 NANAKULI	96792	FINDS	
WAIANAE	1003879150	KAENA PT SAT TRACKING STA	33MI NW OF HONOLULU ON RTE 930	96792	CERC-NFRAP	
WAIANAE	S104534337	PAHEEHEE PLACE	86-516 PAHEEHEE PL		SHWS	

DETAILED ORPHAN LISTING

Site	Database(s)	EDR ID Number / EPA ID Number
HAWAIIAN ELECTRIC CO, INC. KAHE GEN 89-900 FARRINGTON HWY EWA, HI 96792	SHWS	S104657424 N/A

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	6/27/97
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	7/4/97
Input By :	Marsha Graf
Case :	19961031-1124
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	NFA
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Ross Kuge

Site	Database(s)	EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC CO, INC. KAHE GEN (Continued) S104657424

REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

HAWAIIAN ELECTRIC CO, INC. KAHE GEN SHWS S104657423
89-900 FARRINGTON HWY N/A
EWA, HI 96792

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	6/27/97
ISST Priority :	N/A
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	7/4/97
Input By :	Marsha Graf
Case :	19961129-1148
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number

HAWAIIAN ELECTRIC CO, INC. KAHE GEN (Continued) S104657423

Priority :	NFA
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Ross Kuga
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

CHEMWOOD TREATMENT CO, INC. SHWS S104534114
91-476 KOMOHANA ST, CAMPBELL INDUS N/A
EWA BEACH, HI 96707

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	4/12/96
ISST Priority :	Low
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
CHEMWOOD TREATMENT CO, INC. (Continued)		S104534114

Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	12/01/93
Input By :	Adia/Tom
Case :	Not reported
Fed Id :	HI0981424138
UST :	Not reported
Permits :	Not reported
RCRA :	Hazardous waste generator
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	265 x 55 gallon drums of soil 7000 gallon CCA Spill
Enforcement :	Not reported
CU Method :	excavation & disposal
Ownership :	Private
Tax Map Key :	Not reported
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 05/28/91 PA1 11/05/91
Notes :	deferred to RCRA
Site :	Not reported
Site_ :	Not reported
Operator :	Same
Current :	RCRA lead
Compounds :	Chromium, penta-chlorophenol, copper, arsenic
Oname :	Chemwood Treatment Company 91-476 Komohana St Ewa Beach, Oahu, HI 96707

KAENA POINT SATELITE TRACKING STATI SHWS S104657440
33 MI NW OF HONOLULU ON RTE 930 N/A
HONOLULU, HI 96792

SHWS:

File Section :	Central
Type :	Federal
Department 1 :	Defense
Department 2 :	Air Force
Department 3 :	Kaena Point
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
KAENA POINT SATELITE TRACKING STATI (Continued)		S104657440

ISST Priority :	Not reported
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	12/01/93
Input By :	Adia/Tom
Case :	Not reported
Fed Id :	HI1570096466
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Tom/P.A.
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Greg Olmsted
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 11/01/86 PA1 04/28/93 NFADD / Completed
Notes :	Not reported
Site :	Power Plant Tank Plant
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
HONOLULU DISPOSAL SERVICE, INC. **1059 MAKEPONO, SAND IS.** **HONOLULU COUNTY, HI**	SWF/LF	S103763636 N/A

LF:
Permit Number: TF-0022-97
Permit Expiration: 3/1/2002
Company: TED DELA CRUZ
Company Phone: (808) 845-7581

Site	Database(s)	EDR ID Number EPA ID Number
KMCAS LANDFILL **MCBH KANEOHE BAY, FACILITIES DEPT.,** **HONOLULU COUNTY, HI**	SWF/LF LUST	S103393750 N/A

LF:
Permit Number: SW-103101
Permit Expiration: Not reported
Company: Not reported
Company Phone: Not reported

LUST:
Facility ID: 9-203384
Alternate Event ID: 980235
Facility Status: Case Transferred to HEER
Project Officer: HEER

Site	Database(s)	EDR ID Number EPA ID Number
KAWAILOA TRANSFER STATION **SITE OF KAWAILOA SAN LF** **HONOLULU COUNTY, HI**	SWF/LF	S103763637 N/A

LF:
Permit Number: TF-0017-95
Permit Expiration: 10/10/2000
Company: WAYNE HAMADA
Company Phone: 523-4775

Site	Database(s)	EDR ID Number EPA ID Number
BARBERS POINT HARBOR **BARBERS POINT HARBOR** **KAPOLEI, HI 96707**	SHWS	S104534080 N/A

SHWS:

File Section :	Central
Type :	State
Department 1 :	Transportation
Department 2 :	Harbors
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Amy
ISST Assigned :	Not reported
ISST Date :	6/7/00
ISST Priority :	Medium
ISST Letter :	6/21/00
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
BARBERS POINT HARBOR (Continued)		S104534080

Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	08/02/96
Input By :	TD
Case :	Not reported
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Site 1: Stockpiled Material. Site 2: Pier 5 Ext., Site 3: Fuel Pier Construction.
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Lead contaminated soil.
Oname :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
EARLE M. JORGENSEN 91-104 KALAELOA BLVD, KAPOLEI, HI 96707	SHWS	S104657411 N/A

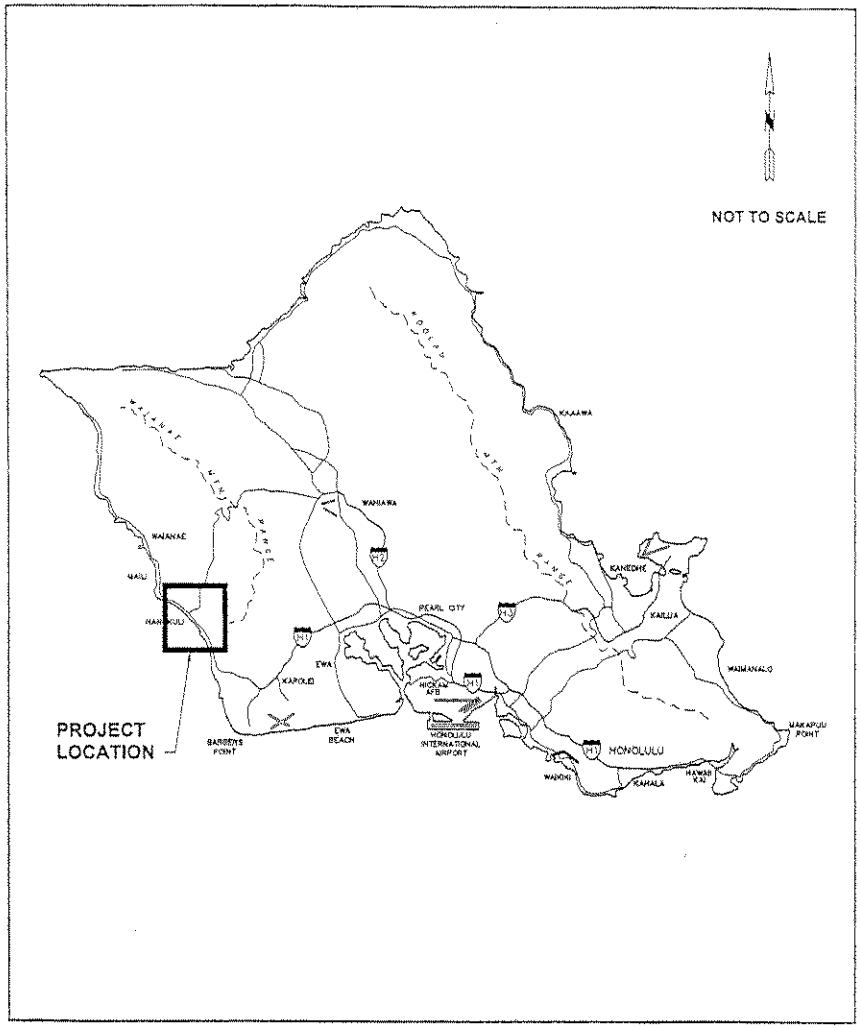
SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported

DETAILED ORPHAN LISTING

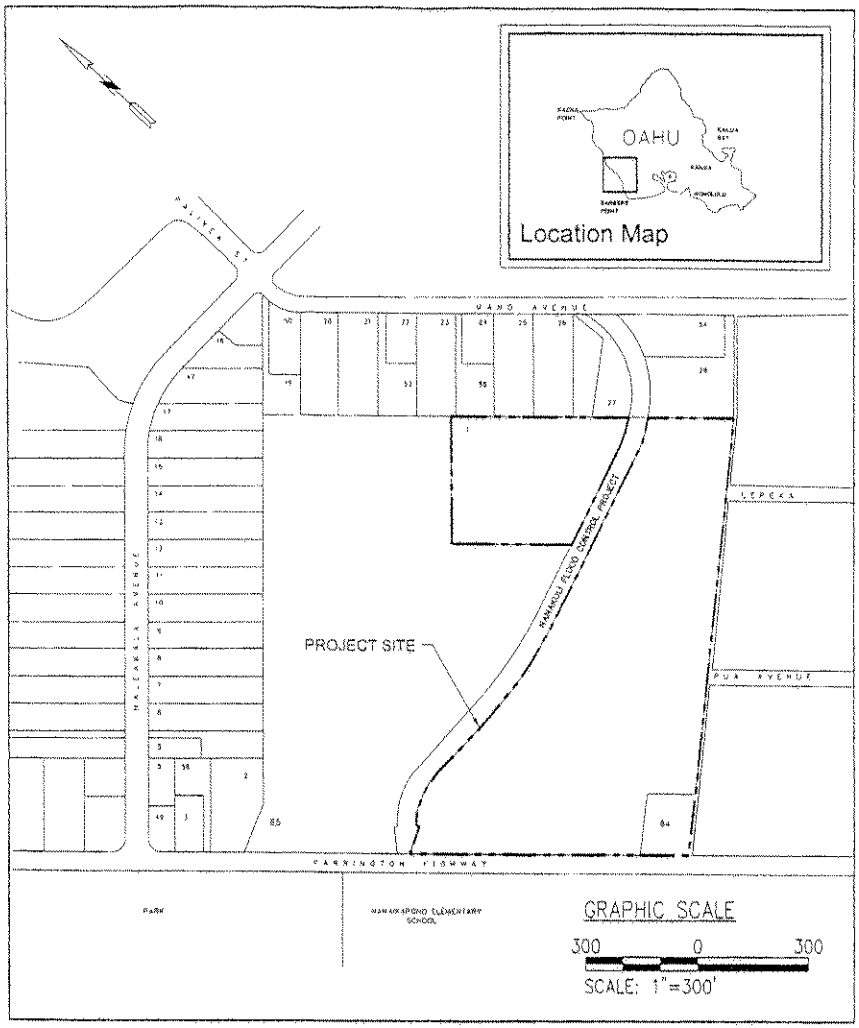
Site	Database(s)	EDR ID Number EPA ID Number
EARLE M. JORGENSEN (Continued)		S104657411

Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	12/29/95
ISST Priority :	NFA
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	No
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	No
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	01/30/96
Input By :	MJM
Case :	Not reported
Fed Id :	HIT00611129
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU ONTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Private
Tax Map Key :	Not reported
Form :	Tom/Tricia
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Not reported
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	DS1 06/21/91 PA1 11/05/91
Notes :	Not reported
Site :	Not reported



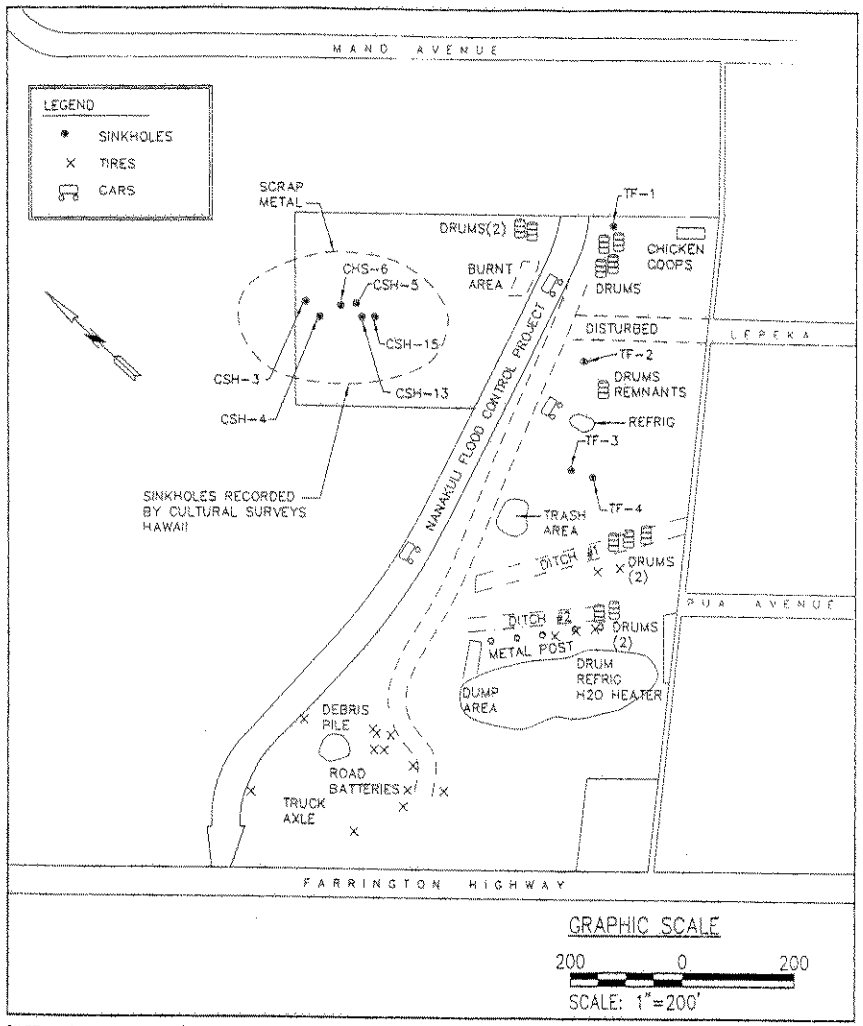
URS

PROJECT SITE LOCATION MAP
PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
WAIANAE, OAHU, HAWAII
FIGURE 1



URS

TMK PARCEL MAP
PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
WAIANAE, OAHU, HAWAII
FIGURE 2



BASE MAP AND SINKHOLES PROVIDED BY
ARCHAEOLOGICAL CONSULTANTS OF THE PACIFIC

URS

SITE LAYOUT
PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
WAIANAE, OAHU, HAWAII
FIGURE 3

09/12/01----------
INSTR-DESC: CORRECTION DEED TMB:T010028343
INST-NO:01-00143658 INST-DATE: 09/10/01
REC-DATE: 09/12/01

AREA: 11.96000 ACRE
OTHER-TMKS: 1 8 9 002 001 0000 ETC.

FROM: 8902-64 20,000 SF
FROM: 8902-65 13.57 AC LOT 1
FROM: STATE OF HAWAII
TO: DEPARTMENT OF HAWAIIAN HOME LANDS
WHEREAS QUITCLAIM DEED AS DOC 97-96574 FROM STATE OF HAWAII TO HAWAIIAN HOMES COMMISSION CONVEYED 13.57 AC(CAMP ANDREWS) SHOWN IN EXHIBIT "A" FOR EDUCATION PURPOSES. WHEREAS DEPT OF EDUCAION HAS IDENTIFIED LANDS BETTER SUITED FOR EDUCATION PURPOSES. NOW THEREFORE AS MUTUALLY AGREED GRANTOR AND GRANTEE DO HEREBY CORRECT ORIGINAL DEED BY DELETING EXHIBITS "A" AND DELINEATED EXHIBIT "B". IN ITS PLACE SUBSTITUTE EXHIBIT "C". CSF 23,049 POR FORMER NANAKULI MILITARY RESERVATION(CAMP ANDREWS)
PARCEL 1: 11.96 AC DES
TO: 8902-65 14.979 AC
TO: 8902-67(NEW) 1.61 AC PAR. "2"
TO: 8902-68(NEW) 1.500 AC DRN CHANNEL
F/D: AREA, BDRY, OWNER CORRECTED, PAR "1"

OWNERSHIP: NAME	F	TC	%-OWNER	TITLE-DESC
0011 *HAWAIIAN HOME LANDS				

SITE ADDRESS: 89-102 FARRINGTON HWY APT:

10/01/97----------
INSTR-DESC: DESIGNATION OF LOT TMB:M980000149
INST-DATE: 04/27/98
REC-DATE:

AREA: 16.02000 ACRE
OTHER-TMKS: 1 8 9 002 001 0000 ETC.
16.020 AC DESIGNATED AS POR LOT 2 & DESIGNATION OF DRAINAGE CHANNEL ESMT "A" (1,500 AC) PER PLAN BY STANLEY T HASEGAWA APPROVED 2/12/97
TMB NOTE: 20,000 SF ACCOUNTED FOR IN TMK 8902-64
F/D: POR LOT 2; ESMT

OWNERSHIP: NAME	F	TC	%-OWNER	TITLE-DESC
0011 *STATE OF HAWAII				

FOR ASSESSMENT YEAR 2001						
-PITT: 800 AREA:	16.02000 A	VALUE:	1773400	EXEMPT:	1773400	
-BLDG: 0001 CODE: 000 YB:		VALUE:		EXEMPT:		
FOR ASSESSMENT YEAR 2000						
-PITT: 800 AREA:	16.02000 A	VALUE:	1773400	EXEMPT:	1773400	
FOR ASSESSMENT YEAR 1999						
-PITT: 800 AREA:	16.02000 A	VALUE:	1773400	EXEMPT:	1773400	

07/22/97----------
INSTR-DESC: QUITCLAIM DEED TMB:T970030846
INST-NO:97-00096574 INST-DATE: 07/21/97
REC-DATE: 07/22/97

AREA: 16.02000 ACRE
OTHER-TMKS: 1 8 9 002 001 0000 ETC.

TO: 8902-65 13.57 AC NEW
F/D: AREA, BDRY

OWNERSHIP: NAME	F	TC	%-OWNER	TITLE-DESC
0011 *STATE OF HAWAII				

FOR ASSESSMENT YEAR 1998						
-PITT: 800 AREA:	16.02000 A	VALUE:	1773400	EXEMPT:	1773400	

03/15/93----------
INSTR-DESC: DLNR-LM ASSIGN LEASE S-6818 TMB:R930000245
INST-DATE: 03/16/93
REC-DATE:

AREA: 29.59000 ACRE
OTHER-TMKS: 1 8 9 002 001 0000 ETC.

TO: 8902-64 20,000 SF NEW
F/D: AREA, BDRY

OWNERSHIP: NAME	F	TC	%-OWNER	TITLE-DESC
0011 *STATE OF HAWAII				

FOR ASSESSMENT YEAR 1997						
-PITT: 800 AREA:	29.59000 A	VALUE:	2636500	EXEMPT:	2636500	
FOR ASSESSMENT YEAR 1996						
-PITT: 800 AREA:	29.59000 A	VALUE:	2636500	EXEMPT:	2636500	
FOR ASSESSMENT YEAR 1995						
-PITT: 800 AREA:	29.59000 A	VALUE:	2636500	EXEMPT:	2636500	
FOR ASSESSMENT YEAR 1994						
-PITT: 800 AREA:	29.59000 A	VALUE:	2441200	EXEMPT:	2441200	

10/07/87----------

OWNERSHIP: NAME	F	TC	%-OWNER	TITLE-DESC
0011 *STATE OF HAWAII				

FOR ASSESSMENT YEAR 1993						
-PITT: 800 AREA:	30.05000 A	VALUE:	3515900	EXEMPT:	3515900	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	50300	EXEMPT:	50300	
BLDG TOTALS-->		VALUE:	50300	EXEMPT:	50300	
FOR ASSESSMENT YEAR 1992						
-PITT: 800 AREA:	30.05000 A	VALUE:	3380600	EXEMPT:	3380600	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	48600	EXEMPT:	48600	
BLDG TOTALS-->		VALUE:	48600	EXEMPT:	48600	
FOR ASSESSMENT YEAR 1991						
-PITT: 800 AREA:	30.05000 A	VALUE:	3380600	EXEMPT:	3380600	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	47800	EXEMPT:	47800	
BLDG TOTALS-->		VALUE:	47800	EXEMPT:	47800	
FOR ASSESSMENT YEAR 1990						
-PITT: 800 AREA:	30.05000 A	VALUE:	2028400	EXEMPT:	2028400	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	46100	EXEMPT:	46100	

SOURCE:	LOC. & TITLE: Nanakuli, Waianae		DIV.
BY: JY/sy DATE: 3/18/60	DEED, ETC.:	TMB NO.	1960 | 8 | 9 | 02 | 1
BY: DATE:			

NO.	GRANTOR, ETC.	AREA OF PARCEL	GRANTEE, ETC.
1	As shown on Tax Maps	31.36 Ac	U.S. Military Reservation Pres. Exec. Order 2564
2	TMB M-147'60 JY/sy 3/18/60 R/S: Pres Exec. Ord #2564 amended by Pres. Exec. Order #4504 dated 9/4/26. Area revised fr 31.36 Ac to 30.05 Ac. Info. fr survey & plan by State Survey Dept, dated 2/27/58. P/D: 8902-1; Area revised & status	30.05 Ac	U. S. Military Reservation Pres. Exec. Order 4504 Sept. 4, 1926
3	TMB 11620'62 DL/sy 2/12/63 Q/D: United States of America Bk 4427 p 279 8/21/62 12/18/62	30.05 Ac	To: State of Hawaii
4.	TMB M-412'65 HN/sy 5/14/65 R/S: Exec Ord No. 2190 dated April 6, 1965 set aside parcel 8902-1 for Nanakuli High School Lot to be under the control and management of the Dept. of Education. P/D: 8902-1; Status	30.05 Ac	State of Hawaii (Dept. of Education) NANAKULI HIGH SCHOOL LOT Exec. Ord. No. 2190
5.	TMB M-792'68 JY/sy 1/14/69 R/S: Exec. Order No. 2190 cancelled on 11/19/68 by Exec. Order No, 2416. Land is no longer required for school purposes. P/D: 8902-1; Exec. Ord. 2190-OUT	30.05 Ac	State of Hawaii

NOTE: LAST AREA & GRANTEE FINAL DATA AS SHOWN ON TAX MAPS

TMK: 1 8 9 002 001 BLDG TOTALS--> VALUE: 46100 EXEMPT: 46100 PAGE: 3

FOR ASSESSMENT YEAR 1989
-PIT: 800 AREA: 30.05000 A VALUE: 1047200 EXEMPT: 1047200
-BLDG: 0001 CODE: 113 YB: 1975 VALUE: 45900 EXEMPT: 45900
BLDG TOTALS--> VALUE: 45900 EXEMPT: 45900

FOR ASSESSMENT YEAR 1988
-PIT: 801 AREA: 30.05000 A VALUE: 950055 EXEMPT: 950055
-BLDG: 0001 CODE: 113 YB: 1975 VALUE: 43757 EXEMPT: 43757
BLDG TOTALS--> VALUE: 43757 EXEMPT: 43757

----------SEE PARCEL SHEETS FOR MORE INFORMATION----------

DESCRIPTION OF IMPROVEMENTS

ZONE	SEC	PLAT	PARCEL
8	9	02	01

9. USE TYPE & OCC. — 1-FAM, 2-FAM, APART, MULTI (RENT / HOME)

10. UNITS & ROOMS — LIV. UNITS, ROOMS, STORIES, BASEMENT

11. FOUND. & STEPS — CONC, H.T., STONE, WO. P., HOG

12. FRAME — WD. SW, SWDE, DW, MASONRY, STEEL, REIN. CONC

13. EXTERIOR WALLS — T & G, E & B, RUSTIC, BRICK, STONE ROCK, HT, PLAS. STUCCO

14. ROOF DESIGN — GABLE, HIP, FLAT, CAMB

15. ROOF STRUCT. — WOOD, STEEL, CONC

16. ROOFING — COMP, BLT-UP, SIDING, SHAKES, METAL, TILE, RAIN GUTTERS

17. FLR STRUCT. — WOOD JOISTS, CONC, STEEL, CONC SLAB

18. FLOORING — LIV., B R, BTH, KIT, OTHER; PINE, HDWD, CEM, TILE

19. ELECTRICAL — FIXT, OUTL, BUILT IN OVEN, VENT, STOVE, D WR

20. INTER. WALLS — TYPE, MAT

21. CEILING — CANEC, PLAS, PINE, PLY

22. BATHROOMS

23. MILLWORK

24. PLUMBING — ITEM, CH, MED, CO, VAL; S. UNIT, BATH TUB, W.C., BASIN, SH. STALL, SINK, LAUND, SUB TOTAL—PLUMBING

25. ADD'L IMPVT DETAILS — ITEM, RF, WL, FL, AREA, CF, VAL; SUB TOTAL DETAILS, TOTAL

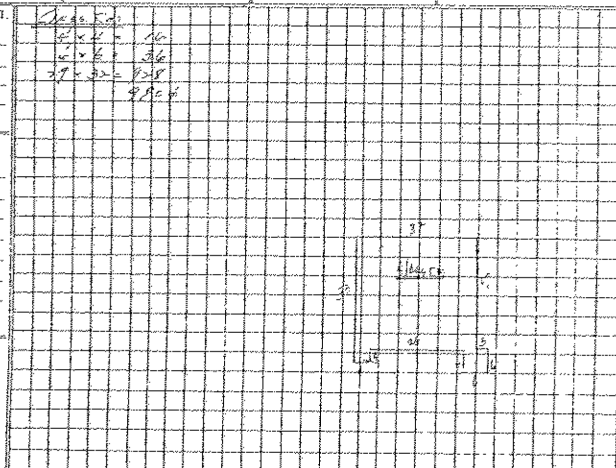
26. REMARKS — SHAPE

27. ADD'L FLOOR DET. — 2ND, 3RD, 4TH

28. CONDITION — BETTER THAN AVER., AVERAGE INOR DEF, BELOW AVER.

29. CLASSIFICATION — CLASS, BY

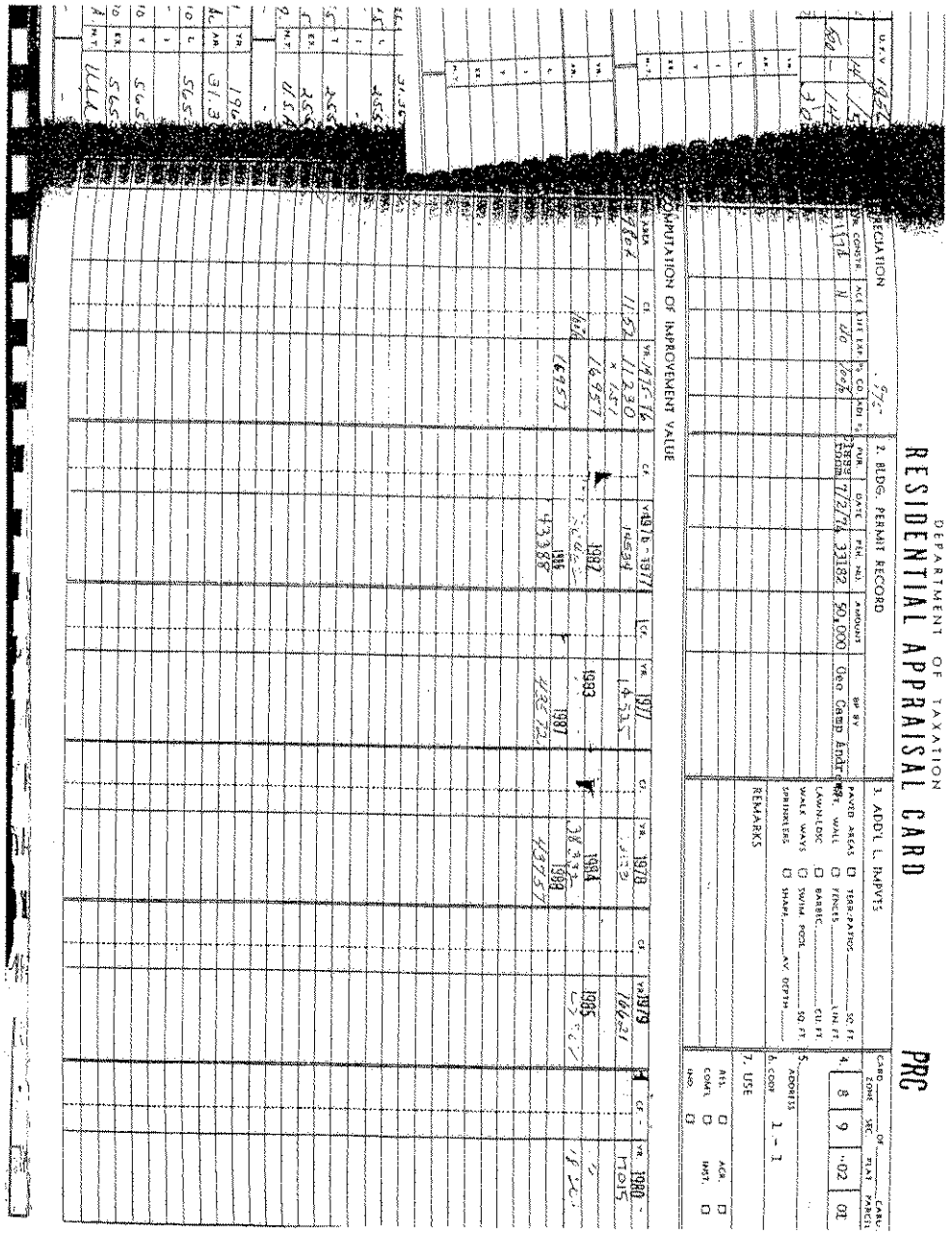
SURVEY BY, DATE



ZONE	SEC	PLAT	PARCEL
8	9	02	01

OWNER	TITLE HISTORY	NET AREA
U.S. Military Reservation		31.36ac
	(For 1961 area rexland to 30.05ac) TMB M-147'60	30.05ac
State of Hawaii (Dept of Education)	Q/D: 8/21/62 fr USA 31.36ac $- 12/18/62 Bk 4427/279	30.05ac
NANAKULI HIGH SCHOOL LOT	Exec Ord No 2190 dtd 5/6/65 setting aside parcel 8902-1 for Nanakuli High School Lot to be under the control and management of the Dept of Educ.	30.05ac
Exec Ord No 2190		
State of Hawaii	(For 1969 Exec Order No. 2190 cancelled on 11/19/68 by Exec Order 2416 TMB M-792'68)	30.05 ac

YEAR	1936	1937	1938	1939	1940	1941	1942	1943	1944
AREA	31.36ac	31.36ac	31.36ac	31.36ac	31.36ac	31.36ac	31.36ac	31.36ac	31.36ac
LAND	3136	3136	3136	3136	3136	3136	5411	5411	5411
IMP.									
TOT.	3136	3136	3136	3136	3136	3136	5411	5411	5411
EX.	3136	3136	3136	3136	3136	3136	5411	5411	5411
NET	-	-	-	-	-	-	-	-	-
TAX									



TMK: 1 8 9 002 064 PAGE: 1

09/12/01----------
INSTR-DESC: CORRECTION DEED TMB:T010028343
INST-NO:01-00143658 INST-DATE: 09/10/01
REC-DATE: 09/12/01
OTHER-TMKS: 1 8 9 002 001 0000 ETC.
TO: 8902-1 20,000 SF
F/D: DROPPED
OWNERSHIP: NAME # TC %-OWNER TITLE-DESC
F 0011 *DROPPED 10/18/01 DROPPED PARCEL

04/26/00----------
INSTR-DESC: DLNR - CANCEL REV PMT NO S-6818 TMB:R000000422
INST-DATE: 04/26/00
REC-DATE:
AREA: 20000 SQ.FT.
FROM: HONOLULU COMMUNITY ACTION TO: STATE OF HAWAII
- PROGRAM (HCAP)
NANAKULI HEAD START PROGRAM
CANCELLED: 11/18/99
- FORMER CAMP ANDREWS SITE BEING 20,000 SF PORTION FORMERLY
- TMK 8902:POR 1 NOW TMK 8902:64
TMB NOTE: TRANSFER OF CONTROL AND MANAGEMENT TO DHHL EFFECTIVE 11/19/99
F/D: PERMITTEE - OUT
OWNERSHIP: NAME # TC %-OWNER TITLE-DESC
F 0011 *STATE OF HAWAII

FOR ASSESSMENT YEAR 2001
-PITT: 100 AREA: 20000 F VALUE: 12000 EXEMPT: 12000
-BLDG: 0001 CODE: 113 YB: 1975 VALUE: 2800 EXEMPT: 2800
BLDG TOTALS--> VALUE: 2800 EXEMPT: 2800

03/15/93----------
INSTR-DESC: DLNR-LM ASSIGN LEASE S-6818 TMB:R930000245
INST-DATE: 03/16/93
REC-DATE:
AREA: 20000 SQ.FT.
OTHER-TMKS: 1 8 9 002 001 0000 ETC.
FROM: 8902-1 20,000 SF NEW
FROM: STATE OF HAWAII TO: HONOLULU COMMUNITY ACTION PROGRAM (HCAP)
RENTAL: $93.00/PER MONTH NANAKULI HEAD START PROGRAM
EFFECTIVE DATE: 8/1/92 89-102 FARRINGTON HWY
WAIANAE HI 96792
PURPOSE: CLASSROOM FACILITY & FENCED PLAYGROUND
- FORMER CAMP ANDREWS SITE BEING A POR OF
- TMK 8-9-2:1 NANAKULI OAHU 20,000 SF
F/D: NEW, PERMITTEE
OWNERSHIP; NAME # TC %-OWNER TITLE-DESC
F 0011 *STATE OF HAWAII
L 0011 *HONOLULU COMM ACT PROGRAM RP S-6818
HONOLULU COMMUNITY ACTION PROGRAM

FOR ASSESSMENT YEAR 2000
-PITT: 100 AREA: 20000 F VALUE: 12000 EXEMPT: 12000

TMK: 1 8 9 002 064

-BLDG: 0001 CODE: 113	YB: 1975	VALUE:	2700	EXEMPT:	2700
BLDG TOTALS-->		VALUE:	2700	EXEMPT:	2700
NOTE: AMENDED ASSESSMENT EXISTS FOR THIS YEAR					
FOR ASSESSMENT YEAR 1999					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	12000
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2700	EXEMPT:	2700
BLDG TOTALS-->		VALUE:	2700	EXEMPT:	2700
NOTE: AMENDED ASSESSMENT EXISTS FOR THIS YEAR					
FOR ASSESSMENT YEAR 1998					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	12000
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2800	EXEMPT:	2800
BLDG TOTALS-->		VALUE:	2800	EXEMPT:	2800
FOR ASSESSMENT YEAR 1997					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2700	EXEMPT:	
BLDG TOTALS-->		VALUE:	2700	EXEMPT:	
FOR ASSESSMENT YEAR 1996					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2700	EXEMPT:	
BLDG TOTALS-->		VALUE:	2700	EXEMPT:	
FOR ASSESSMENT YEAR 1995					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2600	EXEMPT:	
BLDG TOTALS-->		VALUE:	2600	EXEMPT:	
FOR ASSESSMENT YEAR 1994					
-PITT: 100 AREA: 20000 F		VALUE:	12000	EXEMPT:	
-BLDG: 0001 CODE: 113 YB: 1975		VALUE:	2600	EXEMPT:	
BLDG TOTALS-->		VALUE:	2600	EXEMPT:	
FOR ASSESSMENT YEAR 1993					
-PITT: 100 AREA:		VALUE:		EXEMPT:	
NOTE: AMENDED ASSESSMENT EXISTS FOR THIS YEAR					
FOR ASSESSMENT YEAR 1992					
-PITT: 100 AREA:		VALUE:		EXEMPT:	
NOTE: AMENDED ASSESSMENT EXISTS FOR THIS YEAR					

MAILING ADDRESS: *HONOLULU COMM ACT PROGRAM
NANAKULI HEAD START PROGRAM
1120 MAUNAKEA ST 280
HONOLULU, HI 96817-5181

----------SEE PARCEL SHEETS FOR MORE INFORMATION----------

OCT 23, 2001 — RESIDENTIAL / RURAL REVIEW DOCUMENT — PAGE 1
11:50 AM — C&C HONOLULU COUNTY, HI — CA320
PARCEL 6-9-002-064-0000 — CARD NO. 1 OF 1 — TAX YEAR 2001 TIEBACK
ALT ID — MAP/ROUTE — FIELD REVIEW FLAG
TAX CODE 1 — ZONING U/05/76 — TAX DIST CCH — CITY AND COUNTY — JURISDICTION
ADDRESS
NEIGHBORHOOD 8968-1 — RESTRICTIONS G — / — /NON-TAX GOVERNM
LAND USE CODE 100 — ---- OWNER INFORMATION ---- — -------- SALES INFORMATION --
LIVING UNITS 1 — STATE OF HAWAII — DATE TYPE PRICE SRC VAL
CLASS 1 — 26-APR-00
16-MAR-93

------ PROPERTY FACTORS ------
TOPO 1 / / LEVEL / /
UTILITY 1 / / ALL / /
STR/RDS 1 / /1 PAVED / /GOOD ACCESS — -- ENTRANCE INFORMATION -
FRT — DATE CODE INFO C ID
LOC — 02/01/94 R 3 GME
PARKING TYPE 1 QUANTITY 2 — LAND ADJ — PROXIMITY 1
AVAIL OFF STREET /ADEQUATE — /NEAR

---------- BUILDING PERMIT RECORD ----------
DATE NUMBER AMOUNT PURPOSE O/C

---------- NOTES ----------
NOTE CD:
NOTE CD: R
NOTES 001/NN; B/U '94 FROM 8902-01
NOTES 001/NN; RP S-6818; $93/MO; EFF 8
NOTES
NOTES

--- L A N D D A T A ---

TY PE	LN	CD	ACRES SQFT/UNITS FRONT	DEPTH	PRICE	INFL-FA	C A L P T A B L E BASE SIZE	CLASS	BASE RATE	INCR CHG /DECR	RSN	LAND-VAL
S	1	11	20,000				5,000		.60	.60		12,000
		PRIMARY SITE								.60		

GROSS LN CD VALUE — IN PL-FAC — LAND-VAL

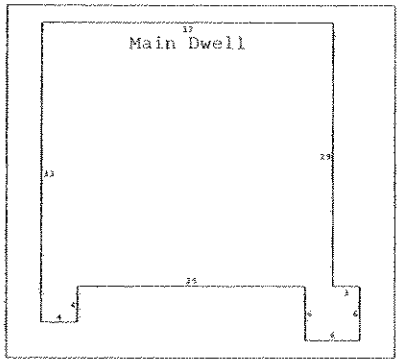
TOTAL ACRES .4591 — TOTAL LAND-VALUE 12,000
TOTAL SIZE — ACRES N172 ZONE 0 LOC 0 UTILITY 0 STREET 0
LAND ADJ

-------- DWELLING DESCRIPTION --
STORY HEIGHTS 1.0
EXT. WALL 1 FRAME
STYLE 04 CONTEMPORARY
YR BLT/RMDL/EFF 1975/ /
TOT RM 1 BDRM 0 FRM 0
FBTHS 2 HBTH 0 ADD 2TOT-FIX 8
KIT/BATH RMDL
BASEMENT 1 NONE
HEATING 1 NONE
FUEL TYPE
SYSTEM
ATTIC 1 NONE
PHYS. COND 4 AVERAGE
INTERIOR/EXTERIOR
MAS TRIM 0 0
UNFIN.AREA 0 0
REC. ROOM AREA 0 0
FBLA 0 0
Fireplaces by LF 0 0
WBFP STACK 0 OPENINGS 0
PREFAB FIREPLACE 0 0
BSMT GAR.(NO CARS) 0 0
MISC O.F. DESC QUAN. 0
MISC O.F. DESC QUAN. 0
NOTES .....F00980.....
NOTES .....F00980.....
G.F.L.A. 936
GRADE FACTOR 3 .99
COST/DESIGN FACTOR %
CDU AV

--- C O N D O M I N I U M D A T A
LEVEL
TYPE CLASS:
VIEW @SN :
COMPLEX NO:
Condo Parking S
Condo Style
Condo Common Pr
Exterior Wall 2
Framing 1
Roof Design 3
Roof Structure 1
Roof Material 2
Occupancy 1
Foundation 4
Floor Construcc 1
Flooring 3

MISC. IMPROV 0
TOTAL OBY & MISC IMPROV 0
GROSS BUILDING SUMMARY
DESC VALUE 0

G.F.L.A. 980
S.F.L.A. 980



------- SKETCH VECTORS --------
A0CU6L25D4L4U33R32D29R1D6L6

--------- OBY VECTORS ---------

-------- DWELLING COMPUTATIONS

BASE PRICE		100,801
BASEMENT 1 NONE		0
HEAT 1 NONE		0
PLUMBING (TOT= 8)		2,693
ATTIC 1		0
OTHER FEATURES		0
*SUB TOTAL		103,400
GRADE FACTOR 3		0.89
C & D FACTOR	X	0%
CDU		AV
RCN PER SF 105.51		103,400
USER FACTOR		1.00
USER AMOUNT		0
ADDITIONS RCNLD		0
PERCENT GOOD	X	54%
RCNLD PER SF 2.85		2,792
PERCENT COMPLETE	X	100%
*SUB TOTAL		2,792
O.B. & Y. VALUE		0
GROSS IMPRV.		0
TOTAL CARD VALUE		2,800
CONDO BASE VALUE		0
CONDO ADJ. VALUE		0

---------- A D D I T I O N S ----------

LINE	LOW	1ST	2ND	3RD	AREA	YRBLT	GRADE	CDU	%COMP.	RSN	VALUE
0					980						
1		APX			1						

---- PARCEL SUMMARY COST VALUE-----

TOTAL LAND VALUE	12,000
TOTAL BLDG VALUE	2,800
TOTAL COST VALUE	14,800

CURRENT LAND	12,000	BUILDING	2,800	TOTAL	14,800		
ASSESSED LAND	12,000	BUILDING	2,800	TOTAL	14,800		
REVIEW CODE 1	COST APPROACH	REVIEW REASON	3				
REVIEW DATE	30-SEP-00	REVIEWER ID					
ESTIMATE LAND		BUILDING		TOTAL			
REVIEW CODE		REVIEW REASON					
REVIEW DATE		REVIEWER ID					

---------- OTHER BUILDING & YARD IMPROVEMENTS ----------

TYP	YR	CLASS	EFF	SIZE	GRD	QN	MODS	CF	%COMP	MA%	VALUE

REVIEW STATUS ?
DATA MAILER: SENT 00/00/0 RECEIVED 00/00/00 MAINTAINED 19-NOV-00

The EDR Radius Map
with GeoCheck®

Nanakuli Kokua Ohana Center Phase 1 EAS
89-102 Farrington Hwy
Waianae, HI 96792

Inquiry Number: 1695993.1p

October 25, 2001

Environmental Data Resources, Inc.

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

FORM ADP

TABLE OF CONTENTS

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-00. Search distances are per ASTM standard or custom distances requested by the user.

TARGET PROPERTY INFORMATION

ADDRESS

89-102 FARRINGTON HWY
WAIANAE, HI 96792

COORDINATES

Latitude (North):	21.382080 - 21° 22' 55.5"
Longitude (West):	158.143020 - 158° 8' 34.9"
Universal Tranverse Mercator:	Zone 4
UTM X (Meters):	588840.1
UTM Y (Meters):	2364837.5

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property:	N/A
Source:	USGS 7.5 min quad index

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable") government records either on the target property or within the ASTM E 1527-00 search radius around the target property for the following databases:

FEDERAL ASTM STANDARD

NPL	National Priority List
Proposed NPL	Proposed National Priority List Sites
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP	CERCLIS No Further Remedial Action Planned
CORRACTS	Corrective Action Report
RCRIS-TSD	Resource Conservation and Recovery Information System
RCRIS-LQG	Resource Conservation and Recovery Information System
RCRIS-SQG	Resource Conservation and Recovery Information System
ERNS	Emergency Response Notification System

STATE ASTM STANDARD

SWF/LF	Permitted Landfills in the State of Hawaii
LUST	Leaking Underground Storage Tank Database
UST	Underground Storage Tank Database
SHWS	Sites List

EXECUTIVE SUMMARY

FEDERAL ASTM SUPPLEMENTAL

CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
Delisted NPL	National Priority List Deletions
FINDS	Facility Index System/Facility Identification Initiative Program Summary Report
HMIRS	Hazardous Materials Information Reporting System
MLTS	Material Licensing Tracking System
MINES	Mines Master Index File
NPL Liens	Federal Superfund Liens
PADS	PCB Activity Database System
RAATS	RCRA Administrative Action Tracking System
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

EDR PROPRIETARY DATABASES

Coal Gas	Former Manufactured Gas (Coal Gas) Sites

SURROUNDING SITES: SEARCH RESULTS

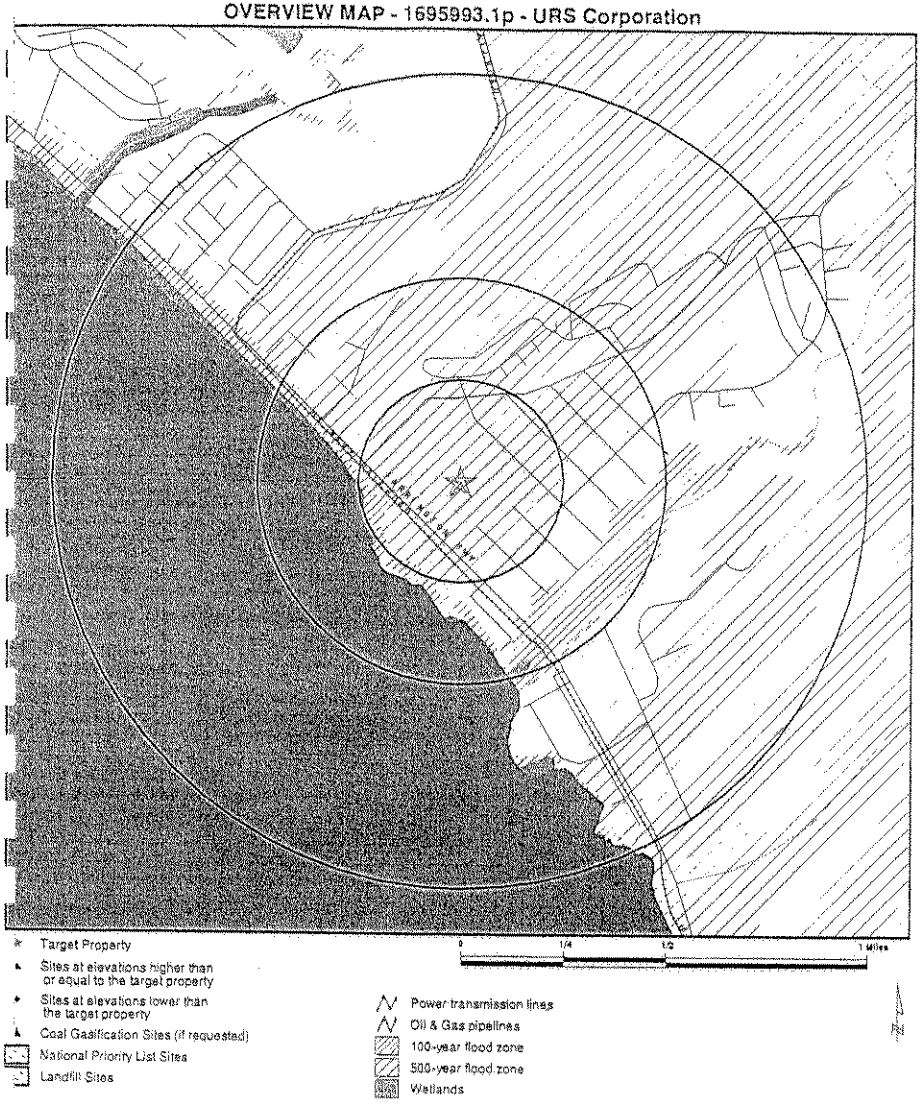
Surrounding sites were not identified.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
NANAKULI ELEMENTARY SCHOOL	FTTS
NANAKULI INTERMEDIATE/HS	FTTS
USARMY MAKUA MILITARY RESERVATION	CERCLIS, RCRIS-SQG, FINDS, RCRIS-TSD, CORRACTS
BARBERS POINT NAVAL AIR STATION, N	SHWS
HAWAIIAN ELECTRIC CO, INC. KAHE GE	SHWS
HAWAIIAN ELECTRIC CO, INC. KAHE GE	SHWS
CHEMWOOD TREATMENT CO, INC.	SHWS
KAENA POINT SATELITE TRACKING STAT	SHWS
BARBERS POINT HARBOR	SHWS
EARLE M. JORGENSEN	SHWS
HAWAII PROJECT MANAGEMENT	SHWS
PEPPER INDUSTRIES INC.	SHWS
LEEWARD AUTO WRECKERS, INC.	SHWS
TEXACO MALAKOLE STREET PIPELINE EX	SHWS
MARISCO LTD	RCRIS-SQG, FINDS, SHWS
DEEP DRAFT HARBOR PIER 5 CRUDE OIL	SHWS
SINGLE BUOY MOORING BARBERS POINT	SHWS
TOLEDO TWIN PINE DAIRY	SHWS
UNOCAL SERVICE STATION, FORMER #52	SHWS
TOP OF THE TRIANGLE	SHWS
P & S SANITARY HAULING INC.	SHWS
TEXACO STATION 611000093	RCRIS-SQG, FINDS, SHWS
MAILI KAI EMERGENCY ACCESS ROAD SI	CERCLIS, SHWS
INDUSTRIAL TECHNOLOGY TIRE PILE	SHWS
PAHEEHEE PLACE	SHWS
KAISER CEMENT CORP WAIANAE PLT	CERC-NFRAP
KAENA PT SAT TRACKING STA	CERC-NFRAP
HONOLULU DISPOSAL SERVICE, INC.	SWF/LF
KMCAS LANDFILL	SWF/LF, LUST
KAWAILOA TRANSFER STATION	SWF/LF
WAIANAE ARMY RECREATION CENTER	UST
NANAKULI ELEMENTARY SCHOOL	FINDS
NANAKULI INTERMEDIATE/HS	FINDS

OVERVIEW MAP - 1695993.1p - URS Corporation



- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone
- Wetlands

TARGET PROPERTY:	Nanakuli Kokua Ohana Center Phase 1	EAS CUSTOMER:	URS Corporation
ADDRESS:	89-102 Farrington Hwy	CONTACT:	Bernie Pabingwit
CITY/STATE/ZIP:	Waianae HI 96792	INQUIRY #:	1695993.1p
LAT/LONG:	21.3821 / 158.1430	DATE:	October 25, 2001 7:28 am

MAP FINDINGS

Map ID Direction Distance Distance (ft.) Elevation Site	Database(s)	EDR ID Number EPA ID Number

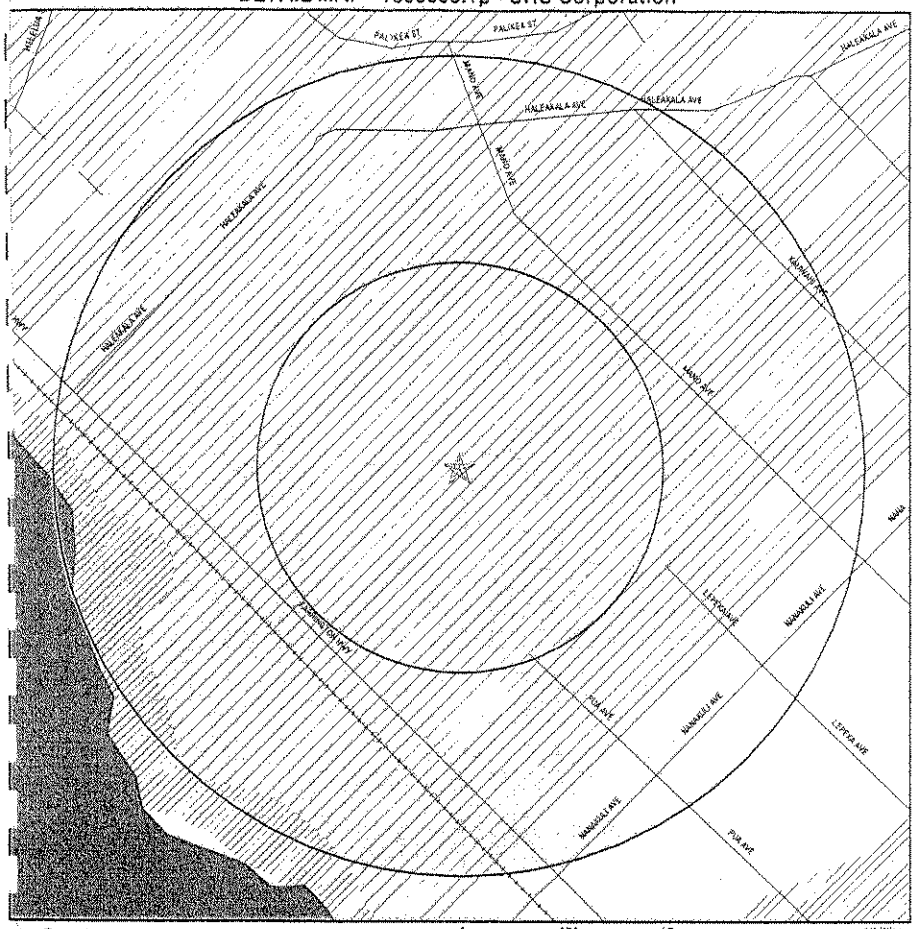
Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

NO SITES FOUND

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
COUNTY	S104657394	BARBERS POINT NAVAL AIR STATION, N	BUILDING 129 AST	96707	SHWS	
EWA	S104657424	HAWAIIAN ELECTRIC CO, INC. KAHE GE	89-900 FARRINGTON HWY	96792	SHWS	
EWA	S104657423	HAWAIIAN ELECTRIC CO, INC. KAHE GE	89-900 FARRINGTON HWY	96792	SHWS	
EWA BEACH	S104534114	CHEMWOOD TREATMENT CO, INC.	91-476 KOMOHANA ST. CAMPBELL	96707	SHWS	
HONOLULU	S104657440	KAENA POINT SATELITE TRACKING STAT	33 MI NW OF HONOLULU ON RTE 93	96792	SHWS	
HONOLULU COUNTY	S103763636	HONOLULU DISPOSAL SERVICE, INC.	1059 MAKEPONO, SAND IS.		SWF/LF	
HONOLULU COUNTY	S103393750	KMCAS LANDFILL	MCBH KANEOHE BAY, FACILITIES D		SWF/LF, LUST	9-203384
HONOLULU COUNTY	S103763637	KAWAILOA TRANSFER STATION	SITE OF KAWAILOA SAN LF		SWF/LF	
KAPOLEI	S104534080	BARBERS POINT HARBOR	BARBERS POINT HARBOR	96707	SHWS	
KAPOLEI	S104657411	EARLE M. JORGENSEN	91-104 KALAELOA BLVD.	96707	SHWS	
KAPOLEI	S104534181	HAWAII PROJECT MANAGEMENT	KAOMI LOOP ROAD	96707	SHWS	
KAPOLEI	S104657495	PEPPER INDUSTRIES INC.	91-294 KAUHI ST.	96707	SHWS	
KAPOLEI	S104657464	LEEWARD AUTO WRECKERS, INC.	91-209 KUHELA ST.	96707	SHWS	
KAPOLEI	S104657515	TEXACO MALAKOLE STREET PIPELINE EX	MALAKOLE ST	96707	SHWS	
KAPOLEI	1000601535	MARISCO LTD	91 607 MALAKOLE RD	96707	RCRIS-SQG, FINDS, SHWS	
KAPOLEI	S104657409	DEEP DRAFT HARBOR PIER 5 CRUDE OIL	PIER 5 BARBORS POINT DEEP DRAF	96707	SHWS	
KAPOLEI	S104657510	SINGLE BUOY MOORING BARBERS POINT	SINGLE BUOY MOORING BARBERS PO	96707	SHWS	
MAILE	1000483130	TOLEDO TWIN PINE DAIRY	85-443A WAIANAE RD	96792	SHWS	
MAKAHA	S104657527	UNOCAL SERVICE STATION, FORMER #52	84-1114 FARRINGTON HWY	96792	SHWS	
NANAKULI	1003879109	KAISER CEMENT CORP WAIANAE PLT	LUALAULEI ACC RD E OF FARR HWY	96792	CERC-NFRAP	
OAHU	S104534393	TOP OF THE TRIANGLE	MAILI	96792	SHWS	
WAIANAE	U003541855	WAIANAE ARMY RECREATION CENTER	BLDG 230	96792	UST	9-202190
WAIANAE	S104534332	P & S SANITARY HAULING INC.	87-746 FARRINGTON HWY.	96792	SHWS	
WAIANAE	1000688446	TEXACO STATION 611000093	87 1942 FARRINGTON HWY	96792	RCRIS-SQG, FINDS, SHWS	
WAIANAE	1000423973	USARMY MAKUA MILITARY RESERVATION	FARRINGTON HWY	96792	CERCLIS, RCRIS-SQG, FINDS, RCRIS-TSD, CORRACTS	
WAIANAE	1003842418	NANAKULI ELEMENTARY SCHOOL	89-778 HALEAKALA AVE	96792	FTTS	
WAIANAE	1003634505	NANAKULI ELEMENTARY SCHOOL	89-778 HALEAKALA AVE	96792	FINDS	
WAIANAE	1001475695	MAILI KAI EMERGENCY ACCESS ROAD SI	MAILI KAI EMERGENCY RD	96792	CERCLIS, SHWS	
WAIANAE	S104534216	INDUSTRIAL TECHNOLOGY TIRE PILE	87-459 MAILIILI RD	96792	SHWS	
WAIANAE	1003842419	NANAKULI INTERMEDIATE/HS	89-980 NANAKULI	96792	FTTS	
WAIANAE	1003451069	NANAKULI INTERMEDIATE/HS	89-980 NANAKULI	96792	FINDS	
WAIANAE	1003879150	KAENA PT SAT TRACKING STA	33MI NW OF HONOLULU ON RTE 930	96792	CERC-NFRAP	
WAIANAE	S104534337	PAHEEHEE PLACE	86-516 PAHEEHEE PL	96792	SHWS	

DETAIL MAP - 1695993.1p - URS Corporation



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CITY/STATE/ZIP:	Waianae HI 96792	INQUIRY #:	1695993.1p
LAT/LONG:	21.3821 / 158.1430	DATE:	October 25, 2001 7:28 am

MAP FINDINGS SUMMARY

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
FEDERAL ASTM STANDARD								
NPL		1.000	0	0	0	0	NR	0
Proposed NPL		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		0.250	0	0	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
STATE ASTM STANDARD								
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
SHWS		1.000	0	0	0	0	NR	0
FEDERAL ASTM SUPPLEMENTAL								
CONSENT		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
Delisted NPL		1.000	0	0	0	0	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
MINES		0.250	0	0	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
FTTS		TP	NR	NR	NR	NR	NR	0
EDR PROPRIETARY DATABASES								
Coal Gas		1.000	0	0	0	0	NR	0

AQUIFLOW - see EDR Physical Setting Source Addendum

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM STANDARD RECORDS

NPL: National Priority List
Source: EPA
Telephone: N/A
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 07/26/01
Date Made Active at EDR: 08/28/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/06/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 08/06/01

Proposed NPL: Proposed National Priority List Sites
Source: EPA
Telephone: N/A

Date of Government Version: 07/26/01
Date Made Active at EDR: 08/28/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 08/06/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 08/06/01

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA
Telephone: 703-413-0223
CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 07/12/01
Date Made Active at EDR: 10/16/01
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 09/24/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 09/24/01

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned
Source: EPA
Telephone: 703-413-0223
As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 07/12/01
Date Made Active at EDR: 10/16/01
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 09/24/01
Elapsed ASTM days: 22
Date of Last EDR Contact: 09/24/01

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Date of Government Version: 03/27/01
Date Made Active at EDR: 05/16/01
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 04/11/01
Elapsed ASTM days: 35
Date of Last EDR Contact: 09/11/01

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 06/21/00
Date Made Active at EDR: 07/31/00
Database Release Frequency: Semi-Annually

Date of Data Arrival at EDR: 07/10/00
Elapsed ASTM days: 21
Date of Last EDR Contact: 07/02/01

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 08/08/00
Date Made Active at EDR: 09/06/00
Database Release Frequency: Quarterly

Date of Data Arrival at EDR: 08/11/00
Elapsed ASTM days: 26
Date of Last EDR Contact: 08/10/01

FEDERAL ASTM SUPPLEMENTAL RECORDS

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/97
Database Release Frequency: Biennially

Date of Last EDR Contact: 09/18/01
Date of Next Scheduled EDR Contact: 12/17/01

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: N/A
Database Release Frequency: Varies

Date of Last EDR Contact: N/A
Date of Next Scheduled EDR Contact: N/A

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 09/30/00
Database Release Frequency: Annually

Date of Last EDR Contact: 10/09/01
Date of Next Scheduled EDR Contact: 01/07/02

DELISTED NPL: National Priority List Deletions
Source: EPA
Telephone: N/A
The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Site	Database(s)	EDR ID Number EPA ID Number
TEXACO STATION 611000093 **87 1942 FARRINGTON HWY** **WAIANAE, HI 96792**	RCRIS-SQG FINDS SHWS	1000688446 HID984465052

RCRIS:
Owner: TEXACO REFINING AND MKT INC
(206) 827-0761
Contact: DALE ANDERT
(503) 226-3575
Record Date: 04/08/1992
Classification: Small Quantity Generator
Used Oil Recyc: No

Violation Status: No violations found

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Facility Registry System (FRS)
Resource Conservation and Recovery Act Information system (RCRAINFO)

SHWS:

File Section :	Not reported
Type :	Private
Department 1 :	TEXACO
Department 2 :	Not reported
Department 3 :	Texaco Station 61-100-093
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	10/15/98
ISST Priority :	Medium
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Not reported
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Not reported
REM Date :	Not reported
REM Last Update :	12/15/98
Input By :	Tammie Oao
Case :	19980501-0000
Fed Id :	Not reported
UST :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
TEXACO STATION 611000093 (Continued)		1000688446

Permits :	Not reported
RCRA :	Not reported
Program :	Not reported
Priority :	Not reported
Lat/Long :	Not reported
Cost :	Not reported
CU QNTY Site :	Not reported
Enforcement :	Not reported
CU Method :	Not reported
Ownership :	Not reported
Tax Map Key :	Not reported
Form :	Not reported
EPCRA :	Not reported
EPCRA FIL :	Not reported
Pathways :	Not reported
Targets :	Not reported
Manager :	Steven Okoji
REM Result :	Not reported
Identifier :	Not reported
Site Code :	Not reported
Event :	Not reported
Event Type :	Not reported
Notes :	Not reported
Site :	Not reported
Site_ :	Not reported
Operator :	Not reported
Current :	Not reported
Compounds :	Not reported
Oname :	Not reported

USARMY MAKUA MILITARY RESERVATION **FARRINGTON HWY** **WAIANAE, HI 96792**	CERCLIS RCRIS-SQG FINDS RCRIS-TSD CORRACTS	1000423973 HI7210022227

RCRIS:
Owner: US ARMY SUPPORT COMMAND HAWAII
(808) 438-9967
Contact: ENVIRONMENTAL MANAGER
(808) 655-0651
Record Date: 07/23/1993
Classification: Conditionally Exempt Small Quantity Generator, Hazardous Waste Transporter
Used Oil Recyc: No

Violation Status: Violations exist

Regulation Violated:	Not reported
Area of Violation:	TSD-Thermal Treatment Requirements
Date Violation Determined:	01/05/1994
Priority of Violation:	Low
Schedule Date to Achieve Compliance:	Not reported
Actual Date Achieved Compliance:	01/05/1994
Enforcement Action:	Written Informal
Enforcement Action Date:	07/13/1993
Proposed Monetary Penalty:	Not reported
Final Monetary Penalty:	Not reported

Site	Database(s)	EDR ID Number / EPA ID Number
USARMY MAKUA MILITARY RESERVATION (Continued)		1000423973

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 01/05/1994
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 04/05/1994

Enforcement Action: Written Informal
Enforcement Action Date: 07/13/1993
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 01/05/1994
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 04/05/1994

Enforcement Action: Written Informal
Enforcement Action Date: 07/13/1993
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 01/05/1994
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 04/05/1994

Enforcement Action: Written Informal
Enforcement Action Date: 07/13/1993
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Closure/Post Closure Requirements
Date Violation Determined: 10/23/1991
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 12/23/1991

Enforcement Action: Written Informal
Enforcement Action Date: 10/28/1991
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 10/23/1991
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 12/23/1991

Enforcement Action: Written Informal
Enforcement Action Date: 10/28/1991
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements

Site	Database(s)	EDR ID Number / EPA ID Number
USARMY MAKUA MILITARY RESERVATION (Continued)		1000423973

Date Violation Determined: 10/23/1991
Priority of Violation: Low
Schedule Date to Achieve Compliance: Not reported
Actual Date Achieved Compliance: 12/23/1991

Enforcement Action: Written Informal
Enforcement Action Date: 10/28/1991
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 04/09/1987
Priority of Violation: Low
Schedule Date to Achieve Compliance: 09/15/1987
Actual Date Achieved Compliance: 09/10/1987

Enforcement Action: Written Informal
Enforcement Action Date: 08/11/1987
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 07/24/1986
Priority of Violation: Low
Schedule Date to Achieve Compliance: 09/15/1987
Actual Date Achieved Compliance: 09/10/1987

Enforcement Action: Written Informal
Enforcement Action Date: 08/11/1987
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

Regulation Violated: Not reported
Area of Violation: TSD-Other Requirements
Date Violation Determined: 03/15/1989
Priority of Violation: Low
Schedule Date to Achieve Compliance: 12/26/1989
Actual Date Achieved Compliance: 05/02/1990

Enforcement Action: Written Informal
Enforcement Action Date: 11/24/1989
Proposed Monetary Penalty: Not reported
Final Monetary Penalty: Not reported

There are 10 violation record(s) reported at this site:

Evaluation	Area of Violation	Date of Compliance
Compliance Evaluation Inspection (CEI)	TSD-Thermal Treatment Requirements	01/05/1994
	TSD-Other Requirements	04/05/1994
	TSD-Other Requirements	04/05/1994
	TSD-Other Requirements	04/05/1994
	TSD-Other Requirements	05/02/1990
Compliance Evaluation Inspection (CEI)	TSD-Closure/Post Closure Requirements	12/23/1991
	TSD-Other Requirements	12/23/1991
	TSD-Other Requirements	12/23/1991
Compliance Evaluation Inspection (CEI)	TSD-Other Requirements	09/10/1987
Compliance Evaluation Inspection (CEI)	TSD-Other Requirements	09/10/1987

Site	Database(s)	EDR ID Number EPA ID Number

USARMY MAKUA MILITARY RESERVATION (Continued) 1000423973

CERCLIS Classification Data:
Site Incident Category: Not reported
Federal Facility: Federal Facility
Non NPL Status: Other Cleanup Activity; Federal Facility-Lead Cleanup
Ownership Status: Federally Owned
NPL Status: Not on the NPL

CERCLIS Assessment History:

Assessment:	DISCOVERY	Completed:	02/12/1988
Assessment:	PRELIMINARY ASSESSMENT	Completed:	06/26/1992
Assessment:	SITE INSPECTION	Completed:	06/26/1992
Assessment:	SITE INSPECTION	Completed:	12/15/1993

CERCLIS Site Status:
Low

CERCLIS Alias Name(s):
MAKUA MILITARY RESERVATION

FINDS:
Other Pertinent Environmental Activity Identified at Site:
Comperhensive Environmental Response, Compensation and Liability Information System (CERCLIS)
Facility Registry System (FRS)
Federal Facility Information System (FFIS)
Resource Conservation and Recovery Act information system (RCRAINFO)

CORRACTS Data:

EPA Id:	HI7210022227
Region:	09
State:	HI
Area Name:	ENTIRE FACILITY
CORRACT Event Code:	CA075ME
Original Scheduled Date:	Not reported
New Scheduled Date:	Not reported
Actual Date:	06/26/1992

NANAKULI ELEMENTARY SCHOOL
89-778 HALEAKALA AVE
WAIANAE, HI 96792
FTTS 1003842418
N/A

FTTS Insp:

Region:	09
Inspected Date:	03/02/01
Insp Number:	03/02/01
Violation occurred:	Not reported
Inspector:	KCHANG
Investigation Type:	AHERA, Enforcement, State Conducted
Facility Function:	User
Investig Reason:	Neutral Scheme, State
Legislation Code:	TSCA

FTTS Insp:

Region:	09
Inspected Date:	03/02/01
Insp Number:	03/02/01
Violation occurred:	Not reported
Inspector:	KCHANG
Investigation Type:	AHERA, Enforcement, State Conducted
Facility Function:	User
Investig Reason:	Neutral Scheme, State
Legislation Code:	TSCA

Site	Database(s)	EDR ID Number EPA ID Number

NANAKULI ELEMENTARY SCHOOL
89-778 HALEAKALA AVE
WAIANAE, HI 96792
FINDS 1003634505
000011312356

FINDS:
Other Pertinent Environmental Activity Identified at Site:
National Compliance Database (NCDB)

MAILI KAI EMERGENCY ACCESS ROAD SITE
MAILI KAI EMERGENCY RD
WAIANAE, HI 96792
CERCLIS 1001475695
SHWS HISFN0905437

CERCLIS Classification Data:
Site Incident Category: Not reported
Federal Facility: Not a Federal Facility
Non NPL Status: PA Start Needed
Ownership Status: Not reported
NPL Status: Not on the NPL

CERCLIS Assessment History:
Assessment: DISCOVERY
Completed: 12/12/1996

CERCLIS Site Status:
Not reported

SHWS:

File Section :	Central
Type :	Private
Department 1 :	Not reported
Department 2 :	Not reported
Department 3 :	Not reported
Table :	Sitelist
Island :	Oahu
Zip :	Not reported
Discovery Assesment and Remediation :	Not reported
Initial Site Screening Team Lead :	Not reported
ISST Assigned :	Not reported
ISST Date :	9/24/97
ISST Priority :	Medium
ISST Letter :	Not reported
Env Justice Eligible :	Not reported
Preliminary Assesment :	Not reported
PA Lead :	Not reported
PA Date :	Not reported
PA Result :	Not reported
Site Investigation :	Not reported
SI Lead :	Not reported
SI Date :	Not reported
SI Result :	Not reported
Remediation Action Planned :	Yes
VRP :	Not reported
Brownfields :	Not reported
Agreement :	Not reported
Remedial Investigation :	Not reported
RAA :	Not reported
Response Action Memo :	Not reported
REM Lead :	Charley Laniger
REM Date :	Not reported
REM Last Update :	8/10/98
Input By :	Marsha Graf
Case :	19961212-1040
Fed Id :	Not reported
UST :	Not reported
Permits :	Not reported
RCRA :	Not reported

Site	Database(s)	EDR ID Number EPA ID Number
MAILI KAI EMERGENCY ACCESS ROAD SITE (Continued)		1001475695
Program : Not reported Priority : Not reported Lat/Long : Not reported Cost : Not reported CU ONTY Site : Not reported Enforcement : Not reported CU Method : Not reported Ownership : Not reported Tax Map Key : Not reported Form : Not reported EPCRA : Not reported EPCRA FIL : Not reported Pathways : Not reported Targets : Not reported Manager : Charley Langer REM Result : Not reported Identifier : Not reported Site Code : EJ Event : Not reported Event Type : Not reported Notes : Not reported Site : Not reported Site_ : Not reported Operator : Not reported Current : Not reported Compounds : Not reported Oname : Not reported		
INDUSTRIAL TECHNOLOGY TIRE PILE 87-459 MAILILI RD WAIANAE, HI 97692	SHWS	S104534215 N/A
SHWS: File Section : Central Type : Private Department 1 : Not reported Department 2 : Not reported Department 3 : Not reported Table : Sitelist Island : Oahu Zip : Not reported Discovery Assesment and Remediation : Not reported Initial Site Screening Team Lead : Laura Young ISST Assigned : Not reported ISST Date : 6/11/99 ISST Priority : Medium ISST Letter : Not reported Env Justice Eligible : Not reported Preliminary Assesment : Not reported PA Lead : Not reported PA Date : Not reported PA Result : Not reported Site Investigation : Not reported SI Lead : Not reported SI Date : Not reported SI Result : Not reported Remediation Action Planned : Not reported VRP : Not reported		

Site	Database(s)	EDR ID Number EPA ID Number
INDUSTRIAL TECHNOLOGY TIRE PILE (Continued)		S104534215
Brownfields : Not reported Agreement : Not reported Remedial Investigation : Not reported RAA : Not reported Response Action Memo : Not reported REM Lead : Not reported REM Date : Not reported REM Last Update : 6/15/99 Input By : Marsha Graf Case : 19970721-0945 Fed Id : Not reported UST : Not reported Permits : Not reported RCRA : Not reported Program : Not reported Priority : Not reported Lat/Long : Not reported Cost : Not reported CU ONTY Site : Not reported Enforcement : Not reported CU Method : Not reported Ownership : Not reported Tax Map Key : Not reported Form : Not reported EPCRA : Not reported EPCRA FIL : Not reported Pathways : Not reported Targets : Not reported Manager : Not reported REM Result : Not reported Identifier : Not reported Site Code : EE Event : Not reported Event Type : Not reported Notes : Not reported Site : Not reported Site_ : Not reported Operator : Not reported Current : Not reported Compounds : Not reported Oname : Not reported		
NANAKULI INTERMEDIATE/HS 89-980 NANAKULI WAIANAE, HI 96792	FTTS	1003842419 N/A
FTTS insp: Region: 09 Inspected Date: 06/21/95 Insp Number: 06/21/95 Violation occurred: No Inspector: RLOPES Investigation Type: AHERA, Enforcement, State Conducted Facility Function: User Investig Reason: Neutral Scheme, State Legislation Code: TSCA FTTS insp: Region: 09		

Site	Database(s)	EDR ID Number EPA ID Number
NANAKULI INTERMEDIATE/HS (Continued)		1003842419
Inspected Date: 06/21/95 Insp Number: 06/21/95 Violation occurred: No Inspector: RLOPES Investigation Type: AHERA, Enforcement, State Conducted Facility Function: User Investig Reason: Neutral Schema, State Legislation Code: TSCA		
NANAKULI INTERMEDIATE/HS **89-980 NANAKULI** **WAIANAE, HI 96792**	FINDS	1003451069 000009210824
FINDS: Other Pertinent Environmental Activity Identified at Site: National Compliance Database (NCDB)		
KAENA PT SAT TRACKING STA **33MI NW OF HONOLULU ON RTE 930** **WAIANAE, HI 96792**	CERC-NFRAP	1003879150 HI1570096486
CERCLIS-NFRAP Classification Data: Site Incident Category: Not reported — Federal Facility: Federal Facility Non NPL Code: NFRAP Ownership Status: Federally Owned — NPL Status: Not on the NPL Site Description: LOCATION ADDRESS - 33 MI NW OF HONOLULU ON RTE 930 (FARRING-TON HIGHWAY). CERCLIS-NFRAP Assessment History: Assessment: DISCOVERY — Completed: 11/01/1986 Assessment: PRELIMINARY ASSESSMENT — Completed: 04/28/1993		
PAHEEHEE PLACE **86-516 PAHEEHEE PL** **WAIANAE, HI**	SHWS	S104534337 N/A
SHWS: File Section : Central Type : Private Department 1 : Not reported Department 2 : Not reported Department 3 : Not reported Table : Sitelist Island : Oahu Zip : Not reported Discovery Assesment and Remediation : Not reported Initial Site Screening Team Lead : Not reported ISST Assigned : Not reported ISST Date : Not reported ISST Priority : Not reported ISST Letter : Not reported Env Justice Eligible : Not reported Preliminary Assesment : Not reported PA Lead : Not reported PA Date : Not reported PA Result : Not reported Site Investigation : Not reported SI Lead : Not reported		

Site	Database(s)	EDR ID Number EPA ID Number
PAHEEHEE PLACE (Continued)		S104534337
SI Date : Not reported SI Result : Not reported Remediation Action Planned : Not reported VRP : Not reported Brownfields : Not reported Agreement : Not reported Remedial Investigation : Not reported RAA : Not reported Response Action Memo : Not reported REM Lead : Not reported REM Date : Not reported REM Last Update : 7/4/97 Input By : Marsha Graf Case : 19970228-1310 Fed Id : Not reported UST : Not reported Permits : Not reported RCRA : Not reported Program : Not reported Priority : Not reported Lat/Long : Not reported Cost : Not reported CU CNTY Site : Not reported Enforcement : Not reported CU Method : Not reported Ownership : Not reported Tax Map Key : Not reported Form : Not reported EPCRA : Not reported EPCRA FIL : Not reported Pathways : Not reported Targets : Not reported Manager : Amy Baylor REM Result : Not reported Identifier : Not reported Site Code : Not reported Event : Not reported Event Type : Not reported Notes : Not reported Site : Not reported Site_ : Not reported Operator : Not reported Current : Not reported Compounds : Not reported Oname : Not reported		

App. 9 - C

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED
NOV - 2 2001
URS Corp. Honolulu

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

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

In reply, please refer to
File:
01-136/epo

November 1, 2001

Ms. Bernice Pabingwit
URS Corporation
615 Piikoi Street, Suite 200
Honolulu, Hawaii 96814

Dear Ms. Pabingwit:

Subject: REQUEST FOR PUBLIC RECORDS
Project Number: 92-00100048, 00/00000
TMK: 1-8-9-002: 001 & 064

Thank you for allowing us to review and comment on the subject proposal. We do not have any comments to offer at this time.

Sincerely,

June F. Harrigan-Lum

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

Environmental Data Resources, Inc.

"Linking Technology with Tradition"

Sanborn® Map Report

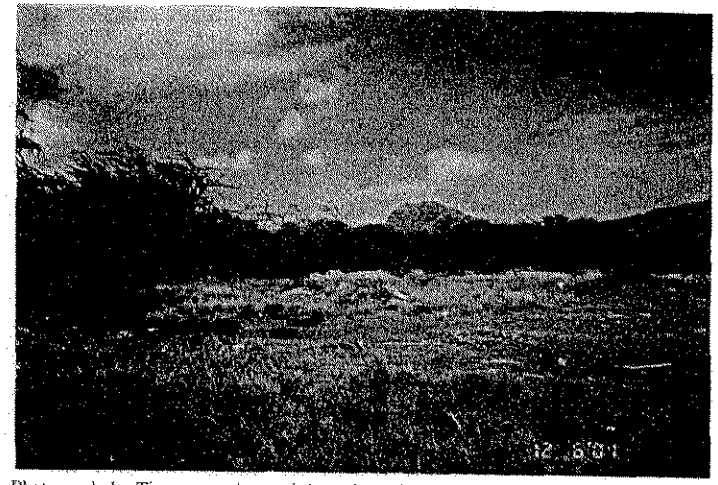
Ship to: Bernie Pabingwit
URS Corporation
615 Piikoi Street
Honolulu, HI 96814

1031179ACP 808-593-1197

Order Date: 10/24/2001 **Completion Date:** 10/25/2001
Inquiry #: 695993.2s
P.O. #: 92-00100048.00/00000
Site Name: Nanakuli Kokua Ohana Center Phase I EAS
Address: 89-102 Farrington Hwy
City/State: Waianae, HI 96792
Cross Streets: Nanakuli Ave to SE, Haleakala

This document reports that the largest and most complete collection of Sanborn fire insurance maps has been reviewed based on client-supplied information, and fire insurance maps depicting the target property at the specified address were not identified.

NO COVERAGE

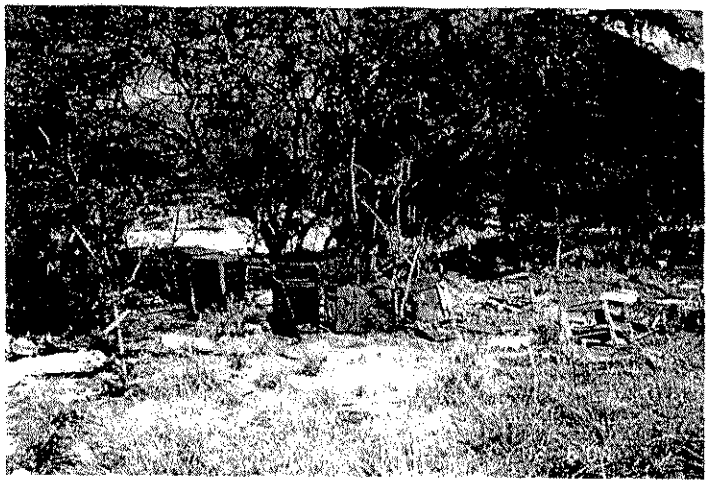


Photograph 1: Tires were observed throughout the project site, including this area near the southern boundary.

Photograph 2: Batteries were also a common waste observed at the project site, here also shown near the south property line.

Photograph 3: These three empty, rusted, drums were observed in a natural drainage ditch #1 located near the eastern property boundary.

Photograph 4: These two empty drums were observed in a natural drainage ditch #2.



Photograph 5: These rusted appliances, equipment, and furniture were observed near the western project site boundary, close to the drainage channel.

Photograph 6: Rusty drum remnants, tires, concrete debris, scrap wood, and miscellaneous trash were observed near the northern boundary of the project site.

Photograph 7: Several vehicles were observed on the site, including these two that were located in the drainage channel located along the western boundary of the Property. There were no visible signs of stained concrete.

Traffic Impact Report

Nanakuli Youth Center and Commercial Center

Submitted to:
Nanakuli Homestead Association
Century Square

Submitted by:
Wilson Okamoto Corporation

September 2005

TRAFFIC IMPACT REPORT

FOR THE PROPOSED

NANAKULI COMMUNITY CENTER

Prepared for:

Nanakuli Homestead Association
Century Square
1188 Bishop Street, Suite 909
Honolulu, Hawaii 96813

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

September 2005

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the proposed Nanakuli Community Center in Nanakuli on the Island of Oahu. The proposed project will be situated on an approximately 4.4-acre site north of Nanakuli Avenue between Farrington Highway and Mano Avenue and includes recreational community center, commercial, and residential land uses.

B. Scope of Study

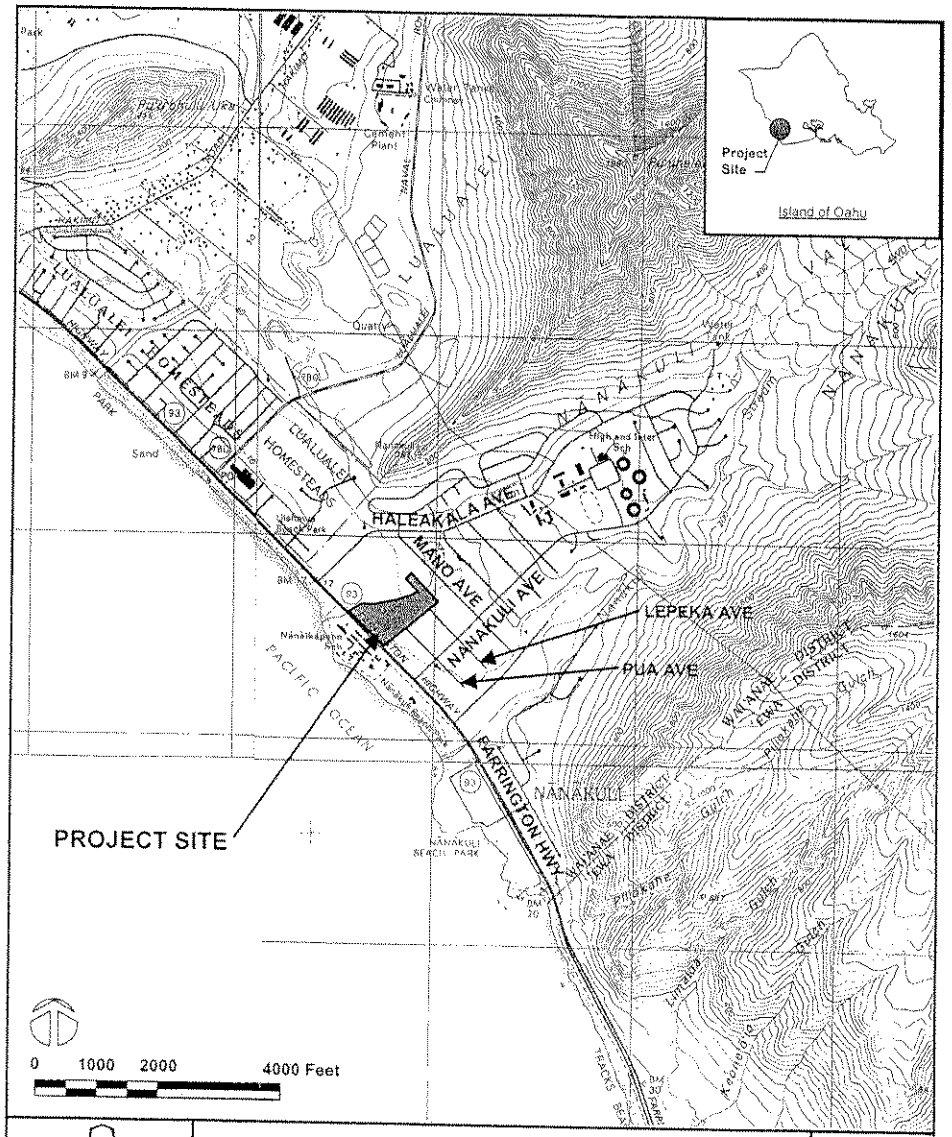
This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site will be located in Nanakuli in the island of Oahu and is further identified as Tax Map Keys 8-9-02: 01 and 67 (see Figure 1). The proposed project is bordered by a drainage channel to the north, Farrington Highway to the west, and single-family residences to the south and east. Primary access to the proposed project would be provided via Pua Avenue and Lepeka Avenue off of Nanakuli Avenue. An additional driveway will be provided along Farrington Highway, however, traffic movements are assumed to be limited at this driveway since Farrington Highway is a



limited access roadway.

B Project Characteristics

The proposed Nanakuli Community Center Project will be located on a site that encompasses approximately 4.4 acres. The proposed project is expected to be completed by the Year 2008 and includes a community center (47,685 square feet) consisting of large multipurpose rooms, boardrooms and offices, Boys and Girls Club (45,979 square feet) with a support program that would address the primary prevention needs for the youth of the community, a commercial center (46,930 square feet), and residential condominiums (50 units) located above the commercial center. The project site plan is shown in Figure 2.

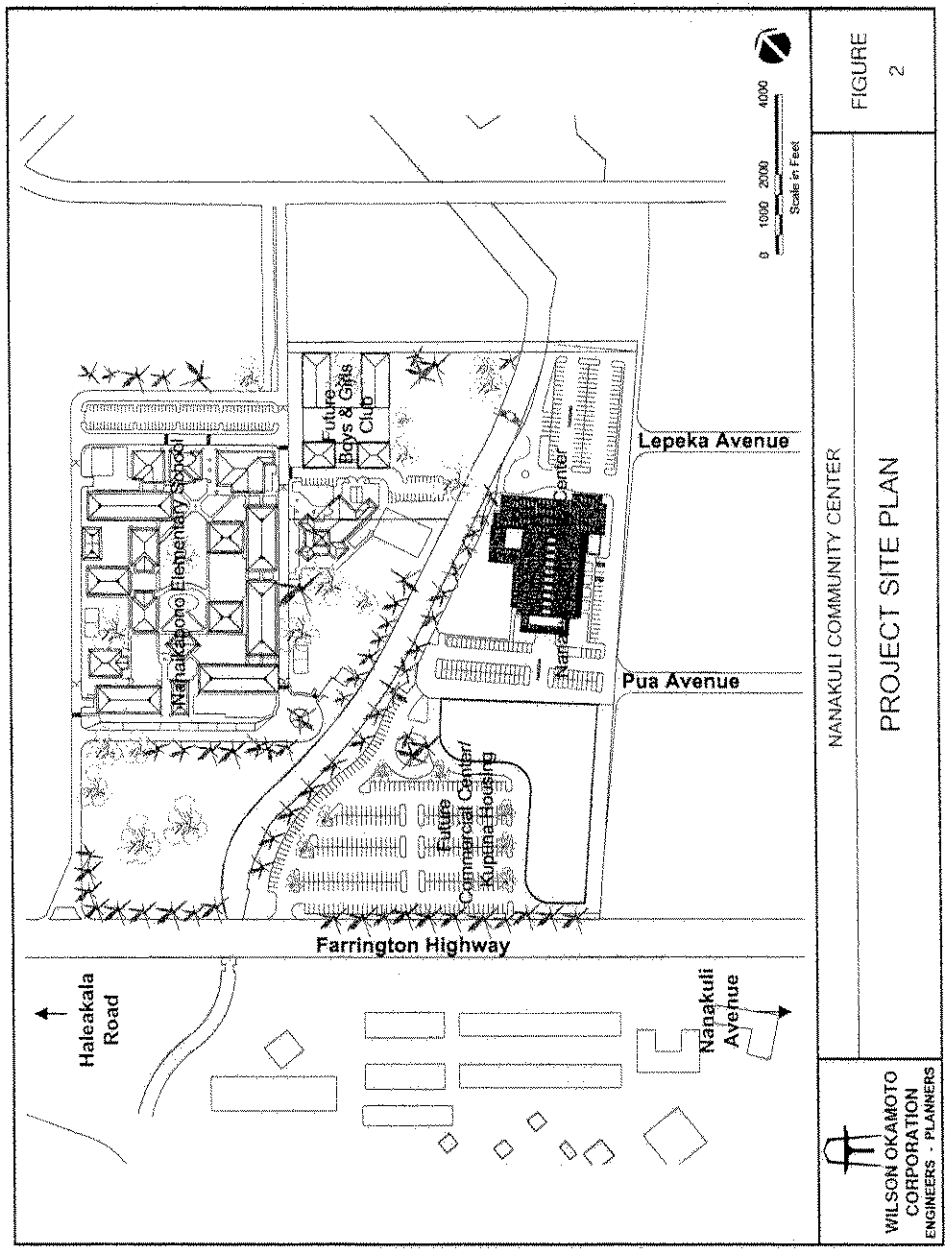
III. EXISTING TRAFFIC CONDITIONS

A. General

The proposed project is located adjacent to Farrington Highway north of Nanakuli Avenue. In the vicinity of the project, Farrington Highway is predominately a two-way, four-lane State of Hawaii roadway generally oriented in the north-south direction which serves as the main access road along the western coast of Oahu between the H-1 Freeway and its terminus near Makaha. In recent years, traffic volumes along Farrington Highway have increased steadily due to development along the Waianae coast.

B. Area Roadway System

In the vicinity of the project site, Farrington Highway intersects with Nanakuli Avenue and a park driveway. Nanakuli Avenue is predominately a two-way, two-lane roadway generally oriented in the east-west direction that serves as an access road for residents between the surrounding neighborhoods and Farrington Highway. At this signalized intersection, the westbound approach has one shared left-turn and through lane and one exclusive right-turn lane while the northbound and southbound approaches of Farrington Highway have one shared left-turn and through lane and one shared through and right-turn lane. The eastbound approach of this intersection is comprised of a park driveway which has one lane that serves all traffic movements.



Approximately 2,200 feet (0.42 miles) north of intersection with Nanakuli Avenue, Farrington Highway intersects Haleakala Avenue, a predominately two-lane, two-way roadway generally oriented in the east-west direction which serves as an access road for residents from surrounding neighborhoods and Farrington Highway. At the intersection with Farrington Highway, the westbound approach of Haleakala Avenue has one lane that serves right-turn and left-turn traffic movements. Along Farrington Highway, the northbound approach of this t-intersection has one through lane and one shared through and right-turn lane while the southbound approach has one through lane and one shared left-turn and through lane.

Approximately 1,600 feet (0.30 miles) east of Farrington Highway, Haleakala Avenue intersects Mano Avenue, a predominately two-way, two-lane roadway generally oriented in the north-south direction between Palikea Street and its southern terminus south of Nanakuli Avenue. At this two-way stop controlled intersection, all four approaches have one shared through, right-turn, and left-turn lane.

Approximately 2,100 feet (0.40 miles) southeast of the intersection with Haleakala Avenue, Mano Avenue intersects Nanakuli Avenue. At this two-way stop controlled intersection, all four approaches have one shared through, right-turn, and left-turn lane..

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

A field investigation was conducted on November 16 and 22, 2004 and consisted of manual turning movement count surveys during the morning peak period between 5:30 AM and 8:30 AM, and the afternoon peak period between 3:00 PM and 6:00 PM at the following intersections:

- Farrington Highway and Nanakuli Avenue
- Farrington Highway and Haleakala Avenue

In addition, manual turning counts surveys were taken during the morning peak period between 6:00 AM and 8:00 AM, and the afternoon peak period between 3:30 PM and 5:30 PM at the following

intersections:

- Mano Avenue and Haleakala Avenue
- Mano Avenue and Nanakuli Avenue

Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak periods of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F"; LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak period Traffic

a. General

Figures 3 and 4 illustrate the existing AM and PM peak period traffic volumes and operating conditions. In the vicinity of the proposed project, the absolute commuter peak period time periods for each intersection are shown in Table 1.

Table 1: Peak Periods of Traffic

Intersection	AM Peak	PM Peak
Farrington Highway/Haleakala Avenue	7:30 AM to 8:30 AM	4:00 PM to 5:00 PM
Farrington Highway/Nanakuli Avenue	7:00 AM to 8:00 AM	3:15 PM to 4:15 PM
Mano Avenue/Haleakala Avenue	7:00 AM to 8:00 AM	3:30 PM to 4:30 PM
Mano Avenue/Nanakuli Avenue	7:00 AM to 8:00 AM	3:30 PM to 4:30 PM

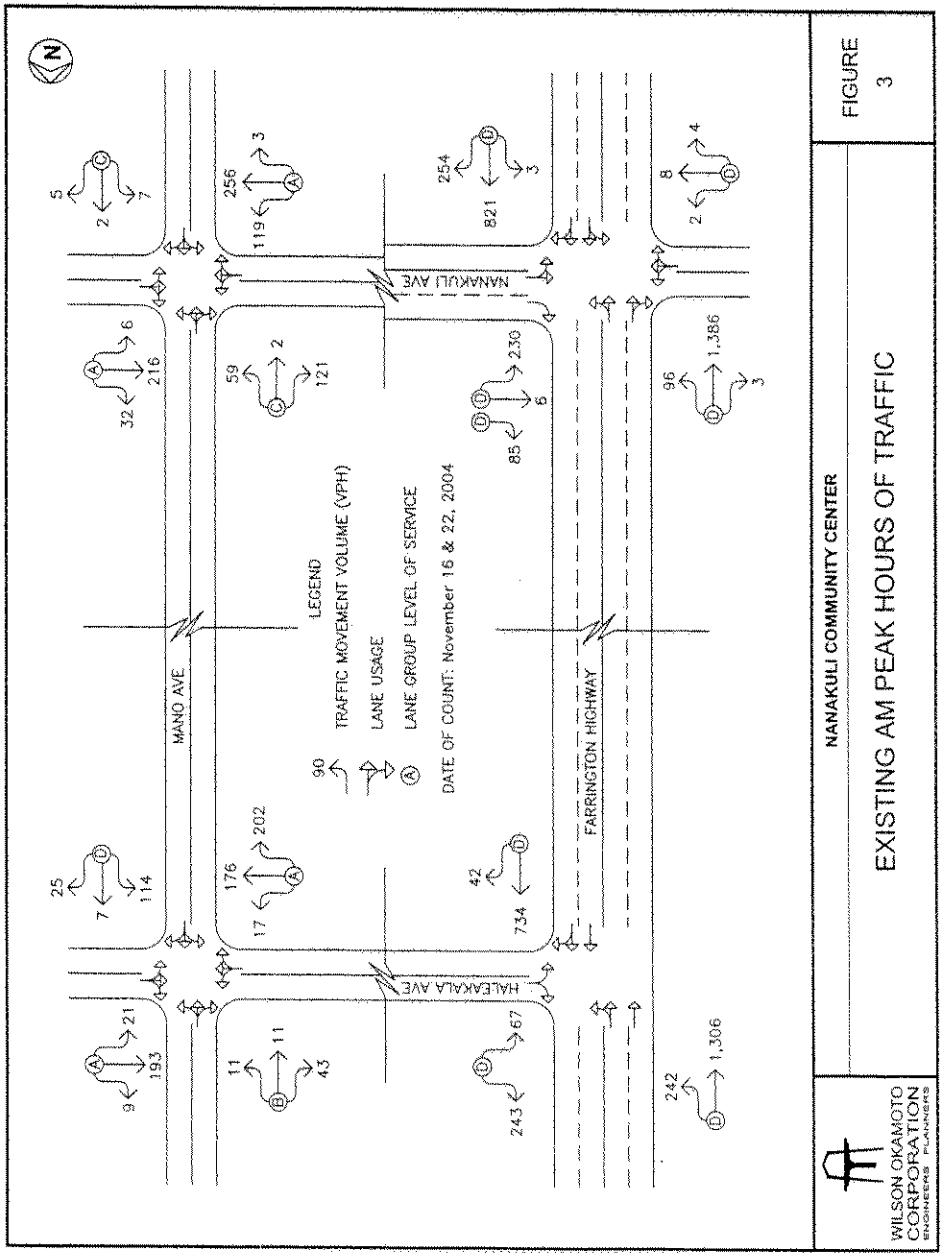
The analysis is based on these peak period time periods to identify the traffic impacts resulting from the proposed project. The LOS calculation worksheets are included in Appendix C.

b. Farrington Highway and Nanakuli Avenue

At the signalized intersection of Farrington Highway and Nanakuli Avenue, Nanakuli Avenue carries 321 vehicles and 163 vehicles westbound during the AM and PM peak periods, respectively. This approach operates at LOS "D" during both peak hours of traffic.

Farrington Highway carries 1,078 vehicles northbound and 1,486 vehicles southbound at this intersection during the AM peak period and 1,867 vehicles northbound and 1,149 vehicles southbound during the PM peak period. Both approaches of Farrington Highway operate at LOS "D" during both the peak periods of traffic.

The eastbound approach of the intersection is comprised of a park driveway. Traffic volumes on this approach are minimal with 14 vehicles traveling eastbound during the AM peak period and 23 vehicles traveling eastbound during the PM peak period.



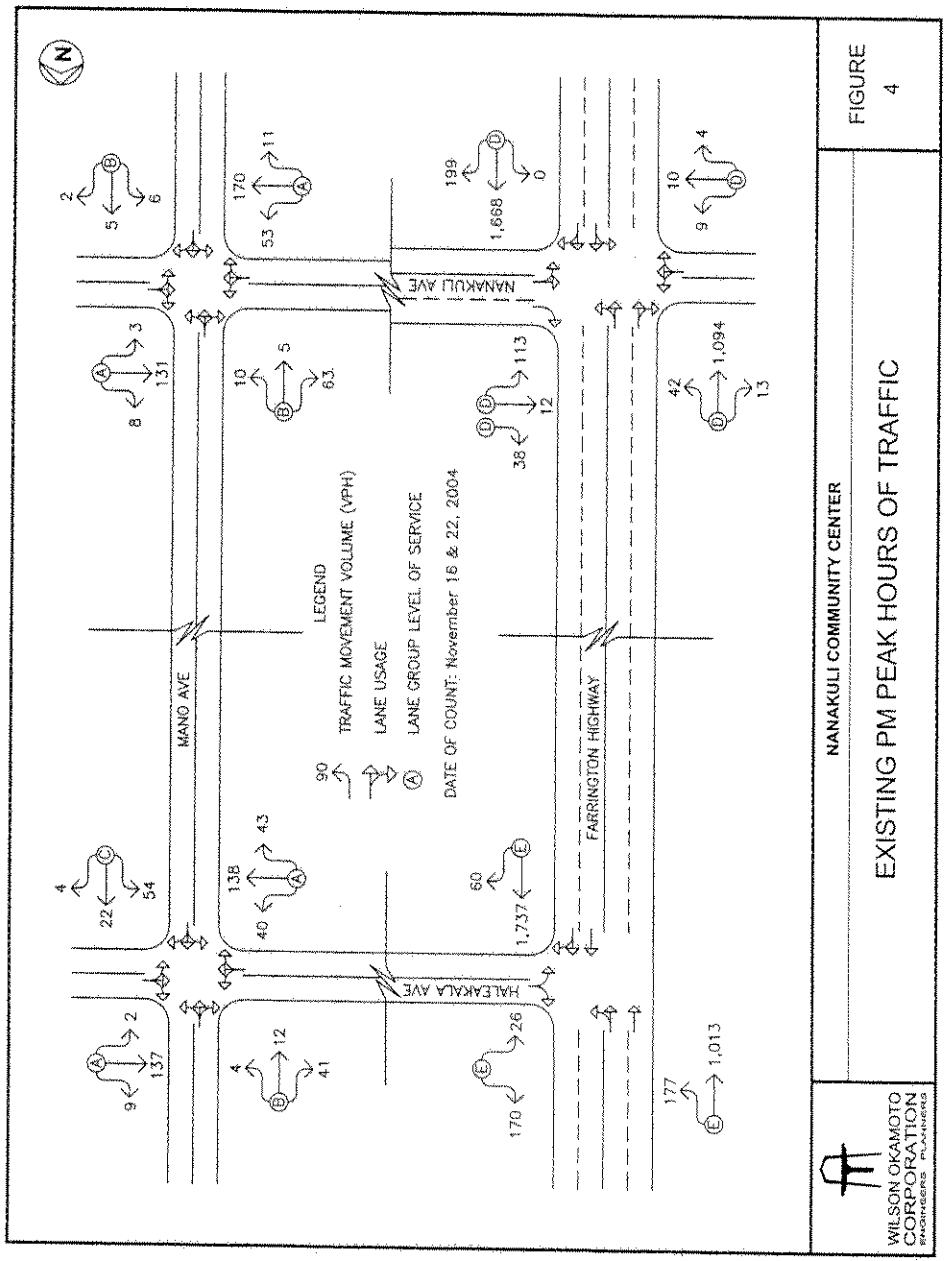


FIGURE 4

NANAKULI COMMUNITY CENTER

EXISTING PM PEAK HOURS OF TRAFFIC

WILSON OKAMOTO CORPORATION ENGINEERS PLANNERS

Field observations at this intersection indicate that the most significant queuing occurs on the southbound approach of Farrington Highway with average queue lengths of 6 to 8 vehicles observed during both peak periods of traffic. Although some vehicles required more than a signal cycle length to clear the intersection, the majority of these queues cleared the intersection after the end of each traffic signal cycle.

c. Farrington Highway and Haleakala Avenue

At the signalized T-intersection with Farrington Highway, Haleakala Avenue carries 310 vehicles westbound during the AM peak period and 196 vehicles westbound during the PM peak period. Farrington Highway carries 776 vehicles northbound and 1,548 vehicles southbound during the AM peak period, and 1,797 vehicles northbound and 1,190 vehicles southbound during the PM peak period. All approaches of this intersection operate at LOS "D" during the AM peak period and LOS "E" during the PM peak period.

Field observations at the intersection indicate that the most significant queuing occurs on the westbound approach of Haleakala Avenue. Average vehicle queue lengths of approximately 2 to 4 vehicles were observed during the AM peak period and 4 to 6 vehicles were observed during the PM peak period.

d. Mano Avenue and Nanakuli Avenue

At the unsignalized intersection of Mano Avenue and Nanakuli Avenue, Mano Avenue carries 14 vehicles northbound and 182 vehicles southbound during the AM peak period, and 13 vehicles northbound and 78 vehicles southbound during the PM peak period. Nanakuli Avenue carries 378 vehicles eastbound and 254 vehicles westbound during the AM peak period, and 234 vehicles eastbound and 142 vehicles westbound during the PM peak period.

Traffic on the Nanakuli Avenue approaches of the intersection are allowed to proceed freely through the intersection while Mano Avenue approaches are stop controlled. Both approaches of Mano Avenue operate at LOS "C" during the AM peak period and LOS "B" during the PM peak period. Field observations indicate that the most significant queuing occurred on the southbound approach of Mano Avenue. Average vehicle queue lengths of approximately 4 to 6 vehicles were observed during the morning peak and 2 to 4 vehicles were observed during the afternoon peak period.

e. Mano Avenue and Haleakala Avenue

At the unsignalized intersection of Mano Avenue and Haleakala Avenue, Mano Avenue carries 146 vehicles northbound and 65 vehicles southbound during the AM peak period, and 80 vehicles northbound and 57 vehicles southbound during the PM peak period. Haleakala Avenue carries 395 vehicles eastbound and 223 vehicles westbound during the AM peak period, and 221 vehicles eastbound and 148 vehicles westbound during the PM peak period.

Traffic on the Haleakala Avenue approaches of the intersection are allowed to proceed freely through the intersection while Mano Avenue approaches are stop controlled. The southbound approach of Mano Avenue operate at LOS "B" during the AM and PM peak periods while the northbound approach operate at LOS "D" in the AM peak period and LOS "C" in the PM peak period. Field observations indicate that the most significant queuing occurred on the southbound approach of Mano Avenue. Average vehicle queue lengths of approximately 4 to 6 vehicles were observed during the morning peak and 2 to 4 vehicles were observed during the afternoon peak period.

IV PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon

generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per 1,000 square feet of development or dwelling unit. Table 2 summarizes the project site trip generation characteristics applied to the AM and PM peak periods of traffic.

Table 2: Peak Hour Trip Generation

RECREATIONAL COMMUNITY CENTER		
INDEPENDENT VARIABLE		(Thousand Square Feet = 93.6)
		PROJECTED TRIP ENDS
AM PEAK	ENTER	92
	EXIT	60
	TOTAL	152
PM PEAK	ENTER	45
	EXIT	109
	TOTAL	154
SPECIALTY RETAIL CENTER		
INDEPENDENT VARIABLE		(Thousand Square Feet = 46.93)
		PROJECTED TRIP ENDS
AM PEAK	ENTER	0
	EXIT	0
	TOTAL	0
PM PEAK	ENTER	59
	EXIT	75
	TOTAL	134
RESIDENTIAL CONDOMINIUMS/TOWNHOUSE		
INDEPENDENT VARIABLE		(Dwelling Units = 50)
		PROJECTED TRIP ENDS
AM PEAK	ENTER	5
	EXIT	25
	TOTAL	30
PM PEAK	ENTER	23
	EXIT	11
	TOTAL	34

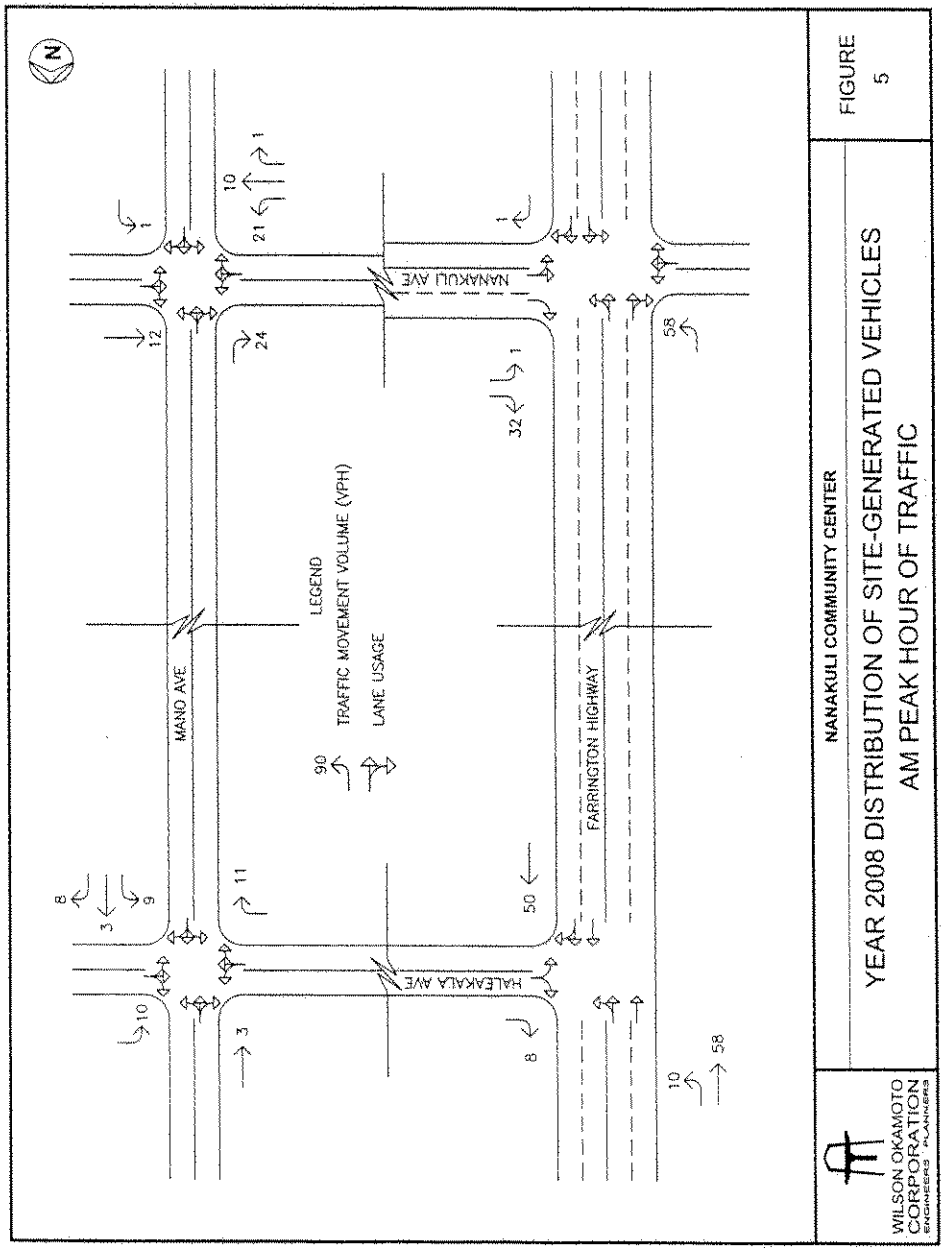
Table 2 (Cont'd): Peak Hour Trip Generation

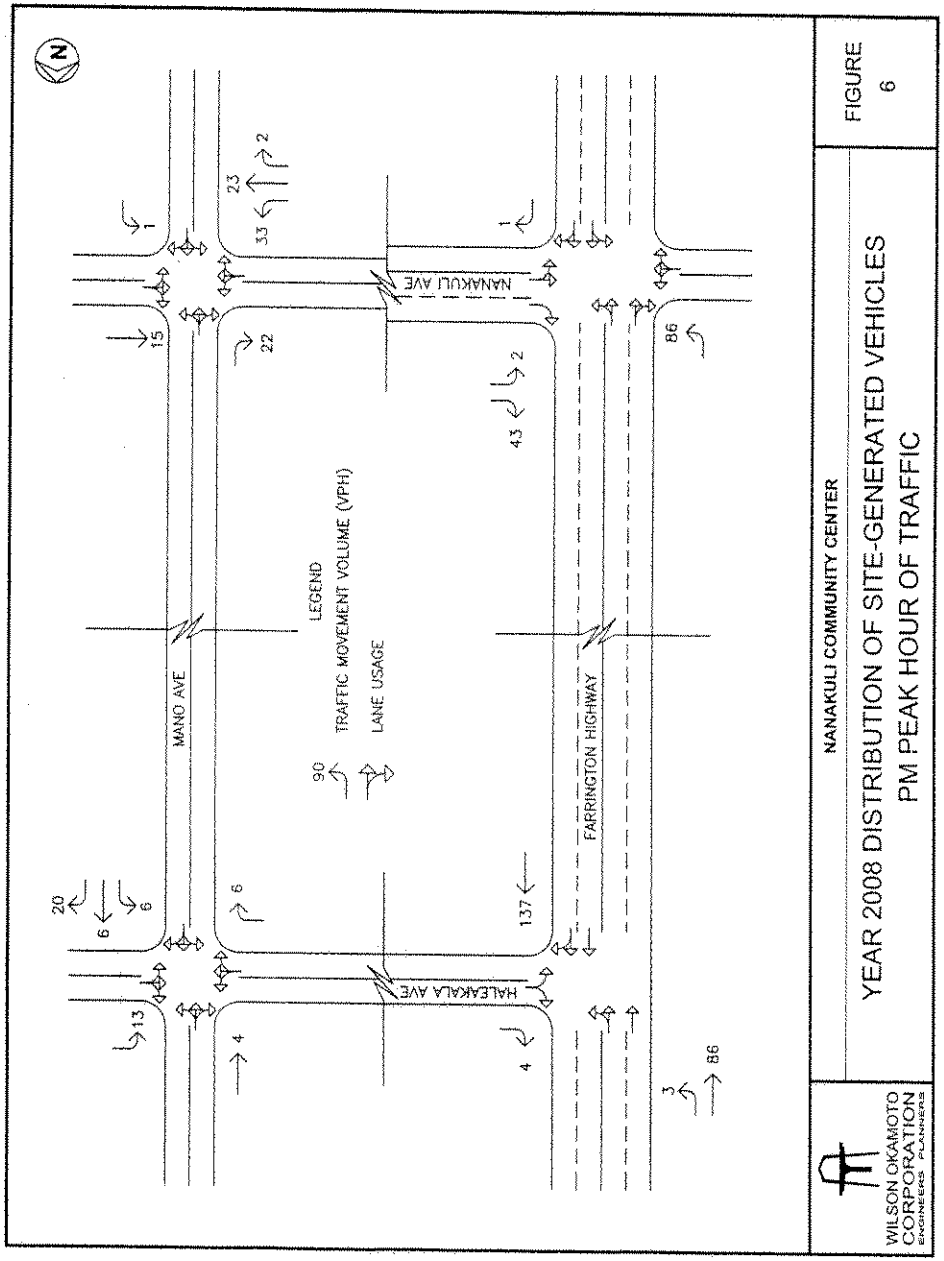
TOTAL TRIPS		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	97
	EXIT	84
	TOTAL	181
PM PEAK	ENTER	127
	EXIT	195
	TOTAL	322

Although a portion of the total trips generated by the commercial component of the project can be assumed to be by-pass trips or trips attracted from existing traffic passing by the site on the way to an origin or from a destination, all site-generated trips were conservatively assumed to be new trips.

2. Trip Distribution

Figures 5 and 6 show the distribution of site-generated vehicular trips at the four study intersections during the AM and PM peak hours of traffic. Access to the proposed project would primarily be via three driveways, one off of Farrington Highway and two off of Nanakuli Avenue. Site-generated vehicular trips were assumed to primarily be attracted from the neighborhoods in the immediate vicinity of the project site (i.e. Nanakuli, Mailli, etc.) rather than more distant communities. As such, the directional distribution of site-generated traffic was based upon the residential housing density of the adjacent surrounding neighborhoods. These site-generated vehicles were then distributed between the three driveways based upon the allowed traffic movements at each driveway and their assumed direction of travel. Due to the volume of traffic along Farrington Highway, traffic movements at the driveway along Farrington Highway were assumed to be restricted to right-turn-in and right-turn-out movements only.





B. Through Traffic Forecasting Methodology

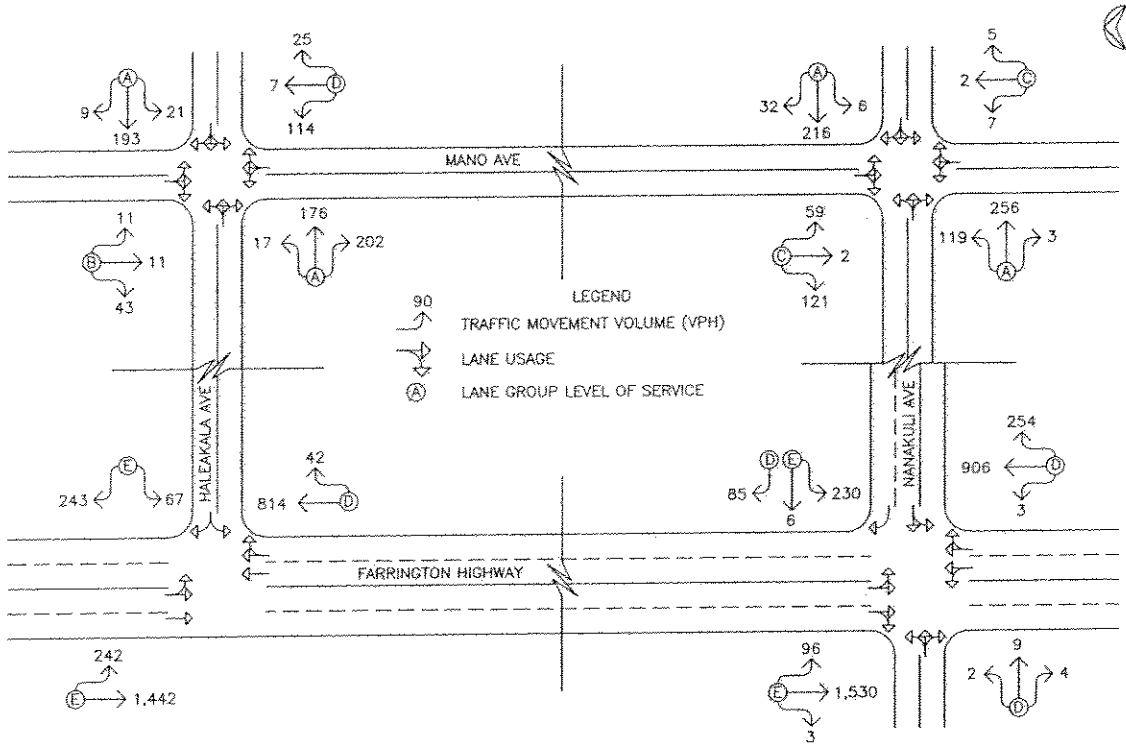
The travel forecast is based upon historical traffic count data obtained from the State DOT, Highways Division at a survey station located along Farrington Highway just north of Haleakala Avenue. The historical data were analyzed by linear regression techniques to obtain an annual traffic growth rate of approximately 2.5% in the project vicinity. Using 2004 as the Base Year, a growth rate factor of 1.104 was applied to the existing through traffic demands along Farrington Highway to achieve the projected Year 2008 traffic demands.

C. Total Traffic Volumes Without Project

The projected Year 2008 without project AM and PM peak period traffic volumes and operating conditions in the project vicinity without the proposed Nanakuli Community Center are shown in Figures 7 and 8, and summarized in Table 3. The existing levels of service are provided for comparison purposes. LOS calculations are included in Appendix D.

Table 3: Existing and Projected (Without Project) LOS Traffic Operating Conditions

Intersection	Approach	AM		PM	
		Exist	Year 2008 w/out Proj	Exist	Year 2008 w/out Proj
Farrington Highway/ Haleakala Avenue	Northbound	D	E	E	E
	Southbound	D	D	E	E
	Westbound	D	E	E	E
Farrington Highway/ Nanakuli Avenue	Northbound	D	E	D	E
	Southbound	D	E	D	E
	Westbound	D	E	D	E
Mano Avenue/ Haleakala Avenue	Northbound	D	D	C	C
	Southbound	B	B	B	B
	Westbound	A	A	A	A
	Eastbound	A	A	A	A
Mano Avenue/ Nanakuli Avenue	Northbound	C	C	B	B
	Southbound	C	C	B	B
	Westbound	A	A	A	A
	Eastbound	A	A	A	A



NANAKULI COMMUNITY CENTER

YEAR 2008 AM PEAK HOURS OF TRAFFIC WITHOUT PROJECT

FIGURE 7

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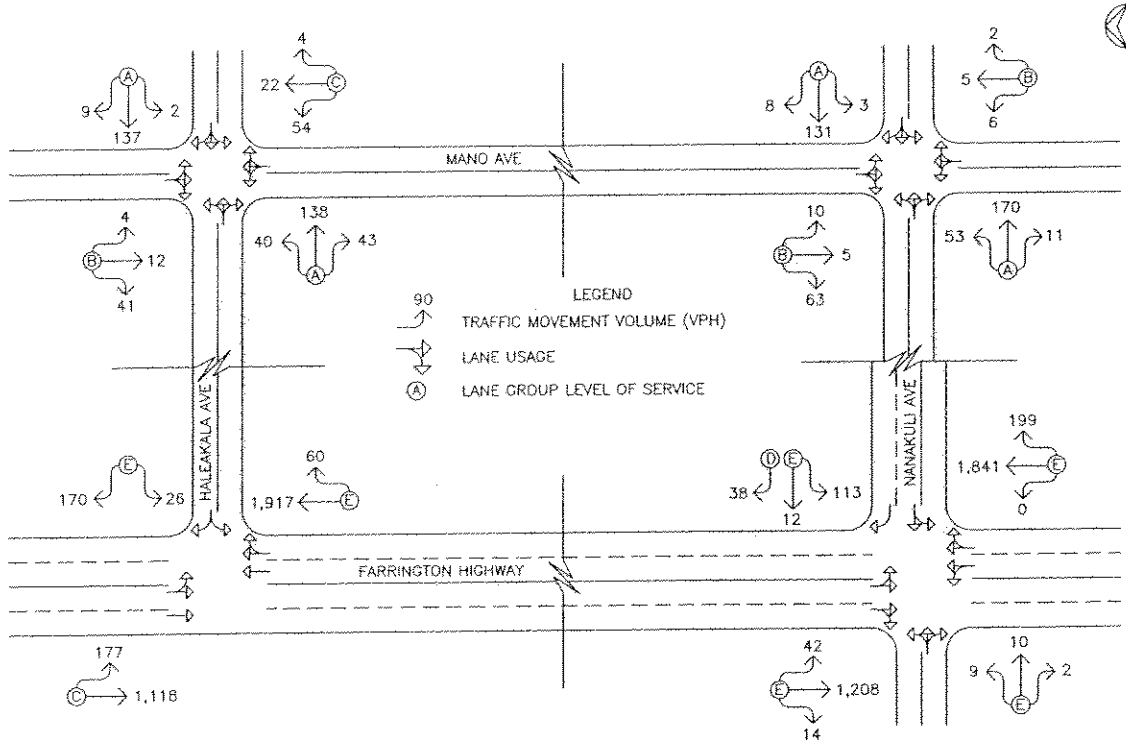
ENGINEERS PLANNERS



NANAKULI COMMUNITY CENTER

YEAR 2008 PM PEAK HOURS OF TRAFFIC WITHOUT PROJECT

FIGURE 8

WILSON OKAMOTO CORPORATION
ENGINEERS PLANNERS

Traffic operations in the project vicinity are expected to remain similar to or from existing conditions or due to the anticipated increases in traffic along Farrington Highway. At the intersection of Farrington Highway and Haleakala Avenue, the northbound and westbound approaches are anticipated to deteriorate from LOS "D" to LOS "E" during the AM peak period. At the intersection of Farrington Highway and Nanakuli Avenue, all approaches are anticipated to deteriorate from LOS "D" to LOS "E" during both peak periods of traffic with the exception of the eastbound approach, which is anticipated to operate at LOS "D" and LOS "E" during the AM and PM peak hours of traffic, respectively. The other approaches at these intersections and those at the other two study intersections are expected to continue operating at levels of service similar to existing conditions.

D. Total Traffic Volumes With Project

The projected Year 2008 with project AM and PM peak period traffic volumes and operating conditions at the study intersections with the development of the proposed Nanakuli Community Center are shown in Figures 9 and 10. The cumulative volumes consist of site-generated traffic superimposed over Year 2008 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2008 cumulative AM and PM peak hour traffic conditions with the development of the Nanakuli Community Center are summarized in Table 4. The existing and projected Year 2008 (Without Project) operating conditions are provided for comparison purposes. LOS calculations are included in Appendix E.

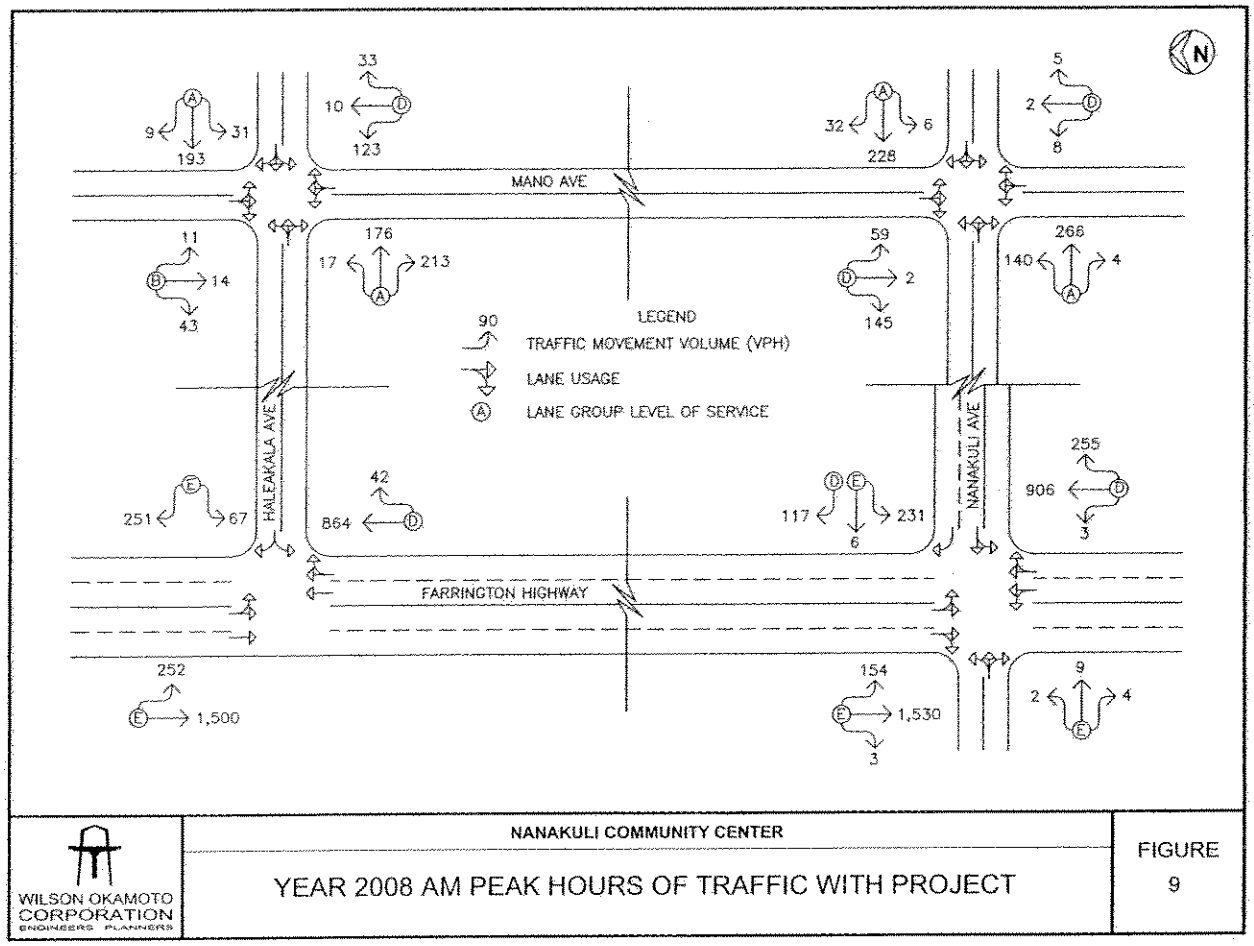
Table 4: Existing and Projected Year 2008 (With and Without Project) Traffic Operating Conditions

Intersection	Approach	AM			PM		
		Exist	Year 2008 w/out Proj	Year 2008 w/ Proj	Exist	Year 2008 w/out Proj	Year 2008 w/ Proj
Farrington Highway/ Haleakala Avenue	Southbound	D	E	E	E	E	E
	Northbound	D	D	D	E	E	E
	Westbound	D	E	E	E	E	E

Table 4 (Cont'd): Existing and Projected Year 2008 (With and Without Project) Traffic Operating Conditions

Intersection	Approach	AM			PM		
		Exist	Year 2008 w/out Proj	Year 2008 w/ Proj	Exist	Year 2008 w/out Proj	Year 2008 w/ Proj
Farrington Highway/ Nanakuli Avenue	Northbound	D	D	D	D	E	E
	Southbound	D	E	E	D	E	E
	Westbound	D	E	E	D	E	E
Mano Avenue/ Haleakala Avenue	Northbound	D	D	D	C	C	C
	Southbound	B	B	B	B	B	B
	Westbound	A	A	A	A	A	A
	Eastbound	A	A	A	A	A	A
Mano Avenue/ Nanakuli Avenue	Northbound	C	C	D	B	B	C
	Southbound	C	C	D	B	B	B
	Westbound	A	A	A	A	A	A
	Eastbound	A	A	A	A	A	A

Traffic in the vicinity of the proposed community center is expected, in general, to operate similar to Year 2008 without project conditions during both peak hours of traffic. The northbound approach of the Mano Avenue and Nanakuli Avenue intersection is expected to operate at a slightly lower, but still acceptable level of service during the PM peak hour of traffic due to the increase in traffic along Nanakuli Avenue. The other approaches of that intersection, as well as the approaches of the remaining three study intersections are expected to operate at levels of service similar to Year 2008 without project conditions during both peak hours of traffic.



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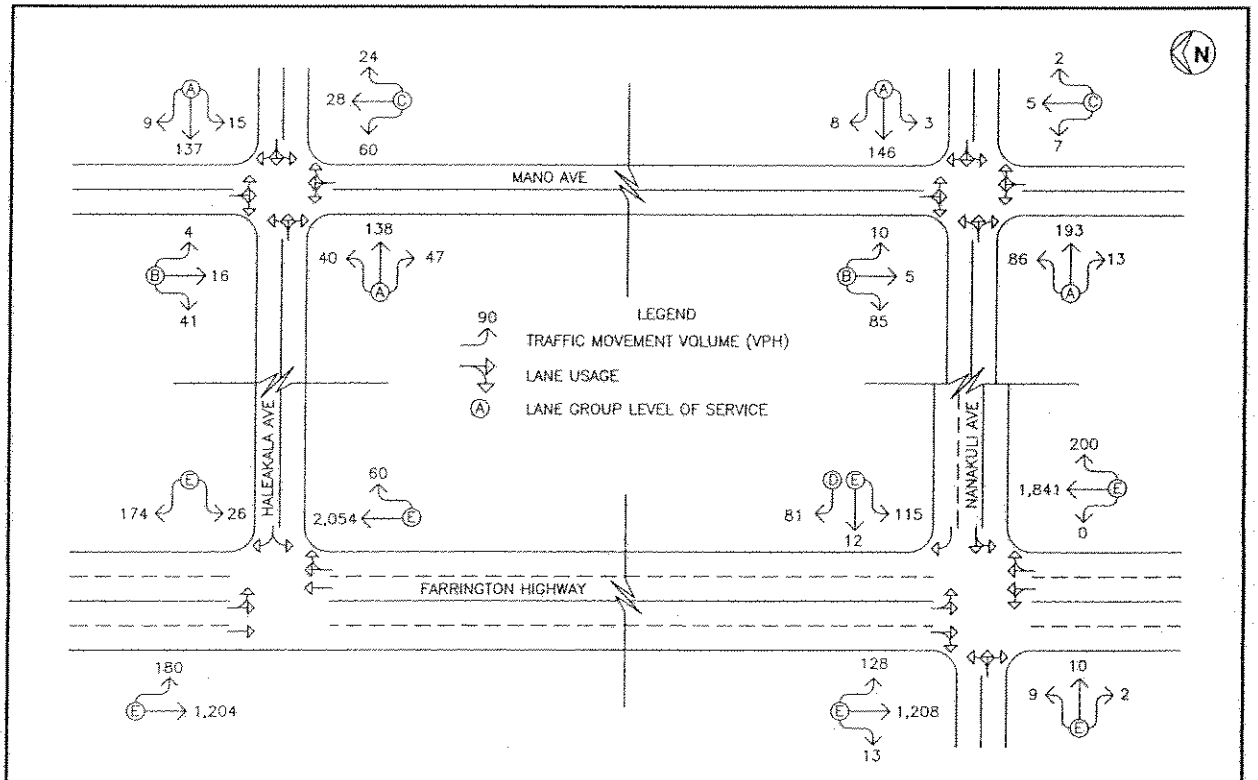
ENGINEERS PLANNERS

NANAKULI COMMUNITY CENTER

YEAR 2008 AM PEAK HOURS OF TRAFFIC WITH PROJECT

FIGURE 9



WILSON OKAMOTO CORPORATION
ENGINEERS PLANNERS

NANAKULI COMMUNITY CENTER

YEAR 2008 PM PEAK HOURS OF TRAFFIC WITH PROJECT

FIGURE 10

VI. RECOMMENDATIONS

Based on the analysis of the traffic data, the following are the recommendations of this study associated with the project:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress.

2. Restrict exiting traffic movements at the proposed driveway along Farrington Highway to right turn out movements only. The exiting lane should be channelized to ensure that vehicles do not execute left-turn maneuvers.

3. Align the proposed driveway along Farrington Highway with the entrance driveway of the Charter School across the highway to minimize conflicting movements.

4. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.

5. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.

6. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.

7. Provide adequate turn-around area for service, delivery, and refuse collection vehicles to maneuver on the project property. Avoid vehicle-reversing maneuvers onto State of Hawaii and City and County roadways.

VII. CONCLUSION

With the implementation of the aforementioned recommendations, the proposed Nanakuli Community Center is not expected to have a significant impact on traffic operations in the project vicinity. The total traffic volumes entering the study intersections along Farrington Highway are anticipated to increase by approximately 2-5 % during the AM peak period and 5-9% during the PM peak period. However, these increases in the total traffic volumes along the highway are in the range of daily volume fluctuations along this roadway and represent a minimal increase in the overall traffic volumes. The increases in the total traffic volumes at the intersections along Mano Avenue are anticipated to be higher, the approaches at these intersections are expected to continue operating at acceptable levels of service. The approaches of these intersections are expected to operate at levels of service similar to without project conditions.

APPENDIX A

EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0527/D1-0528
Counted By: GMT/TF
Weather: SUNNY

File Name : FarHalA
Site Code : 00000002
Start Date : 11/16/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Farrington Hwy Southbound				Haleakala Ave Westbound				Farrington Hwy Northbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			
05:30 AM	9	494	0	503	18	0	11	29	0	67	0	67	0	599
05:45 AM	17	463	0	480	15	0	11	26	0	90	16	106	0	612
Total	26	957	0	983	33	0	22	55	0	157	16	173	0	1211
06:00 AM	14	373	0	387	13	0	9	22	0	113	18	131	0	540
06:15 AM	18	416	0	434	17	0	20	37	0	150	8	158	0	629
06:30 AM	32	431	0	463	16	0	23	39	0	177	6	183	0	685
06:45 AM	56	360	0	416	11	0	27	38	0	181	4	185	0	639
Total	120	1580	0	1700	57	0	79	136	0	621	36	657	0	2493
07:00 AM	68	333	0	401	11	0	24	35	0	167	6	173	0	609
07:15 AM	77	197	0	274	21	0	31	52	0	147	6	153	0	479
07:30 AM	112	339	0	451	11	0	75	86	0	169	10	179	0	716
07:45 AM	65	341	0	406	28	0	85	113	0	162	10	172	0	691
Total	322	1210	0	1532	71	0	215	286	0	645	32	677	0	2495
08:00 AM	35	332	0	367	20	0	54	74	0	195	12	207	0	648
08:15 AM	30	294	0	324	8	0	29	37	0	208	10	218	0	579
Grand Total	533	4373	0	4906	189	0	399	588	0	1826	106	1932	0	7426
Apprch %	10.9	89.1	0.0		32.1	0.0	67.9		0.0	94.5	5.5			
Total %	7.2	58.9	0.0	66.1	2.5	0.0	5.4	7.9	0.0	24.6	1.4	26.0	0.0	

	Farrington Hwy Southbound				Haleakala Ave Westbound				Farrington Hwy Northbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour From 05:30 AM to 08:15 AM - Peak 1 of 1														
Intersection 07:30 AM														
Volume	242	1306	0	1548	67	0	243	310	0	734	42	776	0	2634
Percent	15.6	84.4	0.0		21.6	0.0	78.4		0.0	94.6	5.4			
07:30 Volume	112	339	0	451	11	0	75	86	0	169	10	179	0	716
Peak Factor														0.920
High Int.	07:30 AM				07:45 AM				08:15 AM				5:15:00 AM	
Volume	112	339	0	451	28	0	85	113	0	208	10	218		
Peak Factor				0.858				0.686				0.890		

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D1-0527/D1-0528
Counted By: GMT/TF
Weather: SUNNY

File Name : FarHalP
Site Code : 00000002
Start Date : 11/16/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Farrington Hwy Southbound				Haleakala Ave Westbound				Farrington Hwy Northbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0			
03:00 PM	43	253	0	296	6	0	27	33	0	346	15	361	0	690
03:15 PM	25	118	0	143	15	0	21	36	0	433	8	441	0	620
03:30 PM	45	299	0	344	12	0	51	63	0	395	11	406	0	813
03:45 PM	39	277	0	316	16	0	45	61	0	369	11	380	0	757
Total	152	947	0	1099	49	0	144	193	0	1543	45	1588	0	2880
04:00 PM	53	268	0	321	9	0	39	48	0	425	19	444	0	813
04:15 PM	33	234	0	267	6	0	38	44	0	454	6	460	0	771
04:30 PM	52	238	0	290	5	0	53	58	0	397	20	417	0	765
04:45 PM	39	273	0	312	6	0	40	46	0	461	15	476	0	834
Total	177	1013	0	1190	26	0	170	196	0	1737	60	1797	0	3183
05:00 PM	53	214	0	267	8	0	41	49	0	414	7	421	0	737
05:15 PM	46	240	0	286	3	0	36	39	0	424	9	433	0	758
05:30 PM	51	206	0	257	4	0	65	69	0	351	13	364	0	690
05:45 PM	38	185	0	223	8	0	54	62	0	375	10	385	0	670
Total	188	845	0	1033	23	0	196	219	0	1564	39	1603	0	2855
Grand Total	517	2805	0	3322	98	0	510	608	0	4844	144	4988	0	8918
Apprch %	15.6	84.4	0.0		16.1	0.0	83.9		0.0	97.1	2.9			
Total %	5.8	31.5	0.0	37.3	1.1	0.0	5.7	6.8	0.0	54.3	1.6	55.9	0.0	

	Farrington Hwy Southbound				Haleakala Ave Westbound				Farrington Hwy Northbound					
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1														
Intersection 04:00 PM														
Volume	177	1013	0	1190	26	0	170	196	0	1737	60	1797	0	3183
Percent	14.9	85.1	0.0		13.3	0.0	86.7		0.0	96.7	3.3			
04:45 Volume	39	273	0	312	6	0	40	46	0	461	15	476	0	834
Peak Factor														0.954
High Int.	04:00 PM				04:30 PM				04:45 PM				2:45:00 PM	
Volume	53	268	0	321	5	0	53	58	0	461	15	476		
Peak Factor				0.927				0.845				0.944		

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter:D1-0526/ D1-0525
Counted By: MAF/RR
Weather: SUNNY

File Name : FarNanA
Site Code : 00000001
Start Date : 11/16/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Farrington Hwy Southbound				Nanakuli Ave Westbound				Farrington Hwy Northbound				Nanakuli Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
05:30 AM	7	507	1	515	0	0	0	0	0	0	0	0	0	1	1	2	517
05:45 AM	9	496	1	506	26	0	4	30	0	46	3	49	0	0	1	1	586
Total	16	1003	2	1021	26	0	4	30	0	46	3	49	0	1	2	3	1103
06:00 AM	4	480	1	485	47	1	9	57	0	85	7	92	0	2	2	4	638
06:15 AM	8	506	2	516	35	3	18	56	0	115	12	127	0	2	0	2	701
06:30 AM	10	455	1	466	55	1	10	66	0	152	28	180	0	1	1	2	714
06:45 AM	16	407	1	424	49	1	9	59	0	177	33	210	0	1	0	1	694
Total	38	1848	5	1891	186	6	46	238	0	529	80	609	0	6	3	9	2747
07:00 AM	22	343	0	365	52	1	14	67	1	218	54	273	0	2	1	3	708
07:15 AM	18	326	1	345	51	2	21	74	1	210	44	255	0	3	0	3	677
07:30 AM	32	340	1	373	73	1	29	103	1	211	82	294	0	2	3	5	775
07:45 AM	24	377	1	402	54	2	21	77	0	182	74	256	2	2	0	4	739
Total	96	1386	3	1485	230	6	85	321	3	821	254	1078	2	9	4	15	2899
08:00 AM	20	319	1	340	68	2	23	93	0	199	45	244	0	0	0	0	677
08:15 AM	11	312	0	323	46	0	26	72	0	240	16	256	0	0	0	0	651
08:30 AM	0	0	0	0	29	0	8	37	2	214	24	240	0	0	0	0	277
Grand Total	181	4868	11	5060	585	14	192	791	5	2049	422	2476	2	16	9	27	8354
Apprch %	3.6	96.2	0.2		74.0	1.8	24.3		0.2	82.8	17.0		7.4	59.3	33.3		
Total %	2.2	58.3	0.1	60.6	7.0	0.2	2.3	9.5	0.1	24.5	5.1	29.6	0.0	0.2	0.1	0.3	

	Farrington Hwy Southbound				Nanakuli Ave Westbound				Farrington Hwy Northbound				Nanakuli Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 05:30 AM to 08:30 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	96	1386	3	1485	230	6	85	321	3	821	254	1078	2	9	4	15	2899
Percent	6.5	93.3	0.2		71.7	1.9	26.5		0.3	76.2	23.6		13.3	60.0	26.7		
07:30 Volume	32	340	1	373	73	1	29	103	1	211	82	294	0	2	3	5	775
Peak Factor																	0.935
High Int.	07:45 AM				07:30 AM				07:30 AM				07:30 AM				
Volume	24	377	1	402	73	1	29	103	1	211	82	294	0	2	3	5	
Peak Factor				0.924				0.779				0.917				0.750	

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0526/D1-0525
Counted By: MAF/RR
Weather: SUNNY

File Name : FarNanP
Site Code : 00000001
Start Date : 11/16/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Farrington Hwy Southbound				Nanakuli Ave Westbound				Farrington Hwy Northbound				Nanakuli Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
03:00 PM	15	271	1	287	39	1	8	48	0	350	40	390	3	1	0	4	729
03:15 PM	8	246	3	257	30	2	7	39	0	432	49	481	1	0	2	3	780
03:30 PM	15	291	4	310	33	3	9	45	0	404	50	454	3	6	0	9	818
03:45 PM	8	302	1	311	24	6	9	39	0	386	52	438	1	1	2	4	792
Total	46	1110	9	1165	126	12	33	171	0	1572	191	1763	8	8	4	20	3119
04:00 PM	11	255	5	271	26	1	13	40	0	446	48	494	4	3	0	7	812
04:15 PM	12	230	3	245	30	2	8	40	0	440	49	489	2	0	0	2	776
04:30 PM	17	219	2	238	40	1	10	51	0	398	45	443	1	0	2	3	735
04:45 PM	31	241	2	274	24	1	9	34	0	456	50	506	2	4	1	7	821
Total	71	945	12	1028	120	5	40	165	0	1740	192	1932	9	7	3	19	3144
05:00 PM	22	213	0	235	35	0	9	44	0	417	52	469	3	1	1	5	753
05:15 PM	16	234	2	252	18	1	14	33	0	399	46	445	0	1	0	1	731
05:30 PM	19	192	2	213	40	3	24	67	0	341	42	383	3	0	0	3	666
05:45 PM	14	181	4	199	35	5	16	56	0	363	40	403	2	1	4	7	665
Total	71	820	8	899	128	9	63	200	0	1520	180	1700	8	3	5	16	2815
Grand Total	188	2875	29	3092	374	26	136	536	0	4832	563	5395	25	18	12	55	9078
Apprch %	6.1	93.0	0.9		69.8	4.9	25.4		0.0	89.6	10.4		45.5	32.7	21.8		
Total %	2.1	31.7	0.3	34.1	4.1	0.3	1.5	5.9	0.0	53.2	6.2	59.4	0.3	0.2	0.1	0.6	

	Farrington Hwy Southbound				Nanakuli Ave Westbound				Farrington Hwy Northbound				Nanakuli Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 03:00 PM to 05:45 PM - Peak 1 of 1																	
Intersection	03:15 PM																
Volume	42	1094	13	1149	113	12	38	163	0	1668	199	1867	9	10	4	23	3202
Percent	3.7	95.2	1.1		69.3	7.4	23.3		0.0	89.3	10.7		39.1	43.5	17.4		
03:30 Volume	15	291	4	310	33	3	9	45	0	404	50	454	3	6	0	9	818
Peak Factor																	0.979
High Int.	03:45 PM				03:30 PM				04:00 PM				03:30 PM				
Volume	8	302	1	311	33	3	9	45	0	446	48	494	3	6	0	9	
Peak Factor				0.924				0.906				0.945				0.639	

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0525
Counted By: MAF
Weather: CLEAR

File Name : ManHalA
Site Code : 00000003
Start Date : 11/23/2004
Page No : 1

Groups Printed- Unshifted

	Mano Street Southbound				Haleakala Avenue Westbound				Mano Street Northbound				Haleakala Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00 AM	0	5	14	19	3	12	0	15	1	1	0	2	5	28	7	40	76
06:15 AM	0	4	15	19	0	14	0	14	3	1	1	5	4	18	6	28	66
06:30 AM	0	4	13	17	0	22	0	22	7	1	0	8	2	16	10	28	75
06:45 AM	0	2	10	12	1	26	0	27	7	1	2	10	8	24	22	54	103
Total	0	15	52	67	4	74	0	78	18	4	3	25	19	86	45	150	320
07:00 AM	2	3	10	15	4	36	1	41	16	0	6	22	2	41	39	82	160
07:15 AM	3	1	10	14	6	46	3	55	27	2	6	35	2	43	66	111	215
07:30 AM	3	4	11	18	8	59	1	68	29	1	9	39	6	42	53	101	226
07:45 AM	3	3	12	18	3	52	4	59	42	4	4	50	7	50	44	101	228
Total	11	11	43	65	21	193	9	223	114	7	25	146	17	176	202	395	829
Grand Total	11	26	95	132	25	267	9	301	132	11	28	171	36	262	247	545	1149
Apprch %	8.3	19.7	72.0		8.3	88.7	3.0		77.2	6.4	16.4		6.6	48.1	45.3		
Total %	1.0	2.3	8.3	11.5	2.2	23.2	0.8	26.2	11.5	1.0	2.4	14.9	3.1	22.8	21.5	47.4	

	Mano Street Southbound				Haleakala Avenue Westbound				Mano Street Northbound				Haleakala Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	11	11	43	65	21	193	9	223	114	7	25	146	17	176	202	395	829
Percent	16.9	16.9	66.2		9.4	86.5	4.0		78.1	4.8	17.1		4.3	44.6	51.1		
07:45 Volume	3	3	12	18	3	52	4	59	42	4	4	50	7	50	44	101	228
Peak Factor																	0.909
High Int.	07:30 AM				07:30 AM				07:45 AM				07:15 AM				
Volume	3	4	11	18	8	59	1	68	42	4	4	50	2	43	66	111	
Peak Factor				0.903				0.820				0.730				0.890	

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0525
Counted By: MAF
Weather: CLEAR

File Name : ManHalP
Site Code : 00000003
Start Date : 11/23/2004
Page No : 1

Groups Printed- Unshifted

	Mano Street Southbound				Haleakala Avenue Westbound				Mano Street Northbound				Haleakala Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
03:30 PM	1	5	10	16	0	37	1	38	19	8	1	28	7	39	9	55	137
03:45 PM	1	0	8	9	1	38	2	41	14	4	0	18	11	34	9	54	122
Total	2	5	18	25	1	75	3	79	33	12	1	46	18	73	18	109	259
04:00 PM	2	3	14	19	1	27	3	31	13	4	2	19	14	37	13	64	133
04:15 PM	0	4	9	13	0	35	3	38	8	6	1	15	8	28	12	48	114
04:30 PM	1	3	5	9	1	36	1	38	10	5	3	18	14	31	12	57	122
04:45 PM	1	0	13	14	1	36	1	38	15	2	4	21	11	28	7	46	119
Total	4	10	41	55	3	134	8	145	46	17	10	73	47	124	44	215	488
05:00 PM	1	1	7	9	0	35	0	35	9	5	3	17	14	32	5	51	112
05:15 PM	1	4	12	17	2	38	0	40	12	1	1	14	16	23	7	46	117
Grand Total	8	20	78	106	6	282	11	299	100	35	15	150	95	252	74	421	976
Apprch %	7.5	18.9	73.6		2.0	94.3	3.7		66.7	23.3	10.0		22.6	59.9	17.6		
Total %	0.8	2.0	8.0	10.9	0.6	28.9	1.1	30.6	10.2	3.6	1.5	15.4	9.7	25.8	7.6	43.1	

	Mano Street Southbound				Haleakala Avenue Westbound				Mano Street Northbound				Haleakala Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	03:30 PM																
Volume	4	12	41	57	2	137	9	148	54	22	4	80	40	138	43	221	506
Percent	7.0	21.1	71.9		1.4	92.6	6.1		67.5	27.5	5.0		18.1	62.4	19.5		
03:30 Volume	1	5	10	16	0	37	1	38	19	8	1	28	7	39	9	55	137
Peak Factor																	0.923
High Int.	04:00 PM				03:45 PM				03:30 PM				04:00 PM				
Volume	2	3	14	19	1	38	2	41	19	8	1	28	14	37	13	64	
Peak Factor				0.750				0.902				0.714				0.863	

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0526
Counted By: KT
Weather: CLEAR

File Name : ManNanA
Site Code : 00000004
Start Date : 11/23/2004
Page No : 1

Groups Printed- Unshifted

	Mano Street Southbound				Nanakuli Avenue Westbound				Mano Street Northbound				Nanakuli Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
06:00 AM	1	1	13	15	0	41	0	41	4	0	0	4	1	15	0	16	76
06:15 AM	0	0	12	12	0	37	4	41	0	0	0	0	8	20	1	29	82
06:30 AM	1	0	11	12	1	44	4	49	1	0	1	2	16	24	0	40	103
06:45 AM	5	0	12	17	1	44	2	47	3	0	2	5	16	45	3	64	133
Total	7	1	48	56	2	166	10	178	8	0	3	11	41	104	4	149	394
07:00 AM	7	0	26	33	0	50	7	57	0	1	0	1	35	50	0	85	176
07:15 AM	16	0	26	42	1	47	7	55	4	0	2	6	35	76	3	114	217
07:30 AM	16	1	31	48	2	61	8	71	2	0	1	3	29	67	0	96	218
07:45 AM	20	1	38	59	3	58	10	71	1	1	2	4	20	63	0	83	217
Total	59	2	121	182	6	216	32	254	7	2	5	14	119	256	3	378	828
Grand Total	66	3	169	238	8	382	42	432	15	2	8	25	160	360	7	527	1222
Apprch %	27.7	1.3	71.0		1.9	88.4	9.7		60.0	8.0	32.0		30.4	68.3	1.3		
Total %	5.4	0.2	13.8	19.5	0.7	31.3	3.4	35.4	1.2	0.2	0.7	2.0	13.1	29.5	0.6	43.1	

	Mano Street Southbound				Nanakuli Avenue Westbound				Mano Street Northbound				Nanakuli Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 06:00 AM to 07:45 AM - Peak 1 of 1																	
Intersection	07:00 AM																
Volume	59	2	121	182	6	216	32	254	7	2	5	14	119	256	3	378	828
Percent	32.4	1.1	66.5		2.4	85.0	12.6		50.0	14.3	35.7		31.5	67.7	0.8		
07:30 Volume	16	1	31	48	2	61	8	71	2	0	1	3	29	67	0	96	218
Peak Factor																	0.950
High Int.	07:45 AM				07:30 AM				07:15 AM				07:15 AM				
Volume	20	1	38	59	2	61	8	71	4	0	2	6	35	76	3	114	
Peak Factor				0.771				0.894				0.583				0.829	

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

Counter: D1-0526
Counted By: KT
Weather: CLEAR

File Name : ManNanP
Site Code : 00000004
Start Date : 11/23/2004
Page No : 1

Groups Printed- Unshifted

	Mano Street Southbound				Nanakuli Avenue Westbound				Mano Street Northbound				Nanakuli Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
03:30 PM	4	1	21	26	2	35	6	43	2	1	0	3	11	45	1	57	129
03:45 PM	2	0	11	13	1	36	1	38	2	2	0	4	14	46	2	62	117
Total	6	1	32	39	3	71	7	81	4	3	0	7	25	91	3	119	246
04:00 PM	1	1	24	26	0	33	1	34	0	0	1	1	15	38	4	57	118
04:15 PM	3	3	7	13	0	27	0	27	2	2	1	5	13	41	4	58	103
04:30 PM	2	2	13	17	1	29	4	34	2	2	1	5	11	48	3	62	118
04:45 PM	2	0	5	7	1	29	3	33	0	0	0	0	13	41	3	57	97
Total	8	6	49	63	2	118	8	128	4	4	3	11	52	168	14	234	436
05:00 PM	3	1	5	9	0	20	2	22	1	0	1	2	11	41	5	57	90
05:15 PM	2	0	12	14	0	34	1	35	5	1	0	6	3	56	1	60	115
Grand Total	19	8	98	125	5	243	18	266	14	8	4	26	91	356	23	470	887
Apprch %	15.2	6.4	78.4		1.9	91.4	6.8		53.8	30.8	15.4		19.4	75.7	4.9		
Total %	2.1	0.9	11.0	14.1	0.6	27.4	2.0	30.0	1.6	0.9	0.5	2.9	10.3	40.1	2.6	53.0	

	Mano Street Southbound				Nanakuli Avenue Westbound				Mano Street Northbound				Nanakuli Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	03:30 PM																
Volume	10	5	63	78	3	131	8	142	6	5	2	13	53	170	11	234	467
Percent	12.8	6.4	80.8		2.1	92.3	5.6		46.2	38.5	15.4		22.6	72.6	4.7		
03:30 Volume	4	1	21	26	2	35	6	43	2	1	0	3	11	45	1	57	129
Peak Factor																	0.905
High Int.	03:30 PM				03:30 PM				04:15 PM				03:45 PM				
Volume	4	1	21	26	2	35	6	43	2	2	1	5	14	46	2	62	
Peak Factor				0.750				0.826				0.650				0.944	

APPENDIX B

LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤10.0
B	>10.0 and ≤20.0
C	>20.0 and ≤35.0
D	>35.0 and ≤55.0
E	>55.0 and ≤80.0
F	>80.0

Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

"Highway Capacity Manual," Transportation Research Board, 2000.

Level of Service E describes operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

Table 1: Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤10.0
B	>10.0 and ≤15.0
C	>15.0 and ≤25.0
D	>25.0 and ≤35.0
E	>35.0 and ≤50.0
F	>50.0

"Highway Capacity Manual," Transportation Research Board, 2000.

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst:	KTandoc
Agency/Co.:	WOC
Date Performed:	11/30/2004
Analysis Time Period:	PM Peak Period
Intersection:	Nanakuli Avenue/Mano Street
Jurisdiction:	Waianae
Units: U. S. Customary	
Analysis Year:	Year 2008 with Project
Project ID: Nanakuli	Youth Center
East/West Street:	Nanakuli Avenue
North/South Street:	Mano Street
Intersection Orientation: EW	Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	86	193	13	3	146	8
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.83	0.83	0.83
Hourly Flow Rate, HFR	91	205	13	3	175	9
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	5	2	10	5	85
Peak Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75
Hourly Flow Rate, HFR	10	7	3	13	6	113
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	91	3		20			132	
C(m) (vph)	1391	1352		374			735	
v/c	0.07	0.00		0.05			0.18	
95% queue length	0.21	0.01		0.17			0.66	
Control Delay	7.8	7.7		15.2			11.0	
LOS	A	A		C			B	
Approach Delay				15.2			11.0	
Approach LOS				C			B	

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: KTandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: PM Peak Period
Intersection: Mano Street/Halekala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 with Project
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	40	138	47	15	137	9
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.90	0.90	0.90
Hourly Flow Rate, HFR	46	160	54	16	152	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	60	28	24	4	16	41
Peak Hour Factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75
Hourly Flow Rate, HFR	84	39	33	5	21	54
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	46	16		156			80	
C(m) (vph)	1417	1356		482			671	
v/c	0.03	0.01		0.32			0.12	
95% queue length	0.10	0.04		1.42			0.41	
Control Delay	7.6	7.7		16.0			11.1	
LOS	A	A		C			B	
Approach Delay				16.0			11.1	
Approach LOS				C			B	

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: Ktandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Nanakuli Avenue/Mano Street
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 with Project
Project ID: Nanakuli Youth Center
East/West Street: Nanakuli Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	140	266	4	6	228	32
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89
Hourly Flow Rate, HFR	168	320	4	6	256	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	8	2	5	59	2	145
Peak Hour Factor, PHF	0.58	0.58	0.58	0.77	0.77	0.77
Hourly Flow Rate, HFR	13	3	8	76	2	188
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	168	6		24			266	
C(m) (vph)	1271	1236		199			425	
v/c	0.13	0.00		0.12			0.63	
95% queue length	0.46	0.01		0.41			4.74	
Control Delay	8.3	7.9		25.6			27.4	
LOS	A	A		D			D	
Approach Delay				25.6			27.4	
Approach LOS				D			D	

HCS+: Signalized Intersections Release 5.1

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: PM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 with Project

N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR		DefL	TR	
Volume	9	10	2	115	12	81	0	1841	200	128	1208	13
Lane Width		12.0			12.0	12.0		12.0		12.0	12.0	
RTOR Vol			2			61			150			10

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru		A	A		Thru	A	A	
Right		A	A		Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		49.0	6.5			23.0	111.5	
Yellow		0.0	4.0			0.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 200.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	412	1682	0.05	0.25	57.8	E	57.8	E
Westbound								
LT	391	1782	0.36	0.28	58.6	E	57.8	E
R	439	1583	0.05	0.28	53.0	D		
Northbound								
LTR	2176	3904	0.97	0.56	59.8	E	59.8	E
Southbound								
DefL	266	1956	0.53	0.67	63.6	E		
TR	1384	2058	0.97	0.67	58.7	E	59.2	E

Intersection Delay = 59.4 (sec/veh) Intersection LOS = E

HCS+: Unsignalized Intersections Release 5.1

TWO-WAY STOP CONTROL SUMMARY

Analyst: Ktandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Mano Street/Halekala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 with Project
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	176	213	31	193	9
Peak-Hour Factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82
Hourly Flow Rate, HFR	19	197	239	37	235	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	123	10	33	11	14	43
Peak Hour Factor, PHF	0.73	0.73	0.73	0.90	0.90	0.90
Hourly Flow Rate, HFR	168	13	45	12	15	47
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/		No	/
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	19	37		226			74	
C(m) (vph)	1321	1124		350			504	
v/c	0.01	0.03		0.65			0.15	
95% queue length	0.04	0.10		5.06			0.52	
Control Delay	7.8	8.3		33.5			13.4	
LOS	A	A		D			B	
Approach Delay				33.5			13.4	
Approach LOS				D			B	

HCS+: Signalized Intersections Release 5.1

Analyst: KTandoc
Agency: WOC
Date: 12-01-04
Period: PM Peak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 with Project
N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR		DefL	T	
Volume				26		174		2054	60	180	1204	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						131			45			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	44.0				26.5	119.5		
Yellow	4.0				0.0	4.0		
All Red	1.0				0.0	1.0		

Cycle Length: 200.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	368	1674	0.23	0.22	64.5	E	64.5	E
Northbound								
TR	2340	3916	0.98	0.60	63.1	E	63.1	E
Southbound								
DefL	300	1956	0.67	0.73	74.4	E		
T	1503	2059	0.89	0.73	28.6	C	34.5	C

Intersection Delay = 51.9 (sec/veh) Intersection LOS = D

HCS+: Signalized Intersections Release 5.1

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: AM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 with Project
N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR			LTR	
Volume	2	9	4	231	6	117	3	906	255	154	1530	3
Lane Width		12.0			12.0	12.0		12.0			12.0	
RTOR Vol			4			88			191			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left	A		
Thru		A			Thru	A		
Right		A			Right	A		
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru		A	A		Thru	A	A	
Right		A	A		Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		35.0	14.0			55.0	66.0	
Yellow		0.0	4.0			0.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	355	1828	0.03	0.19	58.8	E	58.8	E
Westbound								
LT	400	1776	0.66	0.27	62.2	E	60.7	E
R	431	1583	0.07	0.27	48.7	D		
Northbound								
LTR	1348	3677	0.80	0.37	54.8	D	54.8	D
Southbound								
LTR	1888	3902	0.99	0.67	62.6	E	62.6	E

Intersection Delay = 59.8 (sec/veh) Intersection LOS = E

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2008 PEAK PERIOD TRAFFIC
ANALYSIS WITH PROJECT

HCS+: Signalized Intersections Release 5.1

Analyst: Ktandoc
Agency: WOC
Date: 12-01-04
Period: AM Peak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 with Project
N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR			LT	
Volume				67		251		864	42	252	1500	
Lane Width					12.0			12.0			12.0	
RTOR Vol						200			32			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left				
Thru						Thru		A		
Right						Right		A		
Peds						Peds				
WB Left	A				SB	Left	A	A		
Thru						Thru	A	A		
Right	A					Right				
Peds						Peds				
NB Right					EB	Right				
SB Right					WB	Right				
Green	41.0						50.0	79.0		
Yellow	4.0						0.0	4.0		
All Red	1.0						0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	388	1705	0.34	0.23	58.7	E	58.7	E
Northbound								
TR	1717	3913	0.57	0.44	38.1	D	38.1	D
Southbound								
LT	1963	3892	0.99	0.72	58.5	E	58.5	E

Intersection Delay = 52.0 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: Ktandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Nanakuli Avenue/Mano Street
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 without Project
Project ID: Nanakuli Youth Center
East/West Street: Nanakuli Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	119	256	3	6	216	32
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89
Hourly Flow Rate, HFR	143	308	3	6	242	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	2	5	59	2	121
Peak Hour Factor, PHF	0.58	0.58	0.58	0.77	0.77	0.77
Hourly Flow Rate, HFR	12	3	8	76	2	157
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	143	6		23			235	
C(m) (vph)	1286	1249		246			443	
v/c	0.11	0.00		0.09			0.53	
95% queue length	0.38	0.01		0.31			3.29	
Control Delay	8.1	7.9		21.1			22.2	
LOS	A	A		C			C	
Approach Delay				21.1			22.2	
Approach LOS				C			C	

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: TO
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: PM Peak Period
Intersection: Nanakuli Avenue/Mano Street
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 without Project
Project ID: Nanakuli Youth Center
East/West Street: Nanakuli Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	53	170	11	3	131	8
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.83	0.83	0.83
Hourly Flow Rate, HFR	56	180	11	3	157	9
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	5	2	10	5	63
Peak Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75
Hourly Flow Rate, HFR	9	7	3	13	6	84
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	56	3		19			103	
C(m) (vph)	1412	1383		471			762	
v/c	0.04	0.00		0.04			0.14	
95% queue length	0.12	0.01		0.13			0.47	
Control Delay	7.7	7.6		13.0			10.5	
LOS	A	A		B			B	
Approach Delay				13.0			10.5	
Approach LOS				B			B	

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: Ktandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Mano Street/Haleakala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 without Project
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	176	202	21	193	9
Peak-Hour Factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82
Hourly Flow Rate, HFR	19	197	226	25	235	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	114	7	25	11	11	43
Peak Hour Factor, PHF	0.73	0.73	0.73	0.90	0.90	0.90
Hourly Flow Rate, HFR	156	9	34	12	12	47
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	19	25		199			71	
C(m) (vph)	1321	1136		365			542	
v/c	0.01	0.02		0.55			0.13	
95% queue length	0.04	0.07		3.45			0.45	
Control Delay	7.8	8.2		26.5			12.6	
LOS	A	A		D			B	
Approach Delay				26.5			12.6	
Approach LOS				D			B	

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: KTandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: PM Peak Period
Intersection: Mano Street/Haleakala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 without Project
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	40	138	43	2	137	9
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.90	0.90	0.90
Hourly Flow Rate, HFR	46	160	49	2	152	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	54	22	4	4	12	41
Peak Hour Factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75
Hourly Flow Rate, HFR	76	30	5	5	16	54
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	46	2		111			75	
C(m) (vph)	1417	1362		467			716	
v/c	0.03	0.00		0.24			0.10	
95% queue length	0.10	0.00		0.93			0.35	
Control Delay	7.6	7.6		15.1			10.6	
LOS	A	A		C			B	
Approach Delay				15.1			10.6	
Approach LOS				C			B	

HCS+: Signalized Intersections Release 5.1

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: AM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 without Project
N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR			LTR	
Volume	2	9	4	230	6	85	3	906	254	96	1530	3
Lane Width		12.0			12.0	12.0		12.0			12.0	
RTOR Vol			4			64			190			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A	A			SB Left	A	A	
Thru	A	A			Thru	A	A	
Right	A	A			Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.5	15.0			53.5	61.0		
Yellow	0.0	4.0			0.0	4.0		
All Red	0.0	1.0			0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	406	1806	0.04	0.22	54.5	D	54.5	D
Westbound								
LT	450	1776	0.67	0.31	58.4	E	57.2	E
R	488	1583	0.06	0.31	43.9	D		
Northbound								
LTR	1247	3679	0.85	0.34	61.2	E	61.2	E
Southbound								
LTR	1803	3908	0.98	0.64	58.7	E	58.7	E

Intersection Delay = 59.4 (sec/veh) Intersection LOS = E

HCS2000: Signalized Intersections Release 4.1d

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: PM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 without Project
N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR			LTR	
Volume	9	10	2	113	12	38	0	1841	199	42	1208	14
Lane Width		12.0			12.0	12.0		12.0			12.0	
RTOR Vol			2			28			149			7

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left	A				NB Left	A		
Thru	A				Thru	A		
Right	A				Right	A		
Peds					Peds			
WB Left	A	A			SB Left	A	A	
Thru	A	A			Thru	A	A	
Right	A	A			Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	47.5	10.5			24.0	107.0		
Yellow	0.0	4.0				4.0		
All Red	0.0	1.0				1.0		

Cycle Length: 199.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	395	1654	0.08	0.24	58.8	E	58.8	E
Westbound								
LT	417	1782	0.33	0.29	55.7	E	55.3	E
R	461	1583	0.02	0.29	50.3	D		
Northbound								
LTR	2095	3896	0.95	0.54	56.7	E	56.7	E
Southbound								
LTR	1410	3902	0.97	0.66	58.3	E	58.3	E

Intersection Delay = 57.3 (sec/veh) Intersection LOS = E

HCS2000: Signalized Intersections Release 4.1d

Analyst: Ktandoc
Agency: WOC
Date: 12-01-04
Period: AM Peak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 without Project
N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR			LT	
Volume				67		243		814	42	242	1442	
Lane Width					12.0			12.0			12.0	
RTOR Vol						187			35			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	47.0					51.5	71.5	
Yellow	4.0					0.0	4.0	
All Red	1.0					0.0	1.0	

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	444	1702	0.40	0.26	55.5	E	55.5	E
Northbound								
TR	1552	3907	0.59	0.40	43.2	D	43.2	D
Southbound								
LT	1904	3884	0.98	0.68	55.1	E	55.1	E

Intersection Delay = 51.5 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: KTandoc
Agency: WOC
Date: 12-01-04
Period: PM Peak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Year 2008 without Project
N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR		DefL	T	
Volume				26		170		1917	60	177	1118	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						85			45			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	47.5					30.0	112.5	
Yellow	4.0					0.0	4.0	
All Red	1.0					0.0	1.0	

Cycle Length: 200.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	392	1681	0.40	0.24	65.0	E	65.0	E
Northbound								
TR	2198	3907	0.98	0.56	64.3	E	64.3	E
Southbound								
DefL	334	1956	0.59	0.71	67.2	E		
T	1467	2059	0.85	0.71	25.9	C	31.6	C

Intersection Delay = 51.7 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: TO
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: PM Peak Period
Intersection: Nanakuli Avenue/Mano Street
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Existing Conditions
Project ID: Nanakuli Youth Center
East/West Street: Nanakuli Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	53	170	11	3	131	8
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.83	0.83	0.83
Hourly Flow Rate, HFR	56	180	11	3	157	9
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	6	5	2	10	5	63
Peak Hour Factor, PHF	0.65	0.65	0.65	0.75	0.75	0.75
Hourly Flow Rate, HFR	9	7	3	13	6	84
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	56	3		19			103	
C(m) (vph)	1412	1383		471			762	
v/c	0.04	0.00		0.04			0.14	
95% queue length	0.12	0.01		0.13			0.47	
Control Delay	7.7	7.6		13.0			10.5	
LOS	A	A		B			B	
Approach Delay				13.0			10.5	
Approach LOS				B			B	

APPENDIX D

CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2008 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: KTandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: PM Peak Period
Intersection: Mano Street/Haleakala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Year 2008 without Project
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	40	138	43	2	137	9
Peak-Hour Factor, PHF	0.86	0.86	0.86	0.90	0.90	0.90
Hourly Flow Rate, HFR	46	160	49	2	152	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	54	22	4	4	12	41
Peak Hour Factor, PHF	0.71	0.71	0.71	0.75	0.75	0.75
Hourly Flow Rate, HFR	76	30	5	5	16	54
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	46	2		111			75	
C(m) (vph)	1417	1362		467			716	
v/c	0.03	0.00		0.24			0.10	
95% queue length	0.10	0.00		0.93			0.35	
Control Delay	7.6	7.6		15.1			10.6	
LOS	A	A		C			B	
Approach Delay				15.1			10.6	
Approach LOS				C			B	

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: TO
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Nanakuli Avenue/Mano Street
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Existing Conditions
Project ID: Nanakuli Youth Center
East/West Street: Nanakuli Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	119	256	3	6	216	32
Peak-Hour Factor, PHF	0.83	0.83	0.83	0.89	0.89	0.89
Hourly Flow Rate, HFR	143	308	3	6	242	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	7	2	5	59	2	121
Peak Hour Factor, PHF	0.58	0.58	0.58	0.77	0.77	0.77
Hourly Flow Rate, HFR	12	3	8	76	2	157
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No /			No /	
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	143	6		23			235	
C(m) (vph)	1286	1249		246			443	
v/c	0.11	0.00		0.09			0.53	
95% queue length	0.38	0.01		0.31			3.29	
Control Delay	8.1	7.9		21.1			22.2	
LOS	A	A		C			C	
Approach Delay				21.1			22.2	
Approach LOS				C			C	

HCS2000: Signalized Intersections Release 4.1d

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: PM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Existing Conditions

N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR			LTR	
Volume	9	10	4	113	12	38	0	1668	199	42	1094	13
Lane Width		12.0			12.0	12.0		12.0			12.0	
RTOR Vol			2			19			80			7

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru		A	A		Thru	A	A	
Right		A	A		Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		55.0	9.5			20.0	105.5	
Yellow		0.0	4.0				4.0	
All Red		0.0	1.0				1.0	

Cycle Length: 200.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	453	1648	0.07	0.28	53.7	D	53.7	D
Westbound								
LT	457	1782	0.30	0.32	51.2	D	50.6	D
R	511	1583	0.04	0.32	46.6	D		
Northbound								
LTR	2043	3873	0.92	0.53	51.9	D	51.9	D
Southbound								
LTR	1313	3901	0.95	0.63	52.6	D	52.6	D

Intersection Delay = 52.1 (sec/veh) Intersection LOS = D

HCS2000: Unsignalized Intersections Release 4.1d

TWO-WAY STOP CONTROL SUMMARY

Analyst: Ktandoc
Agency/Co.: WOC
Date Performed: 11/30/2004
Analysis Time Period: AM Peak Period
Intersection: Mano Street/Haleakala Avenue
Jurisdiction: Waianae
Units: U. S. Customary
Analysis Year: Existing
Project ID: Nanakuli Youth Center
East/West Street: Haleakala Avenue
North/South Street: Mano Street
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume	17	176	202	21	193	9
Peak-Hour Factor, PHF	0.89	0.89	0.89	0.82	0.82	0.82
Hourly Flow Rate, HFR	19	197	226	25	235	10
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided		/			
RT Channelized?						
Lanes	0	1	0	0	1	0
Configuration	LTR			LTR		
Upstream Signal?	No			No		

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	114	7	25	11	11	43
Peak Hour Factor, PHF	0.73	0.73	0.73	0.90	0.90	0.90
Hourly Flow Rate, HFR	156	9	34	12	12	47
Percent Heavy Vehicles	2	2	2	2	2	2
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage		No	/			No /
Lanes	0	1	0	0	1	0
Configuration		LTR			LTR	

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config	LTR	LTR		LTR			LTR	
v (vph)	19	25		199			71	
C(m) (vph)	1321	1136		365			542	
v/c	0.01	0.02		0.55			0.13	
95% queue length	0.04	0.07		3.45			0.45	
Control Delay	7.8	8.2		26.5			12.6	
LOS	A	A		D			B	
Approach Delay				26.5			12.6	
Approach LOS				D			B	

HCS2000: Signalized Intersections Release 4.1d

Analyst: Tom
Agency: WOC
Date: 12-01-04
Period: PM Peak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Existing

N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR		DefL	T	
Volume				26		170		1737	60	177	1013	
Lane Width					12.0			12.0		12.0	12.0	
RTOR Vol						128			45			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	A		
Right					Right	A		
Peds					Peds			
WB Left	A				SB Left	A	A	
Thru					Thru	A	A	
Right	A				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	51.0					34.5	104.5	
Yellow	4.0					0.0	4.0	
All Red	1.0					0.0	1.0	

Cycle Length: 200.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	427	1675	0.23	0.25	59.2	E	59.2	E
Northbound								
TR	2041	3907	0.95	0.52	59.9	E	59.9	E
Southbound								
DefL	378	1956	0.52	0.69	60.9	E		
T	1431	2059	0.79	0.69	23.6	C	29.2	C

Intersection Delay = 47.8 (sec/veh) Intersection LOS = D

HCS2000: Signalized Intersections Release 4.1d

Analyst: Ktandoc
Agency: WOC
Date: 11/30/2004
Period: AM Peak Period
Project ID: Nanakuli Youth Center
E/W St: Nanakuli Avenue

Inter.: Farrington Hwy/Nanakuli Ave
Area Type: All other areas
Jurisd: Nanakuli
Year : Existing Conditions

N/S St: Farrington Highway

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	0	0	1	1	0	2	0	0	2	0
LGConfig		LTR			LT	R		LTR			LTR	
Volume	2	8	4	230	6	85	3	821	254	96	1386	3
Lane Width		12.0			12.0	12.0		12.0			12.0	
RTOR Vol			4			64			190			3

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		A			NB Left		A	
Thru		A			Thru		A	
Right		A			Right		A	
Peds					Peds			
WB Left		A	A		SB Left	A	A	
Thru		A	A		Thru	A	A	
Right		A	A		Right	A	A	
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		43.5	17.0			44.5	65.0	
Yellow		0.0	4.0			0.0	4.0	
All Red		0.0	1.0			0.0	1.0	

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	434	1794	0.03	0.24	52.2	D	52.2	D
Westbound								
LT	493	1776	0.61	0.34	52.3	D	51.3	D
R	532	1583	0.05	0.34	40.4	D		
Northbound								
LTR	1325	3670	0.73	0.36	51.9	D	51.9	D
Southbound								
LTR	1684	3899	0.96	0.61	50.9	D	50.9	D

Intersection Delay = 51.3 (sec/veh) Intersection LOS = D

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency: WOC
Date: 12-01-04
Period: AMPeak
Project ID: Nanakuli Youth Center
E/W St: Haleakala Street

Inter.: Farrington Hwy/Haleakala St
Area Type: All other areas
Jurisd: Nanakuli
Year : Existing

N/S St: Farrington Hwy

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	0	0	0	2	0	0	2	0
LGConfig					LR			TR			LT	
Volume				67		243		734	42	242	1306	
Lane Width					12.0			12.0			12.0	
RTOR Vol						183			30			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left		A						
Thru								
Right		A						
Peds								
NB Right								
SB Right								
Green		51.5			50.5	68.0		
Yellow		4.0			0.0	4.0		
All Red		1.0			0.0	1.0		

Cycle Length: 180.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LR	486	1699	0.38	0.29	51.9	D	51.9	D
Northbound								
TR	1474	3903	0.57	0.38	44.9	D	44.9	D
Southbound								
LT	1852	3881	0.97	0.66	51.5	D	51.5	D

Intersection Delay = 49.6 (sec/veh) Intersection LOS = D

LINDA LINGLE
GOVERNOR
STATE OF HAWAII

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

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

December 30, 2005

The Honorable Henry Eng, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Eng:

Subject: Nanakuli Community Center; Nanakuli, Oahu
TMK:8-9-02:01 and 67

The Department of Hawaiian Home Lands (DHHL), as the owner of the subject property, has issued license agreements to the Nanakuli Hawaiian Homestead Community Association (NHHCA) and the Boys and Girls Club of Hawaii (BGCH) for the development of facilities that will comprise the Nanakuli Community Center. To the extent provided for by law, DHHL hereby declares the subject property exempt from certain City and County of Honolulu (City) land use statutes, ordinances, rules and regulations to facilitate development of the property.

Specifically, DHHL exempts itself from the City's current Residential District (R-5) zoning and from Special Management Area permit requirements.

The planned development will include a BGCH "Clubhouse" (gymnasium), a commercial center, kupuna housing and NHHCA's community center. Most, if not all, of the facilities will be open to the general public and benefit many residents along the leeward coast, therefore, our licenses with BGCH and NHHCA require that all improvements comply with the City's building code regulations. To this end, we ask that the City assist us with reviewing the construction plans to determine if they meet health, safety and other City standards for issuance of building permits.

Thank you for your assistance in this matter. Please inform your staff of the contents of this letter and if they have questions, they may contact Noel Akamu, Property Development Manager in our Land Management Division, at 587-6432.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Nanakuli Hawaiian Homestead Community Association
Mr. David Nakada, Boys and Girls Club of Hawaii
Mr. Earl Matsukawa, Wilson Okamoto Corporation