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November 7, 2007

Mr. Laurence K. Lau, Acting Director  
Office of Environmental Quality Control  
235 South Beretania Street, Suite 702  
Honolulu, Hawai'i 96813

**Subject: Finding of No Significant Impact (FONSI) for Kekaha Landfill  
Phase II Lateral Expansion, Tax Map Key (4) 1-2-002:009 and  
(4) 1-2-002:001, Kekaha, Kaua'i, Hawai'i**

Dear Mr. Lau:

The County of Kaua'i Department of Public Works, Solid Waste Division has reviewed the comments received during the 30-day public comment period which began on July 23, 2007. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form, a revised project summary (via e-mail), and four copies of the Final Environmental Assessment (EA). Please call me at (808) 241-6880, or Michelle Mason of Earth Tech at (808) 356-5322, if you have questions regarding this submittal.

Sincerely,

CONCUR:

  
TROY TANIGAWA  
Solid Waste Program  
Administrative Officer

  
DONALD M. FUJIMOTO  
County Engineer

Enclosures: *Final EA, Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kaua'i, Hawai'i* (4  
copies)  
OEQC Project Summary\_rev.doc (via e-mail only)

cc: Ms. Michelle Mason, Earth Tech

**Project Summary**  
**Kekaha Landfill Phase II Lateral Expansion**

The County of Kaua`i, Department of Public Works, Solid Waste Division is proposing to expand the Kekaha Landfill (KLF) on Kaua`i, Hawai`i. The proposed action is to laterally expand the Phase II fill area to include three additional cells: Cell 1 (to include the existing leachate lagoon and adjacent acreage), Cell 2 (to include the valley between the closed Phase I and existing Phase II), and Cell 3 (which would expand directly over the closed Phase I). Maximum height of these areas would be no greater than 85 feet above msl.

The purpose of the proposed action is to prolong the life of the KLF as it is the only permitted municipal solid waste (MSW) landfill on Kaua`i. The need arises because the KLF is projected to reach capacity in approximately January 2009, at which time the Island of Kaua`i would be without a landfill for the disposal of MSW.

The proposed landfill expansion would be designed, constructed, and operated in accordance with the provisions of HAR 11-58.1 developed to prevent pollution, conserve natural resources, and protect public health and safety. Design of the landfill expansion would include a base liner, and landfill gas and leachate collection systems, to ensure the protection of air and water. Additional operating procedures and/or mitigation measures have also been incorporated to minimize impacts to the natural and human environments, such that no significant adverse impacts are anticipated from implementation of the proposed action. Therefore, a Finding of No Significant Impact (FONSI) has been determined.



A **tyco** International Ltd. Company

# Final Environmental Assessment

## Kekaha Landfill Phase II Lateral Expansion Kekaha, Kaua`i, Hawai`i

### Proposing Agency:

County of Kaua`i  
Department of Public Works  
Solid Waste Division  
4444 Rice Street  
Mo`ikeha Building, Suite 275  
Lihu`e, Hawai`i 96766

### Prepared by:

Earth Tech, Inc.  
841 Bishop Street, Suite 500  
Honolulu, Hawai`i 96813

November 2007



## EXECUTIVE SUMMARY

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The County of Kaua`i, Department of Public Works, Solid Waste Division, hereafter referred to as the "County", is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kaua`i, Hawai`i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001. This facility is situated on approximately 98 acres of land adjacent to Kaumuali`i Highway approximately 1,700 feet from the shoreline of the Pacific Ocean. KLF is comprised of two distinct refuse fill areas identified as Phase I and Phase II. Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. Phase II began operations on October 9, 1993 and was originally permitted to reach a height of 37 feet above mean sea level (msl), which should have allowed municipal solid waste (MSW) filling operations through 2003. However, due to all the additional MSW resulting from Hurricane Iniki, it quickly reached that capacity and was expanded vertically in 1998 to accommodate more MSW by increasing the height limit to 60 feet above msl. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 feet above msl. Phase II is expected to reach capacity by approximately January 2009.

The purpose of the proposed action is to laterally expand Phase II and thereby prolong the life of the KLF as it is the only permitted MSW landfill on the Island of Kaua`i. The need arises because the KLF Phase II is projected to reach capacity in approximately January 2009, at which time the Island of Kaua`i would be without a landfill for the disposal of MSW.

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

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

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

### PROPOSED ACTION AND ALTERNATIVES

The proposed action and the no-action alternative are described as follows:

**Proposed Action.** The County proposes to expand the limits of the Phase II fill area to include three additional cells. Cell 1 would expand the Phase II fill area into the existing leachate lagoon and adjacent acreage. Cell 2 would expand the Phase II fill area into the valley area between the closed Phase I landfill and the existing Phase II landfill. Cell 3 would expand the Phase II fill area directly over the closed Phase I landfill. Maximum height of these areas would be no greater than 85 feet above msl. The proposed expansion would provide the KLF with capacity for an additional MSW volume of approximately 1,550,000 cubic yards. At the current filling rate, this would accommodate approximately 12 years of MSW filling operations, if needed.

**No-Action Alternative.** Under the no-action alternative, the KLF facility would be left *status quo*. The County would not implement the Phase II lateral expansion of the facility and it would reach its capacity in approximately January 2009. At such time, the Island of Kaua`i would be left without an active landfill and means for MSW disposal.

## SUMMARY OF ENVIRONMENTAL IMPACTS

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

- **Proposed Action.** The proposed action would laterally expand the existing KLF Phase II landfill to include three additional cells. Short-term adverse impacts to air quality, noise, and safety and health are expected during construction; however, implementation of construction best management practices during expansion activities would reduce these impacts to a level of non-significance.

The proposed landfill expansion would be designed, constructed, and operated in accordance with the provisions of HAR 11-58.1 developed to prevent pollution, conserve natural resources, and protect public health and safety. Design of the landfill expansion would include a base liner, and landfill gas and leachate collection systems, to ensure the protection of air and water resources. Additional operating procedures and/or mitigation measures for odor and dust control, biological resources, hazardous materials and hazardous waste, natural hazards, safety and health, visual resources, and water resources have also been incorporated to minimize impacts to the natural and human environments, such that no significant adverse impacts are anticipated from operation of the Phase II Lateral Expansion.

- **No-Action Alternative.** The no-action alternative would leave the County without a landfill facility for the disposal of MSW beginning in approximately January 2009. The lack of a permitted MSW landfill would result in adverse effects on the environment and public health. Waste would not be properly disposed of and unsanitary conditions would propagate vectors and pose a serious risk to public health and the environment.

## DETERMINATION

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

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## ACRONYMS AND ABBREVIATIONS

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§	Section
µg/L	microgram per liter
ADC	Alternative Daily Cover
ASD	alternative source demonstration
BMP	Best Management Practices
CAB	Clean Air Branch, State of Hawai`i
CDP	Census Designated Place
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CO <sub>2</sub>	carbon dioxide
dBA	decibel (A-weighted scale)
DPW	Department of Public Works, County of Kaua`i
DLNR	Department of Land and Natural Resources, State of Hawai`i
DOH	Department of Health, State of Hawai`i
EA	environmental assessment
EPA	Environmental Protection Agency, United States
FIRM	flood insurance rate map
HAR	Hawai`i Administrative Rules
HDPE	high-density polyethylene
HIOSH	Hawai`i Occupational Safety and Health
HRS	Hawai`i Revised Statutes
KLF	Kekaha Landfill
LFG	landfill gas
msl	mean seal level
MSW	municipal solid waste
NAAQS	National Ambient Air Quality Standards
NEMA	National Electrical Manufacturer's Association
NMOC	Non-methane organic compounds
No.	number
NO <sub>2</sub>	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O <sub>2</sub>	oxygen
PGE	Pacific Geotechnical Engineers, Inc.
PMRF	Pacific Missile Range Facility
ppm	parts per million
RCRA	Resource Conservation and Recovery Act
redox	reduction/oxidation
ROI	region of influence
SHPD	State Historic Preservation Division
SHWB	Solid and Hazardous Waste Branch, State of Hawaii
SMA	Special Management Area
SPCC	Spill Prevention, Control, and Countermeasures Plan
TMK	Tax Map Key
U.S.	United States
U.S.C.	United States Code
USGS	United States Geological Survey
VOC	volatile organic compound
WMI	Waste Management, Inc.
yd <sup>3</sup>	cubic yard



## 1.0 INTRODUCTION

The County of Kaua'i, Department of Public Works (DPW), Solid Waste Division, hereafter referred to as the "County", is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) on Kaua'i, Hawai'i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua'i and identified with Tax Map Keys (TMKs) 1-2-002:009 and 1-2-002:001 (Figure 1-1). This facility is situated on approximately 98 acres of land adjacent to Kaumuali'i Highway (Highway 50) approximately 1,700 feet from the shoreline of the Pacific Ocean. KLF is comprised of two distinct refuse fill areas identified as Phase I and Phase II. Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. Phase II began operations on October 9, 1993 and was originally permitted to reach a height of 37 feet above mean sea level (msl), which should have allowed municipal solid waste (MSW) filling operations through 2003. However, due to all the additional MSW resulting from Hurricane Iniki, it quickly reached that capacity and was expanded vertically in 1998 to accommodate more MSW by increasing the height limit to 60 feet above msl. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 feet above msl. The Phase II fill area is expected to reach capacity by approximately January 2009.

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

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

### 1.1 PURPOSE OF AND NEED FOR ACTION

The purpose of the proposed action is to laterally expand Phase II and thereby prolong the life of the KLF as it is the only permitted MSW landfill on the Island of Kaua'i. The need arises because the Phase II is projected to reach capacity in approximately January 2009, at which time the Island of Kaua'i would be without a landfill for the disposal of MSW. The lack of a permitted MSW landfill would result in adverse effects on the environment and public health. Waste would not be properly disposed of and unsanitary conditions would propagate vectors and pose a serious risk to public health and the environment.

### 1.2 ENVIRONMENTAL PERMITS, CONSULTATIONS, AND APPROVALS

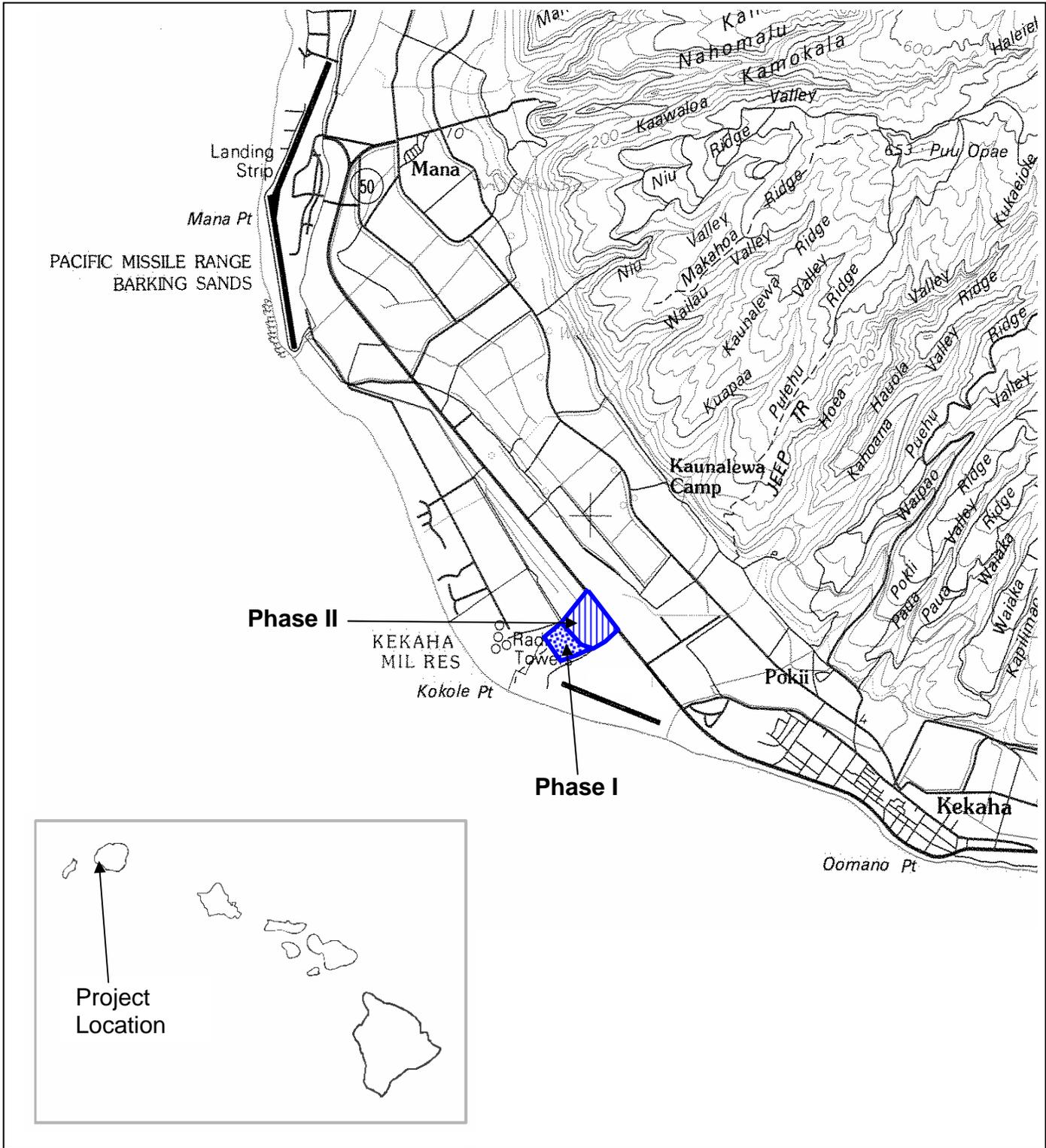
In addition to the environmental disclosure requirements of HRS Chapter 343, implementation of the proposed action would require coordination and consultation with the federal, state, and county agencies for permits, clearances, or approvals as presented in Table 1-1 (see Appendix A for agency correspondence):

**Table 1-1: Permits and Approvals for Implementation of the Proposed Action**

Permit or Approval	Description	Regulation(s)	Administrative Authority
Solid Waste Management Permit	Expansion of a MSW landfill must be authorized under a Solid Waste Management Permit issued by the DOH SHWB.	HRS 342H; HAR 11-58.1-04	DOH SHWB

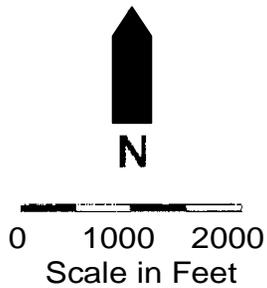
Permit or Approval	Description	Regulation(s)	Administrative Authority
Initial Covered Source Air Permit	Covered sources include those sources that are major sources of air emissions and sources subject to a federal performance or control technology standard.	HAR 11-60.1-82	DOH CAB
Title V Air Permit	A Title V air permit is required to comply with the New Source Performance Standards found in 40 CFR Part 60, Subpart WWW.	40 CFR Part 60	DOH CAB; EPA
SMA Permit	A SMA Permit is required for any development within the SMA boundary, including construction, reconstruction, demolition, or alteration of the size of any structure.	HAR 15-150	County of Kaua'i Department of Planning
Conservation District Use Application	Land uses within any State of Hawai'i Conservation District must be approved by the Board of Land and Natural Resources or the Chairperson, prior to initiation.	HAR 13-5	DLNR Office of Conservation and Coastal Lands
Historic Preservation Review	State and county projects that may affect a historic property must obtain a concurrence of "no affect" to historic properties from SHPD, prior to commencement.	HRS Chapter 6E-8; HAR 13-275	DLNR SHPD
CWA Section 402 NPDES Permit(s)	Section 402 of the CWA establishes the NPDES program regulating the discharge of pollutants to waters of the U.S. NPDES permits are required to authorize discharges of storm water associated with construction activities that result in disturbance of 1 acre or more of total land area.	CWA (33 U.S.C. §§ 1251 et seq.); HRS 342D; HAR 11-55, Appendix C	DOH CWB
Grading Permit	A grading permit is required for grading that exceeds 100 yd <sup>3</sup> of cut or fill or exceeds 5 feet in vertical height at its deepest point.	Ordinance No. 808	County of Kaua'i DPW, Engineering Division
Permit for Well Abandonment	The owner or operator of any well to be abandoned is required to re-case, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.	HAR 13-168-16	DLNR CWRM

§	Section
CAB	Clean Air Branch
CFR	Code of Federal Regulations
CWA	Clean Water Act
CWB	Clean Water Branch
CWRM	Commission on Water Resource Management
DLNR	Department of Land and Natural Resources
EPA	Environmental Protection Agency
No.	number
NPDES	National Pollutant Discharge Elimination System
SHPD	State Historic Preservation Division
SHWB	Solid and Hazardous Waste Branch
SMA	Special Management Area
U.S.	United States
U.S.C.	United States Code
yd <sup>3</sup>	cubic yard



**Figure 1-1  
Site Location Map**

County of Kauai  
Kekaha Landfill Phase II Lateral Expansion





## 2.0 PROJECT DESCRIPTION

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

### 2.1 PROJECT LOCATION AND BACKGROUND

**Location.** The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with TMKs 1-2-002:009 and 1-2-002:001 (Figure 1-1). KLF is located adjacent to Kaumuali`i Highway (Highway 50) and is approximately 1,700 feet from the shoreline of the Pacific Ocean. This facility is situated on approximately 98 acres of land and is comprised of two distinct refuse fill areas identified as Phase I, approximately 33 acres, and Phase II, approximately 32 acres (Figure 2-1). Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. Phase I has no liner system beneath the refuse. Phase II began operations on October 9, 1993 after the closure of Phase I. Phase II of the KLF was constructed to meet Resource Conservation and Recovery Act (RCRA) Subtitle D criteria and is currently the only active, permitted MSW landfill on the Island of Kaua`i. The KLF is bounded by Kaumuali`i Highway to the northeast, an unpaved access road and agriculture land to the southeast, a state agricultural park to the northwest, federal reserve lands to the west, the Hawai`i National Guard Rifle Range to the southwest, and a drag strip to the south.

The KLF Phase II is a permitted MSW landfill for the disposal of non-hazardous solid wastes. The permitted Phase II fill area, which occupies approximately 32 acres, is subdivided into 14 waste disposal cells (each about 2.3 acres in size and approximately 100 feet wide and 800 to 1,100 feet long). An office, scale house, and maintenance shop are located along the northeastern property line of the facility.

The KLF is located on the Mana Plain, which is the coastal plain of southwestern Kaua`i. The Mana Plain was predominately used for agricultural purposes and portions are still used for agricultural purposes. Natural elevations on the Mana Plain range from sea level to 10 feet above msl.

**Background.** The County has an island-wide system of solid waste collection and disposal that serves its resident and visitor populations. The two primary components of the Kaua`i solid waste management system are the KLF and refuse transfer stations. The County operates four refuse transfer stations located in Hanalei, Kapa`a, Līhu`e, and Hanapēpē where solid waste is collected, sorted, and transferred to the appropriate location depending upon whether it is recyclable material, green waste, or solid waste appropriate for disposal in the KLF. The County also maintains island-wide neighborhood recycling centers.

KLF Phase II was initially permitted for a maximum elevation of 37 feet above msl. However, to accommodate waste generated by Hurricane Iniki in 1992, a vertical expansion was required and approved in 1998 raising the maximum fill elevation to 60 feet above msl. The first vertical expansion added an additional 6 years of use to the site (Belt Collins 1998). A second vertical expansion was subsequently required and approved in 2005 to raise the maximum fill elevation to 85 feet above msl. The current Phase II fill area is expected to reach capacity by approximately January 2009.

The Phase II landfill containment system consists of a landfill liner, leachate collection system, and an evaporation lagoon. The base liner consists of a geosynthetic clay layer (bentonite [clay with high shrink-swell properties]) overlain by a geomembrane liner (60 millimeter thick high density polyethylene [HDPE]). Above the base liner, there is a 2-foot layer of sand containing perforated HDPE pipes at 100-foot intervals. These pipes direct leachate into collection manholes at the perimeter of the landfill unit. Leachate from these manholes is then directed via a pump station to the lined leachate evaporation lagoon. Sensors detect manhole leachate levels and automatically activate pumps when the leachate reaches a predetermined level. The leachate lagoon is lined with a 6-inch foundation layer, a geosynthetic clay liner covered with a 60 millimeter HDPE geomembrane and geotextile (HDPE net), and a 6-inch layer of concrete (listed in ascending order). The 1.9 acre

lagoon has a maximum depth of 5 feet with an additional 2 feet of freeboard, and it was designed to completely evaporate all leachate collected from the landfill during a normal precipitation/evaporation year. Two floating paddle wheel aerators are used to accelerate evaporation.

Currently, daily operations require spreading the waste in 2-foot layers up to a 5:1 slope to a height of 10 feet and maintaining a working face of 100 feet by 75 feet maximum. Next, these 2-foot layers are compacted to a minimum of 1,400 pounds per cubic yard (yd<sup>3</sup>). To minimize exposure of the working face to the elements, the waste is covered with a geosynthetic tarp and/or soil. This cover helps to mitigate problems with odors, vectors, leachate, and windblown trash and complies with HAR Title 11, Chapter 58.1. The geosynthetic tarp is used as a temporary daily cover before the design grade is met, which helps to minimize soil use and maximize the landfill capacity. A soil cover (consisting of fine-grained silty clay from the former Kekaha Sugar Company mill settling basins) is used when the design grade of a particular layer is reached.

Under contract with the County, Waste Management, Inc. (WMI) manages Phase II. County employees operate equipment and perform manual tasks necessary to sustain daily operations.

Compliance with HAR Title 11, Chapter 58.1 requires that groundwater and landfill gas (LFG) monitoring be performed as part of the landfill operations. Groundwater from three Phase I and six Phase II groundwater monitoring wells (Figure 2-1) is sampled on a semi-annual basis to determine whether there are any landfill-related contaminants present in the groundwater. It should be noted that this groundwater is not utilized for drinking water as it is brackish and, therefore, not suitable for use as irrigation water or as a potable water supply. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site. Six LFG probes sited along the perimeter of Phase I and five LFG probes sited 1,000 feet apart along the perimeter of Phase II (Figure 2-1) are used to sample for methane (CH<sub>4</sub>), carbon dioxide (CO<sub>2</sub>), and oxygen (O<sub>2</sub>).

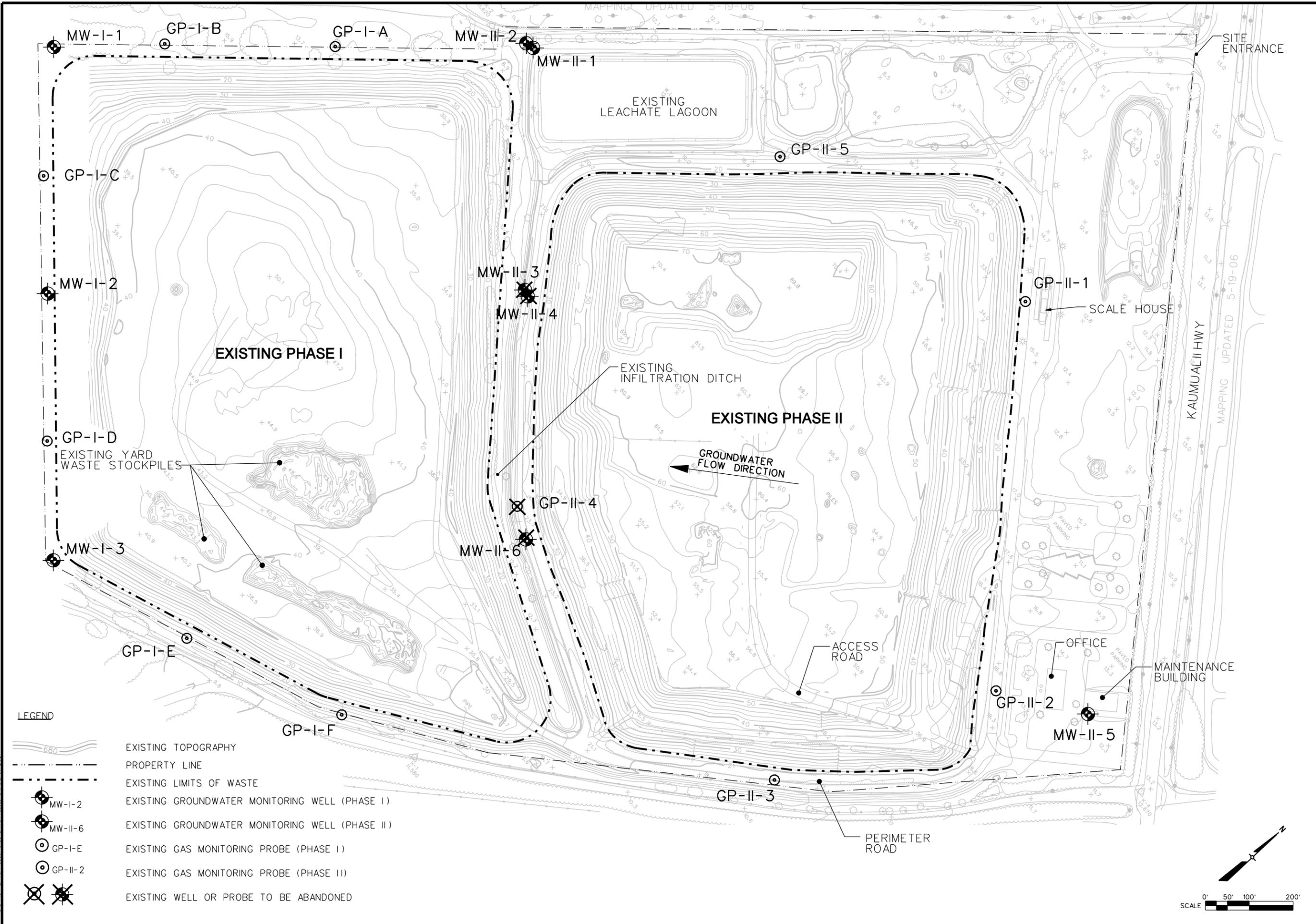
## 2.2 PROPOSED ACTION

The County proposes to expand the limits of Phase II to include three additional cells. Cell 1 would expand Phase II into the existing leachate lagoon and adjacent acreage. Cell 2 would expand Phase II into the valley area between the closed Phase I and the existing Phase II. Cell 3 would expand Phase II directly over the closed Phase I (Figure 2-2). Maximum height of these areas would be no greater than 85 feet above msl. The proposed expansion at full-build would increase the original Phase II fill area by approximately 32.7 acres and would provide capacity for an additional volume of approximately 1,550,000 yd<sup>3</sup> of MSW at the KLF. At the current filling rate, this would accommodate approximately 12 years of MSW filling operations, if needed.

The capacity of individual cells is summarized in Table 2-1 below. Development of Cells 1 and 2 only would add capacity for an additional 6.6 years of MSW filling. In response to public comments on the Draft EA, the County has stated that if a new landfill can be sited within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed. However, for the purposes of this analysis, it is assumed that all three cells would be developed.

**Table 2-1: Estimated Additional Landfill Capacity**

Expansion Area	Additional Design Volume (yd <sup>3</sup> )	Capacity for Waste (yd <sup>3</sup> )	Capacity (Tons)	Rate of Refuse Acceptance (tons/day)	Additional Years of Capacity
Cell 1	530,000	442,000	309,000	248	3.4
Cell 2	500,000	416,000	292,000	248	3.2
Cell 3	830,000	692,000	484,000	248	5.4
Total (All Cells)	1,860,000	1,550,000	1,085,000	248	12.0



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- LEGEND**
- EXISTING TOPOGRAPHY
  - PROPERTY LINE
  - EXISTING LIMITS OF WASTE
  - MW-I-2 EXISTING GROUNDWATER MONITORING WELL (PHASE I)
  - MW-II-6 EXISTING GROUNDWATER MONITORING WELL (PHASE II)
  - GP-I-E EXISTING GAS MONITORING PROBE (PHASE I)
  - GP-II-2 EXISTING GAS MONITORING PROBE (PHASE II)
  - EXISTING WELL OR PROBE TO BE ABANDONED

REVISIONS		NO	DRN	CHK	DATE

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EXISTING SITE CONDITIONS

PREPARED BY  
**KEKAHA LANDFILL PHASE II LATERAL EXPANSION  
KEKAHA SANITARY LANDFILL  
KAUAI, HAWAII**

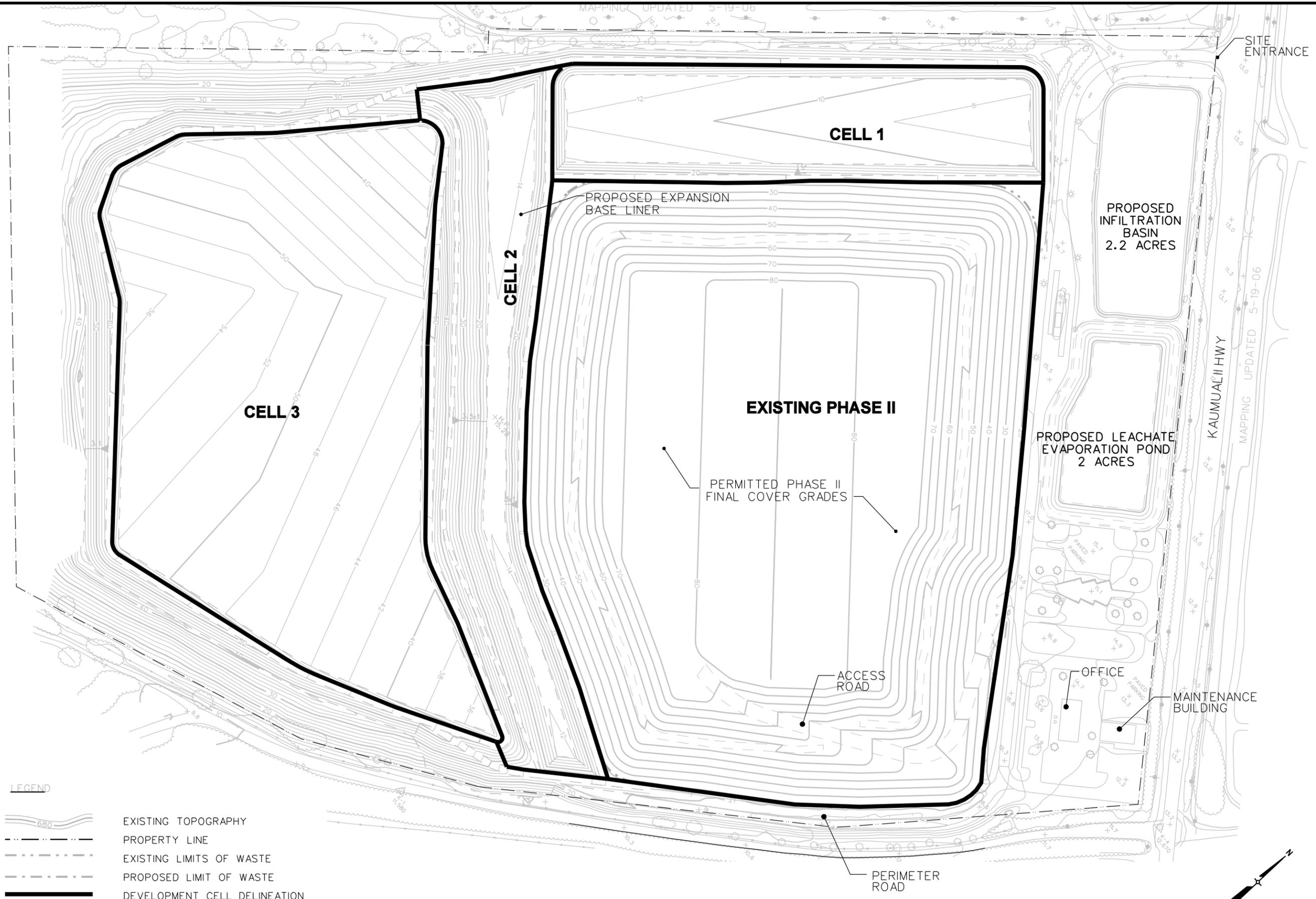
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Figure 2-1



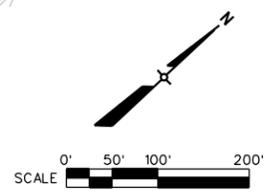
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**LEGEND**

	EXISTING TOPOGRAPHY
	PROPERTY LINE
	EXISTING LIMITS OF WASTE
	PROPOSED LIMIT OF WASTE
	DEVELOPMENT CELL DELINEATION



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<p>PREPARED BY</p>						
<p><b>EarthTech</b> A Tyco International Ltd. Company</p>						
<p>KEKAHA LANDFILL PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII</p>						
<p><b>PROPOSED ACTION CELL DEVELOPMENT</b></p>						
<p>DATE OCTOBER 2007</p>						
<p>PROJECT NO 95561</p>						
<p>FILENAME 02Subbase.dgn</p>						
<p>SHEET NO</p>						
<p>Figure 2-2</p>						



The proposed action final cover grade and cross sections are presented as Figure 2-3, Figure 2-4, and Figure 2-5. The closed Phase I currently has a peak elevation of approximately 50 feet above msl. The proposed expansion into Cells 2 and 3 would laterally expand Phase II directly over the closed Phase I. A base liner system would be installed on top of the existing Phase I cover system, which would allow for vertical expansion of the Phase I area to 85 feet above msl. A passive gas extraction system, currently in place for Phase I, would be rerouted during construction of the base liner system for the lateral expansion into Cells 2 and 3.

Expansion into Cell 1 (the existing leachate lagoon area) would require development of a new leachate management system. The existing leachate lagoon would be demolished and relocated adjacent to the office and scale house along the northeastern property line of the facility (Figure 2-3). The valley area between Phase I and Phase II is currently used as an infiltration area for storm water runoff and is also the location of a gas monitoring probe and three groundwater monitoring wells used to monitor Phase II. Therefore, expansion into Cells 2 and 3 include plans for a new storm water management system and relocation of an existing gas monitoring probe and three existing groundwater monitoring wells. The existing gas monitoring probe and groundwater monitoring wells to be relocated are indicated on Figure 2-1.

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

The proposed Phase II lateral expansion would be sequenced to allow for phased construction. Construction activities for expansion into Cell 1 would commence in approximately June 2008 and would be completed in November 2008. Construction activities for Cell 2 would commence in approximately December 2011 and would be completed in May 2012. The preliminary construction cost estimate for Cells 1 and 2 is approximately \$6 million for each cell. Construction for Cell 3 would commence in approximately February 2015, if deemed required, and be completed in approximately July 2015. The preliminary construction cost estimate for Cell 3 is approximately \$19 million.

### **2.4 ALTERNATIVES TO THE PROPOSED ACTION**

In addition to the proposed action, the no-action alternative will be analyzed in this EA. Four other alternatives were considered in the design phase but were determined to be not feasible and were eliminated from further consideration. The alternatives considered but not carried forward are presented below in Section 2.4.2.

#### **2.4.1 No-Action Alternative**

Under the no-action alternative, Phase II would not be expanded resulting in closure of the landfill in approximately 2009 when the landfill capacity would be reached. The Island of Kaua`i would be left without a permitted facility for the disposal of municipal solid waste.

#### **2.4.2 Alternatives Considered But Not Carried Forward**

Only alternatives which were technically feasible and satisfied the purpose of and need for action were carried through the EA analysis. Other alternatives considered but not carried forward are summarized in the paragraphs below.

**Siting and Constructing a New Landfill Facility.** While it is the intent of the County to ultimately site a new landfill facility on Kaua`i, this can not be accomplished prior to January 2009, when the KLF Phase II is projected to reach capacity. Siting a new landfill takes numerous steps and substantial time. An implementation schedule presenting the steps and time required to site, permit, and construct a new landfill is presented in Table 2-2 below. These are estimated durations; actual durations may vary.

**Table 2-2: Implementation Schedule to Site, Permit, and Construct a New Landfill**

Item	Duration
Complete MSW Landfill Siting Study	1 year
Prepare Initial Site Report and EIS	1 1/2 years
Acquire Land	2 years
Prepare Feasibility Report	1 year
Prepare Operations Plan and Design	1 year
Permit Application to DOH	1 year
Construct MSW Landfill	1 year

EIS environmental impact statement

With this implementation schedule, the County expects that a new landfill cannot reasonably be sited in less than 6 years. If there are significant regulatory, technical, or community issues to overcome, siting a new facility could take much longer (e.g. greater than 8 years). Because this alternative could not satisfy the stated need for additional landfill capacity by January 2009, it was not carried forward in this analysis. However, the County is still proceeding with plans to site a new landfill as part of its long-term planning objectives.

**Vertical Expansion:** A third vertical expansion of the existing Phase II would use the existing base liner and leachate collection system and remain within the Phase II footprint. Vertical expansion would increase the design capacity vertically over the existing 32-acre footprint. Vertical expansion was eliminated from further consideration because there have already been two vertical expansions that increased the ceiling to 85 feet above msl, the maximum ceiling allowed by the Phase II DOH solid waste management permit.

**Horizontal Expansion into Cell 1 (the Leachate Lagoon Area) Only.** Horizontal expansion into the leachate lagoon area only would provide an additional 5.8 acres and a volume capacity of 442,000 yd<sup>3</sup>. At the current filling rate, this alternative would accommodate only 3.4 years worth of refuse, much less than the minimum 6 to 8 years needed to site, design, and construct a new landfill facility. This alternative would not fulfill the purpose of and need for action and was, therefore, eliminated from further consideration.

**Excavation of Phase I to Construct a New Subtitle D Base Liner System.** This alternative proposes to excavate and remove Phase I to construct a new Subtitle D base liner system in the Phase I area. Phase I refuse would be relocated into the newly constructed Subtitle D facility. This alternative has the highest cost and would only add an additional 1.8 years to the life of the facility, compared to the proposed action. Current sampling results from the groundwater monitoring wells located downgradient of the landfill indicate that groundwater beneath the unlined Phase I landfill has not been significantly impacted by leachate and no corrective action is warranted or required. Excavation and relocation of Phase I could have a number of adverse environmental effects related to excessive odor and gas, landfill fires, and short-term health and safety concerns. Therefore, the benefits to be realized from excavating and lining the closed Phase I are not presently sufficient to offset the environmental risks or monetary costs, therefore this alternative was eliminated from further consideration. If future groundwater monitoring data indicate significant adverse impacts to groundwater are resulting from the unlined Phase I landfill, the County may reconsider this alternative.

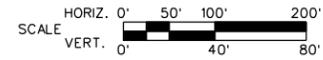
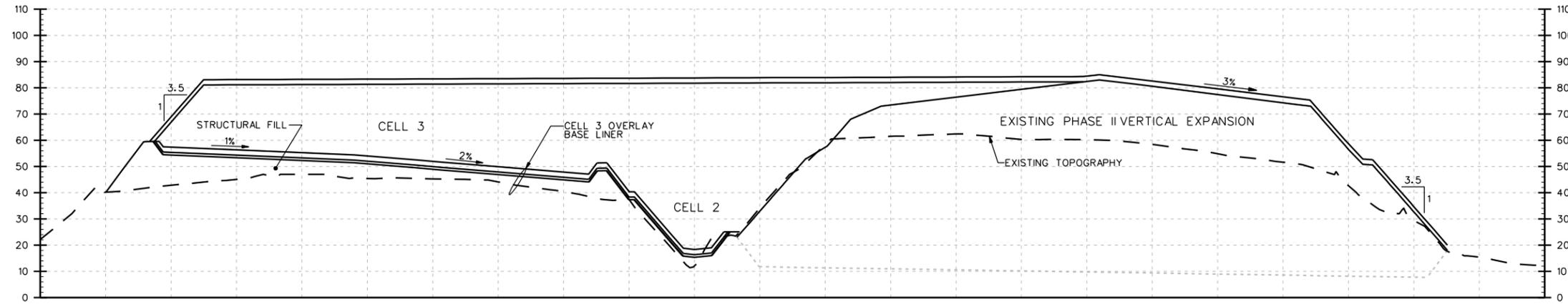
**Off-Island Disposal:** MSW would be shipped from Kaua'i to off-island landfills. Such a plan would require a transfer station and additional monies to support the transfer costs (inter-island shipping and off-island hauling). Transporting solid waste off-island would proportionally increase the chances of accidental releases during transport. The high cost associated with off-island disposal would raise waste disposal facility costs and fees and would most likely result in widespread illegal disposal of MSW throughout rural Kaua'i. Therefore, this alternative was eliminated from further consideration.



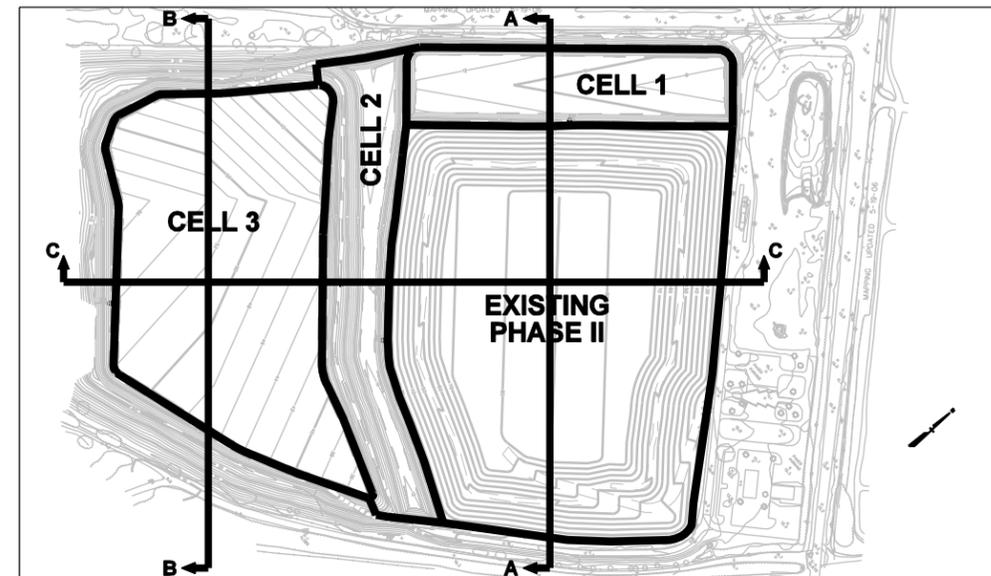








**CROSS SECTION C-C**



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PREPARED BY KEKAHA LANDFILL PHASE II LATERAL EXPANSION KEKAHA SANITARY LANDFILL KAUAI, HAWAII						
<b>CROSS SECTION C-C</b>						
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Figure 2-5						



### 3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

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

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

#### 3.1 AIR QUALITY

The ROI for air quality is the KLF facility and downwind areas. Downwind areas vary during the year and air quality is affected by the climate. The climate is characterized by two distinct seasons, primarily defined by the annual variation in persistence of the northeast trade winds. The summer months from May to September are typically drier and warmer, while the winter months from October to April are usually wetter and cooler.

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

Ambient air quality, which refers to the purity of the general outdoor atmosphere, is regulated under the Clean Air Act and the United States (U.S.) Environmental Protection Agency (EPA) National Ambient Air Quality Standards (NAAQS) (40 Code of Federal Regulations [CFR] Part 50). The DOH also regulates air quality and established ambient air quality standards (HAR Title 11, Chapter 59-4) that are as strict or, in some cases, stricter than the NAAQS. The State of Hawai'i has also established standards for fugitive dust emissions emanating from construction activities (HAR Title 11, Chapter 60.1-33). These standards prohibit any visible release of fugitive dust from construction sources without taking reasonable precautions.

The State of Hawai'i monitors ambient air quality for six regulated pollutants including:

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

In 2005, the State of Hawai'i met all federal ambient air quality standards (DOH 2006).

Sources of air pollutants/emissions at the KLF facility include: diesel- and gasoline-powered equipment, motor vehicles and refuse transfer trucks, LFG, and fugitive dust.

**Landfill Gas.** LFG is generated from the decomposition of organic material and can migrate either laterally in the subsurface or vertically to the atmosphere, depending upon environmental and physical constraints. LFG consists of CH<sub>4</sub> and CO<sub>2</sub> resulting from the decomposition of refuse, as well as lesser amounts of non-methane organic compounds (NMOCs).

**Odor Control.** The odor control program at KLF Phase II consists of identification and special handling of odorous wastes, effective application of daily and intermediate cover, and management of LFG, as described below.

*Management of Odorous Wastes.* Wastes capable of creating offsite odor problems receive special handling to minimize potential odor problems. Odorous waste include: sewage sludge and grits; dead animals; grease trap pumping waste; and food wastes. Upon receipt at the scalehouse, these wastes are designated as odorous loads and directed to a designated part of the active disposal area. A bulldozer excavates a trench or pit in previously placed solid waste known to contain no odorous special wastes and the odorous load is discharged into the pit. The bulldozer immediately covers the odorous material with solid waste excavated to create the pit, and compacts it firmly. Daily cover soil is placed and compacted above the solid waste.

*Daily Cover Soil.* The most effective means of preventing odors from general solid waste activities is by application of daily and intermediate cover soil over the MSW. A minimum of 6 inches of soil material or Alternative Daily Cover (ADC) is placed daily on all waste fills. Per the DOH Solid Waste Management Permit, the KLF is approved to use tarps as ADC for a period not to exceed 24 hours. Intermediate cover, consisting of an additional 6 inches of soil material, further controls odors on a long-term basis. Regular inspection and maintenance of cover to eliminate cracks and fissures in cover soil is also an important element of odor control from solid waste after it is buried.

*Landfill Gas Control.* Odorous conditions at landfills are often associated with uncontrolled LFG. Construction activities for closure of Phase I included construction of a passive gas extraction system. A LFG collection system was designed for Phase II as part of the Closure Plan to address LFG migration and odor concerns. The LFG collection system consisting of vertical gas extraction wells and horizontal collectors would be constructed as part of the Phase II closure actions.

**Fugitive Dust.** KLF Phase II personnel are responsible for preventing the emission of excessive dust from the facility. The site's water truck is used during dry weather to spray water on access roads and other areas generating wind-blown dust. The volume of water and frequency of spraying is increased as needed during particularly dry and windy conditions.

### 3.2 BIOLOGICAL RESOURCES

The ROI for biological resources, including flora and fauna, is the KLF facility. A faunal survey of the KLF in 1982 did not record the presence of any endangered bird species. A survey of the KLF prior to Phase II construction found only exotic (introduced) flora species. No uncommon or rare native plants were found. The irrigation ditches that were used by Kekaha Sugar Company provided a marginal wetland habitat in the project vicinity (Belt Collins 1998). Since these biological surveys were completed, the site has been further disturbed by earthmoving activities required for construction of Phase II and associated support facilities. Habitat quality of the KLF facility for native fauna is marginal at best, and no rare or protected species are believed to use the site with any frequency. There is a potential for protected seabirds, including the Newell's shearwater and Hawaiian petrel, to fly over the project area, particularly during an annual migration of fledglings from mid September through mid December.

### 3.3 CULTURAL RESOURCES

The ROI for cultural resources is the KLF facility and surrounding area. This resource encompasses prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. For the purpose of this EA, archaeological/cultural resources are defined to include prehistoric and historic archaeological sites, historic buildings and structures, and traditional (i.e., native Hawaiian) sites.

Kaua`i's west coast and the Mana Plain have been surveyed by archaeologists over the last 60 years. Before sugarcane was cultivated, much of the Mana Plain was a marsh bounded by cliffs on the east and sand dunes on the west. Permanent habitation areas in the Kekaha area were mainly among the mauka foothills, at the bases of the shore-facing cliffs. Extending up the gulches were agricultural areas watered by rainfall and intermittent streams. Makai of the foothills were fishponds and cultivated wetlands fed by springs. Beyond this was the great swamp, then the broad stretch of the sand lands which continued to the shoreline. Fishing camps and other temporary habitation areas existed on the beach and there were burials in the inland stretches of the sand.

This scenario was likely in place at the time of first western contact and remained relatively undisturbed throughout most of the 1800's. Since then, physical evidence of this settlement pattern has been obliterated by commercial agriculture and other operations. The foothills and wetland areas have been extensively planted in cane, livestock has been run up the gulches, and even the beach areas have been heavily disturbed by massive shoreline stabilization projects (refer to Appendix B for a detailed historical and cultural overview of land settlement and use in Kekaha, Kaua`i).

An archaeological inventory survey of the entire 63.2-acre Phase II parcel was conducted by Cultural Survey Hawai`i, Inc. in May 1993, with the Department of Land and Natural Resources (DLNR) oversight (Appendix B). The archaeological inventory survey included extensive subsurface test excavations by backhoe. The survey report determined that the former natural landform was likely one of linear sand dunes oriented southeast to northwest, created by the northeast tradewind flow as it circles around the east and south sides of Kaua`i. Geomorphic and stratigraphic observations, reinforced by local verbal accounts, suggest that these dunes were in large part obliterated by mechanical means to create level graded land for plantation agriculture and pasturage of plantation animals.

A historic canal cutting the parcel in two from north to south, and a linear mound oriented perpendicular to the canal, were both constructed by mechanically mounding up sand deposits derived from the surrounding area. These features are the remains of an attempt in the 1950s to farm portions of this land. Neither feature is a historic site nor were historic cultural resources evident in subsurface deposits. Based on results of the inventory survey and subsurface testing, no further archaeological study of Phase II was recommended.

A cultural impact assessment, in accordance with Act 50 (HRS Chapter 343) included a request for statements or information relating to cultural practices in the project vicinity from persons and organizations identified by the Office of Hawaiian Affairs Kaua`i Community Resources Coordinator as having knowledge of cultural resources and practices in the Kekaha area (Appendix A). Per the *Guidelines for Assessing Cultural Impacts* (DOH 1997), the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The cultural resources that support such cultural practices and beliefs are also subject to assessment.

### 3.4 GEOLOGY AND SOILS

**Geology.** The KLF is located within the Mana coastal plain and is approximately 1,700 feet from the Pacific Ocean. The Mana coastal plain is arch-shaped and is approximately 15 miles long and 2 miles wide. The coastal plain consists primarily of older alluvium and contemporary coralline and marl sedimentary rocks of marine, littoral, and terrestrial origin. These sedimentary rocks were deposited in lagoon and estuarine environments and in a flanking terrestrial environment. The thickness of the coastal plain sedimentary deposits ranges from zero on the inland edge to more than 400 feet along the seaward edge of the plain. The surface deposits (to a depth of 50 feet) consist predominantly of loose sand, coral fragments, and shell debris. The thickness of sedimentary deposits underneath the KLF is anticipated to be over 400 feet. The coastal plain sediments are underlain by basalt; the top of the basalt is a drowned, wave-cut bench sloping gently seaward (Earth Tech 2007a).

**Soils.** Soils of the Mana Plain are classified by the U.S. Department of Agriculture Soil Conservation Service as Jaucus loamy fine sand that forms a well-drained calcareous soil. This soil is too permeable to allow for surface water ponding or runoff; as a result, the potential for vertical migration of water is great, but erosion by surface water runoff is unlikely. Wind erosion is a severe hazard without the presence of vegetation (Earth Tech and Wil Chee 2004).

Pacific Geotechnical Engineers, Inc. (PGE) completed a geotechnical investigation for the Phase II lateral expansion in late November and early December 2006. PGE completed a total of 11 soil borings, 7 test pits, and 3 field percolation tests. Three grab samples were also collected from the Phase I embankment for laboratory analysis. The predominant onsite foundation soils are poorly graded sands based upon the borings, test pits, and laboratory results. Results of the percolation tests determined percolation rates of 4 to 6 minutes per inch (Earth Tech 2007b).

### 3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The ROI for hazardous materials and hazardous wastes is the KLF facility. For the purpose of the following analysis, the term hazardous materials or hazardous waste will mean those substances defined by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 United States Code (U.S.C.) Sections (§§)9601 et seq., and RCRA, 42 U.S.C. §§6901–6992. In general, these include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present an unreasonable risk to health, safety, and the environment when released.

The KLF does not accept materials designated as hazardous under 40 CFR Part 261, polychlorinated biphenyl wastes as defined in 40 CFR Part 761, radioactive materials, insecticides and poisons, untreated infectious waste or improperly packaged asbestos waste. Operating procedures currently in-place to prevent the disposal of unacceptable wastes are outlined in the *Operating Plan, Kekaha Landfill Phase II* (A-Mehr 2004). Unacceptable Waste Exclusion Program procedures include: customer notification, scale house monitoring and inspection, random inspections, and landfill working face inspections. If hazardous or unacceptable wastes are discovered during inspections or through visual observation during unloading, KLF personnel will reject such wastes, require the prohibited wastes to be reloaded onto the transporting vehicle, and complete a load rejection form. The transporter is responsible for returning the rejected waste to the generator for proper disposal.

The KLF stores and uses petroleum products such as diesel fuel, lubricating oils, and waste oil. KLF has a low potential for spills of hazardous materials, but incidents are possible in the event of vehicle accidents or malfunctions that could cause spills of coolant, fuel, or lubricants. KLF maintains a Spill Prevention, Control, and Countermeasures (SPCC) Plan, as required by 40 CFR Part 112, to prevent and manage spills should they occur (Earth Tech 2006).

A 2,000-gallon diesel above ground storage tank, Tank Number (No.) 1, is located in the maintenance/equipment fueling area. The tank is double-walled and encased within a reinforced concrete secondary containment structure that can contain 110 percent of the tank's rated capacity. In addition to this concrete structure, there is a tertiary containment system that consists of a low concrete wall built around the perimeter of the tank; this containment system is capable of holding 1,480 gallons. The entire fueling area is protected from accidental traffic collisions by yellow traffic posts, spaced at approximately 6-foot intervals.

A service tanker truck used for daily equipment maintenance is equipped with one 250-gallon diesel tank (Mobile No. 1), and is parked within the lined MSW cell at the KLF. 55-gallon drums of lubricants, greases, used oil, and coolant are stored in the maintenance building on spill control pallets capable of holding 110 percent of the contents of the 55-gallon drums. The maintenance building has an impervious concrete floor. The KLF maintains spill kits, sorbent materials, and drain blockers for the drums located within the maintenance facility, and for fueling vehicles that enter and exit the site.

Daily visual inspections consist of a complete walk-through of the facility property to check for valve, appurtenances, and tank damage or leakage, including liquids within the secondary containment structures. Tanks are also inspected for corrosion or deterioration of secondary containment system foundations. Written inspection procedures and monthly inspections are signed by the inspector and maintained at the facility for three years.

There are no outstanding compliance issues related to hazardous materials or hazardous waste within the project area. According to facility personnel, no major spill events have occurred in the past five years (Earth Tech 2006). In addition, there are no identified CERCLA or RCRA sites within or immediately adjacent to the project area.

### 3.6 LAND USE AND OWNERSHIP

The land use and ownership ROI is the KLF facility and adjacent properties. The KLF facility is located on land owned by the State of Hawai`i and administered by the DLNR (Figure 3-1). Phase I, identified by TMK 1-2-002:009, has a state land use designation of Conservation District (Figure 3-2). Phase I is designated a Special Planning Area on the county zoning maps and is also within a County of Kaua`i Special Management Area (SMA) (Figure 3-3). Phase II, identified by TMK 1-2-002:001, has a state and county land use designation of Agricultural District (Figure 3-2). Executive Order 1558 (signed April 27, 1953) and Executive Order 2872 (signed October 6, 1977) set aside Phase I and Phase II for landfill purposes, to be under the control and management of the County of Kaua`i.

Phase II of the KLF was approved for use by the State Land Use Commission through the issuance of a Special Permit on July 1, 1993. This Special Permit allows for land classified as a State Agricultural District to be used for landfill purposes. The Special Permit requires that use of the land follow specific conditions as provided by the County of Kaua`i Planning Department, County Planning Commission, and the approving agency, the State Land Use Commission. No time limit was set for this Special Permit.

### 3.7 NATURAL HAZARDS

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

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

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

Per FIRM Maps 1500020232E and 1500020251E, the KLF facility is within a FIRM Zone X, an area determined to be outside the 100-year and the 500-year flood plain. To date, the KLF facility has not sustained any flood-related damage.

**Tsunamis.** Tsunamis are a series of destructive ocean waves generated by seismic activity that could potentially affect shorelines of Hawai'i. Tsunamis affecting Hawai'i are typically generated in the waters off South America, the U.S., Alaska, and Japan. Local tsunamis have also been generated by seismic activity on the Island of Hawai'i. The Oahu Civil Defense Agency establishes tsunami evacuation zones and maps for all coastal areas in Hawai'i. Tsunami maps for the inland areas of Kaua'i indicate that the KLF facility is within the tsunami evacuation zone. However, the KLF facility is outside the tsunami inundation zone (HLA 1994).

A search of the National Oceanographic and Atmospheric Administration's tsunami run-up database returned tsunami run-up data for two events in the vicinity of Kekaha. Run-up heights of 2.1 and 3.0 meters (6.9 and 9.8 feet) in Kekaha were recorded for tsunamis on March 9, 1957 and May 22, 1960, respectively (NOAA 2007). The run-up height represents the maximum elevation the wave reaches at the maximum inundation. To date, the KLF facility has not sustained any tsunami-related damage (Kaohi 2007).

**Hurricanes.** The Hawaiian Islands are seasonally affected by Pacific hurricanes from June to November. These storms generally travel toward the islands from a southerly or southeasterly direction and can deposit large amounts of rain with high winds on the Hawaiian Islands. The storms generally contribute to localized flooding and coastal storm surges. To date, the KLF facility has not sustained any significant damage from hurricanes (Kaohi 2007).

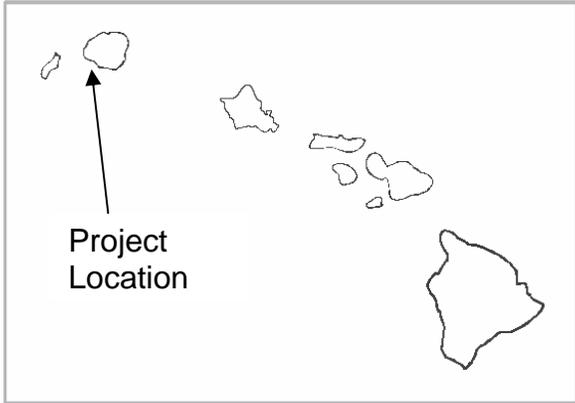
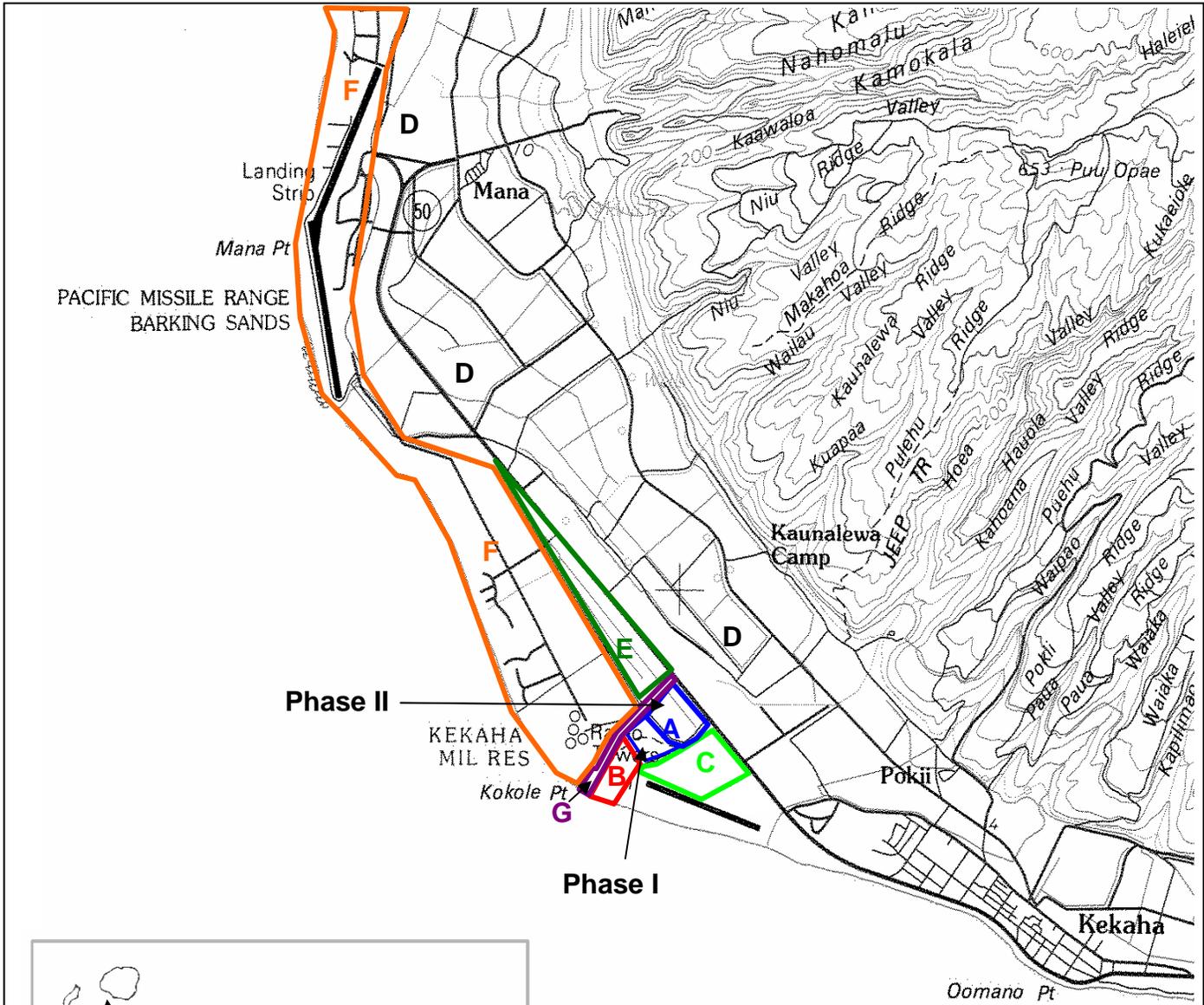
**Earthquakes.** Because Kaua'i is an older Hawaiian Island with dormant volcanic activity, it is not particularly prone to seismic activity. Seismic activity usually occurs on the Island of Hawai'i, and has been felt as far away as Oahu. The KLF is not located in a seismic impact zone as defined under HAR § 11-58.1-13(e) and the Subtitle D regulations for MSW landfills (40 CFR Part 258.14) (Earth Tech 2007b). To date, the KLF facility has not sustained any earthquake-related damage

### 3.8 NOISE

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

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

The State of Hawai'i regulates noise exposure in the following statutes and rules: HRS Chapter 342F - *Noise Pollution*, HAR Title 11, Chapter 42 - *Vehicular Noise Control for Oahu*, HAR Title 11, Chapter 46 - *Community Noise Control*, and HAR §12-200.1 *Occupational Noise Exposure*. Maximum permissible sound levels for Class C zoning districts including lands zoned agricultural and industrial is 70 dBA 24-hours a day (HAR Title 11, Chapter 46-4). KLF ambient noise is generated by garbage trucks and equipment used to operate Phase II. Around the perimeter of Phase II, operational noises are no more noticeable than the natural wind sounds and traffic on Kaunualii Highway. The nearest noise receptor is a residential population located 1.3 miles away in the community of Kekaha.



**LAND OWNER**

- A** State of Hawaii (DLNR)
- B** State of Hawaii (DLNR)
- C** State of Hawaii (DLNR)
- D** State of Hawaii (DLNR)
- E** State of Hawaii (DLNR)
- F** U.S. of America
- G** U.S. of America

**USER**

- County of Kauai
- Hawaii National Guard
- Syngenta Seed
- Unknown
- Kekaha Agricultural Park
- Department of Defense
- U.S. Lighthouse Service

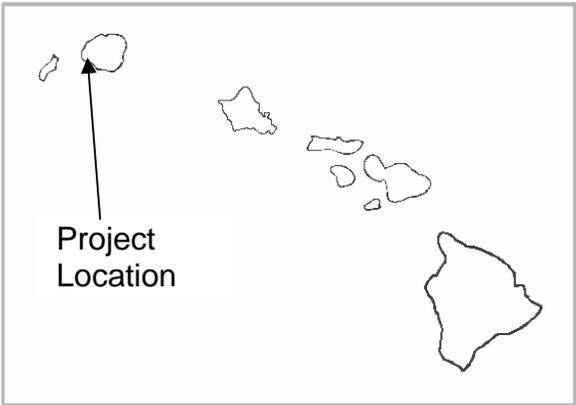
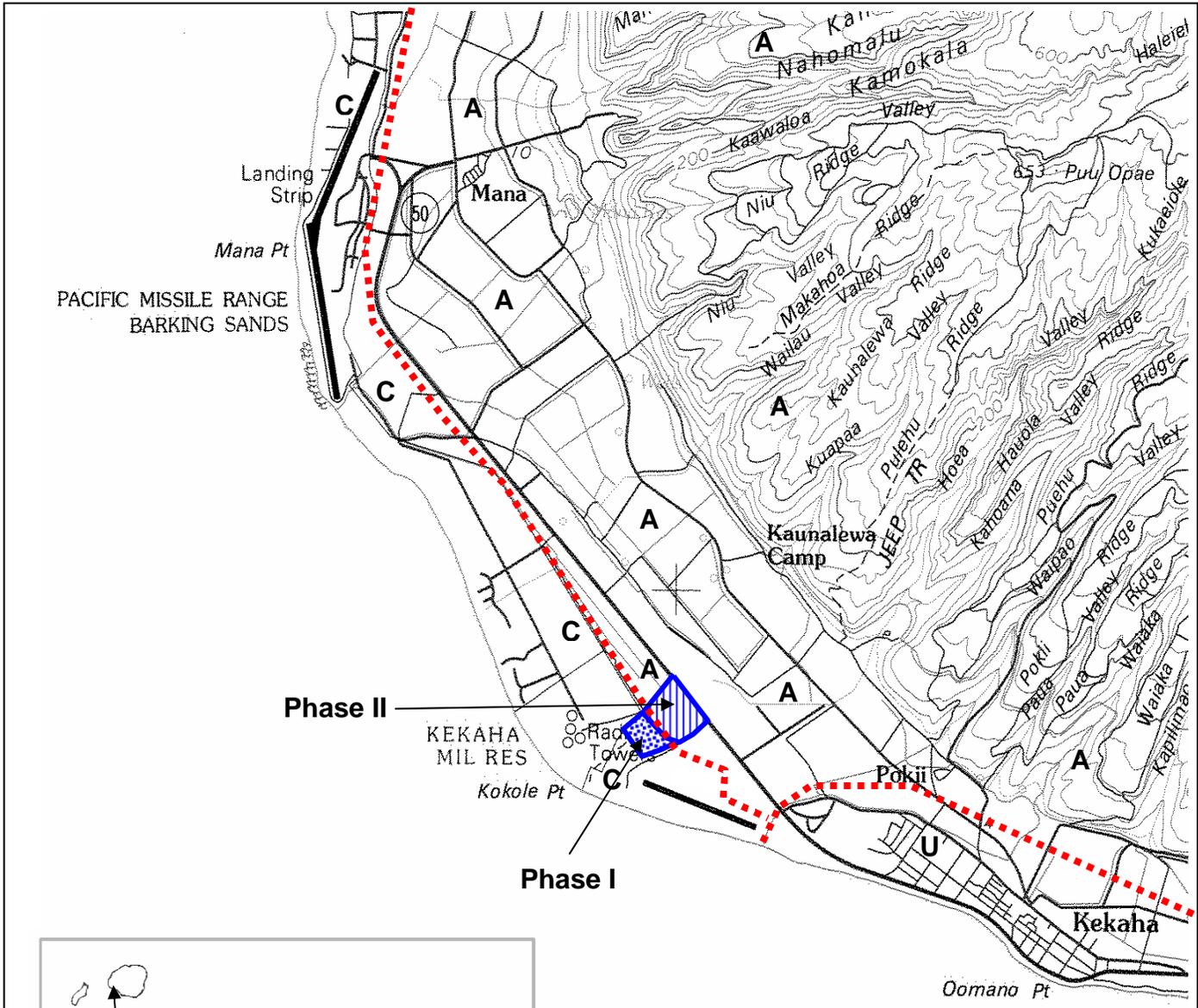


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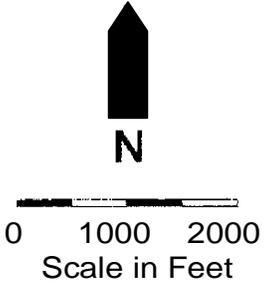
**Figure 3-1**  
**Land Ownership & Use**

County of Kauai  
Kekaha Landfill Phase II Lateral Expansion





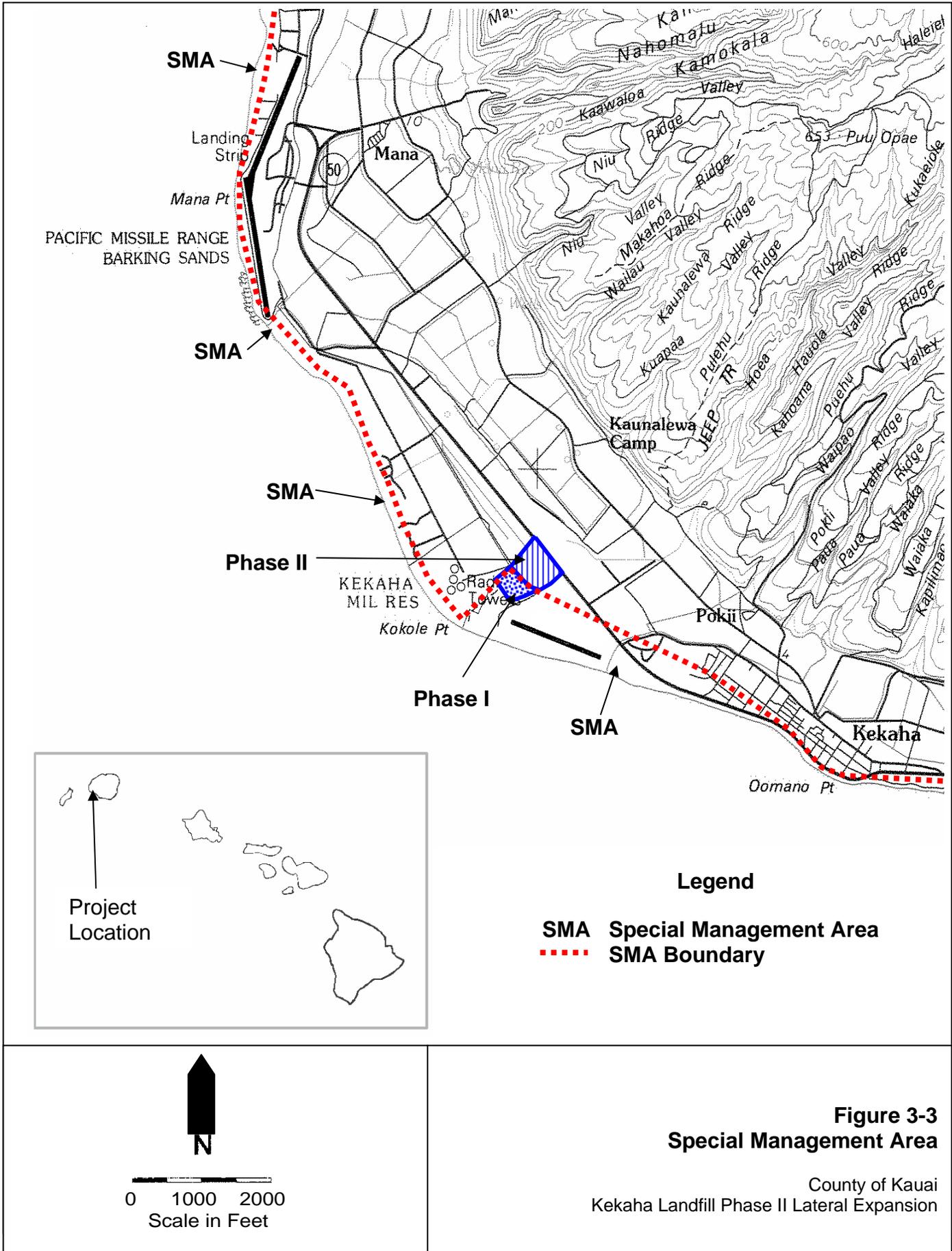
- Legend**
- A Agricultural
  - C Conservation
  - U Urban
  - Land Use District Boundary
  - ▨ Special Permit



**Figure 3-2**  
**State Land Use Districts**

County of Kauai  
Kekaha Landfill Phase II Lateral Expansion







### 3.9 SAFETY AND HEALTH

The ROI for safety and health is the KLF facility. Specific safety and health concerns related to landfill operation include heavy equipment operation, vector control, explosive gas, and landfill fires. Current operating procedures in-place to control risks related to these safety and health concerns are discussed below.

**Heavy Equipment Operation.** Heavy equipment presently used at the KLF to handle waste and transport/apply cover soil includes the following: compactor, bulldozer, excavator, dump truck, grader, water truck, roll-off truck, and auxiliary equipment. Access to the KLF is controlled by a perimeter fence and a gated entrance. Visitors to the KLF proceed directly to the scale house, from which they are directed to the appropriate disposal area where waste is unloaded under the supervision of KLF personnel.

WMI provides training and strict enforcement of a comprehensive program to ensure the safety of customers and employees. Access routes are clearly marked, and an onsite speed limit of 20 miles per hour is enforced. Customers are directed by spotters to specific locations for unloading, with traffic managed to avoid accidents. Employees are equipped with personal protective equipment including reflective vests and hard hats. Safety devices on equipment include seat belts, roll-over protective cabs, and audible reverse warning devices.

**Vector Control.** Vectors are organisms such as insects, rodents, or birds that can carry disease-causing microorganisms from infected individuals to other persons or from infected animals to human beings. The goal of vector control is to prevent the spread or overpopulation of areas with organisms which are able to transmit infectious agents of disease. KLF personnel are trained to observe and identify the first signs of vectors. The current practices of compaction and daily cover of wastes are effective in controlling vectors and normally prevent vectors from actively using the landfill.

**Explosive Gas.** CH<sub>4</sub> gas is produced by the anaerobic decomposition of organic components of solid waste. KLF implements a Site-Specific Gas Monitoring Plan to ensure that methane gas does not cause safety or environmental problems (A-Mehr 2004). Specifically, the program must demonstrate compliance with the requirements of HAR 11-58.1-18(d) that concentrations of CH<sub>4</sub> do not exceed 25 percent of the lower explosive limit in facility structures, or 100 percent of the lower explosive limit at the property boundary. The lower explosive limit for CH<sub>4</sub> is 5 percent by volume (50,000 parts per million [ppm]).

CH<sub>4</sub> monitors are installed in the landfill office building and in the maintenance building to measure explosive gas levels continuously and provide an alarm if levels reach 10,000 ppm (20 percent of the lower explosive limit). This program ensures that explosive gas levels in buildings are below the 25 percent limits set forth in HAR 11-58.1-18(d). Monitoring is conducted on a monthly basis to ensure compliance with HAR 11-58.1-18(d)(1)(B), which specifies that the concentration of CH<sub>4</sub> gas at the property boundary shall not exceed the lower explosive limit. Monitoring is conducted in five permanent gas probes installed at 1,000-foot intervals around the KLF perimeter.

**Landfill Fires.** The rapid decomposition of waste generates heat, which may ignite subsurface fires in the presence of O<sub>2</sub>. Landfill fires are prevented by employing good sanitary landfill practices that include compaction of wastes and daily cover. Compacting and covering waste daily minimizes air space and limits the supply of O<sub>2</sub> needed for the combustion of landfill gasses and the growth of underground fires.

Surface fires may also result if "hot" loads are disposed of at the landfill. Personnel at the scale house and unloading areas are trained and directed to notice any smoldering or burning material in incoming waste, and prevent it from contacting other combustible material or being buried in the disposal area before all combustion is extinguished.

Fire extinguishers are provided in all buildings and vehicles at the site for use in extinguishing small fires, and equipment or water is used to put out larger fires. KLF maintains, on a 24-hour basis, a 4,000-gallon capacity water truck, a bulldozer, a Caterpillar 950F loader, and an excavator for use in fire fighting.

The following actions are taken if a fire occurs in a refuse fill area prior to application of interim cover or near the surface:

- Burning refuse is excavated and separated from the fill area and covered immediately with onsite soil.
- If necessary, water is applied to the burning refuse using the onsite water truck.
- The local Fire Department is summoned if site personnel and equipment cannot extinguish the fire.

### 3.10 SOCIOECONOMICS

This section summarizes the demographic and income characteristics of residents in the vicinity of the project area. Data summarized in Table 3-1 are taken from the 2000 U.S. Census. Census data are used to describe the existing social and economic characteristics of the ROI and to determine whether any minority or low-income population may experience disproportionately high adverse impact from the proposed action or alternatives. The ROI for socioeconomic is Kekaha Census Designated Place (CDP), the County of Kaua`i, Hawai`i, in which the project area is located. Data for the County of Kaua`i is presented for the purpose of comparison.

In 2000, the County of Kaua`i reported 58,463 residents and the Kekaha CDP reported 3,175 residents. The population within the CDP is 43.6 percent Asian, 12.4 percent Pacific Islander, 0.2 percent Black or African American, 8.7 percent Hispanic or Latino, and 15.9 percent Caucasian, compared to 36.0 percent Asian, 9.1 percent Pacific Islander, 0.3 percent Black or African American, 8.2 percent Hispanic or Latino, and 29.5 percent Caucasian within the general population of the Island of Kaua`i.

Median family income (\$48,629), per capita income (\$17,117), percent of families below poverty (10.9 percent), and percent of individuals below poverty (11.2 percent) within the Kekaha CDP are comparable to income and poverty rates for the County of Kaua`i.

**Table 3-1: Demographic and Income Characteristics**

Characteristic	County of Kaua`i		Kekaha CDP	
	No.	Percent	No.	Percent
Population	58,463		3,175	
<b>Ethnicity</b>				
Asian	21,042	36.0	1,384	43.6
Pacific Islander	5,334	9.1	393	12.4
Black or African American	177	0.3	6	0.2
Hispanic or Latino	4,803	8.2	275	8.7
Caucasian	17,255	29.5	506	15.9
Other Ethnicity	505	0.9	31	1.0
More than one Ethnic Group	13,938	23.8	839	26.4
<b>Income</b>				
Median Family Income	\$51,378		\$48,629	
Per capita income	\$20,301		\$17,117	

Characteristic	County of Kaua`i		Kekaha CDP	
	No.	Percent	No.	Percent
<b>Poverty Status in 1999</b>				
Families below poverty level	1,224	8.4	88	10.9
Individuals below poverty level	6,085	10.5	355	11.2

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

### 3.11 TRANSPORTATION

The ROI for transportation is the KLF facility and adjacent roadways. Average annual daily traffic data obtained for the State Department of Transportation indicate that approximately 4,600 vehicles per day use Kaunualii Highway in the vicinity of the KLF (DOT 2007). The KLF on average accepts approximately 40 commercial loads and 90 non-commercial loads per day, which includes loads consisting of both recyclable and non-recyclable material (Kaohi 2007). Therefore, on average, landfill related traffic accounts for approximately 3 percent of the traffic volume on Kaunualii Highway in the vicinity of KLF. Traffic volumes at the landfill are generally highest on Saturdays when the facility is open to receive beverage containers under the HI-5 program.

### 3.12 UTILITIES AND INFRASTRUCTURE

This section includes information on infrastructure related to electrical power, telecommunications, potable water and wastewater systems, and solid waste disposal. The ROI for utilities and infrastructure is the KLF facility.

Potable water supplied to the office, scale house, and maintenance shop is obtained from the County water system serving the town of Kekaha, and then piped into the facility via a Navy-owned water main that serves federal reserve lands. In accordance with the "Three Party Service Agreement" executed in 1994 between the DPW, Pacific Missile Range Facility (PMRF), and the County of Kaua`i, Department of Water, water use from the existing landfill water meter is limited to 31,000 gallons per month.

Non-potable water for dust control and fire protection is obtained from a former Kekaha Sugar Company irrigation ditch via a pump station where water is filtered and chlorinated. Wastewater from the office and maintenance shop is handled by an onsite septic system. Other wastewater, such as wash down water from the maintenance shop, is treated via an oil/water separator system. Electricity for onsite use is supplied by Kaua`i Electric. A 105 kilowatt diesel-powered emergency standby generator automatically operates when normal power is interrupted. Solid waste generated onsite is either recycled or deposited in the open cell of Phase II section of the landfill (Earth Tech and Wil Chee 2004).

### 3.13 VISUAL RESOURCES

Visual resources are the aggregate of characteristic features imparting visually aesthetic qualities to a natural, rural, or urban environment. The ROI for visual resources includes the view planes toward KLF in both directions of travel along Kaunualii Highway as well as mauka-makai view planes that intersect the KLF facility. This resource is assessed to determine whether the proposed action and no-action alternative would be compatible with the existing landscape and development plans for the area.

County land use policies relevant to visual resources are contained in Sections 3.2 and 5.5 of the Kaua`i General Plan. Section 3.2 of the Kaua`i General Plan outlines County policies for the protection of scenic views. Section 3.2.1 directs the County to preserve scenic resources and public views in developing public facilities and in administering land use regulations. Specifically, the County is directed to: 1) preserve public views that exhibit a high degree of intactness or vividness,

2) preserve the scenic qualities of mountains, hills, and other elevated landforms, and 3) preserve the scenic qualities of lowland/open space features such as the shoreline.

Although Section 5.5 of the Kaua'i General Plan designates Kaumuali'i Highway in the vicinity of the KLF as a scenic roadway corridor, the road corridor along the KLF boundaries meets none of the requirements set forth in Section 3.2.1 of the Kaua'i General Plan. KLF is located between the coastal dunes and Kaumuali'i Highway on the undeveloped Mana Plain and does not exhibit a high degree of intactness and vividness and does not block any scenic landforms; scenic view planes; or shoreline views. It is mainly undulated sand dunes and agriculture lands with sparse vegetation.

The closed Phase I is covered with grassy vegetation and has a peak elevation varying from 37 to 51 feet above msl. There are three discrete stockpiles of yard waste on top of Phase I (Figure 2-1). Phase II, with a permitted height of 85 feet above msl, obscures the line-of-sight to the lower elevation Phase I, such that Phase I is not visible from Kaumuali'i Highway. Phase II is only partially visible from the south and east due to treelines located along Kaumuali'i Highway and the access road adjacent to the southeastern boundary of the KLF facility that create a vegetative visual buffer. The Phase II landfill has the appearance of a flat earthen mound when viewed from the northwest. The active Phase II is covered daily with landfill cover and is partially vegetated. The earth-tone daily landfill color is consistent in color with the surrounding agricultural areas. The line-of-sight to KLF from the shoreline is obstructed by coastal dunes and an earthen berm associated with the National Guard Rifle Range, and KLF is not visible from the shoreline. Views of the KLF from Kaumuali'i Highway and from the shoreline are presented in Appendix C.

### 3.14 WATER RESOURCES

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

**Surface Water.** Runoff from the top of the closed Phase I flows radially off the landfill and is collected at a series of inlet pipe slope drains located around the perimeter of the landfill. These slope drains discharge to an infiltration ditch that surrounds the entire closed Phase I.

Phase II contains the active landfill area and the site facilities, which include a scale house, waste drop-off bins, maintenance shop, and offices. The active tipping face is segregated from the remainder of the area by an earthen berm. Drainage from the tipping face is collected in the leachate collection system.

Storm water runoff from the rest of Phase II flows radially off the landfill where it is directed by perimeter berms to four storm water "letdowns" (locations where drainage channels have been lined with plastic to convey runoff from the steep side slopes of the landfill without causing erosion to the cover). Runoff from the letdowns and overland flow off the Phase II side slopes discharges into infiltration ditches on the south, west, and east sides of Phase II. The northwest side of Phase II does not have a perimeter ditch. Runoff from this area flows overland to the borrow area, where it evaporates.

Runoff from paved parking areas is collected and discharged to an infiltration ditch along the landfill access road. Storm water runoff from the KLF passes through oil/water separators prior to discharge to the septic system drain field for onsite wastewater treatment.

**Groundwater.** Underlying the Kekaha Mana coastal plain are two aquifers having distinctly different hydrologic properties. They are the basaltic aquifer and the coastal plain sedimentary (caprock) aquifer. The basaltic aquifer is composed of lava flows of the Nāpali Formation. This aquifer typically yields large quantities of water from wells and shafts with relatively little drawdown, reflecting

generally high hydraulic conductivity, estimated by the U.S. Geological Survey (USGS) to be 400 feet/day. The caprock aquifer overlies the basaltic aquifer near the coast and is much less permeable (meaning harder to pass through). The permeability of the caprock aquifer is estimated by the USGS to average at 0.12 feet/day. The caprock sediments slow the seaward discharge of groundwater from the basaltic aquifer (Earth Tech 2007a).

The shallow groundwater aquifer beneath the KLF occurs within the caprock aquifer. Based on historic water level data from KLF monitoring wells and piezometers, the shallow water table occurs at elevations ranging from 2.5 to 5 feet above msl. The groundwater flow direction is to the southwest towards the Pacific Ocean. The groundwater gradient underneath KLF is very slight (generally 0.0005 feet per foot), and the groundwater flow velocity (or speed) is estimated on the order of 0.2 to 0.3 foot/day. The results of an April 1994 tidal study indicate that tidal changes do not significantly affect groundwater flow directions within the shallow aquifer (Earth Tech 2007a).

Groundwater quality underneath the KLF is brackish and, therefore, not suitable for use as irrigation water or as a potable water supply. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site.

*Phase II Groundwater Monitoring.* Groundwater monitoring has been conducted at the KLF Phase II site on a semi-annual basis since monitoring began in 1994. The field and laboratory results from each monitoring period are submitted to the DOH in semi-annual monitoring reports. Groundwater monitoring during the first semi-annual groundwater monitoring event for 2006 detected a statistically significant increase in total arsenic within downgradient well MW-II-6 (Earth Tech 2007a). Verification re-sampling was performed on April 14, 2006, and those laboratory results (received on April 27, 2006) confirmed that the total arsenic concentration (70 micrograms per liter [ $\mu\text{g/L}$ ]) for MW-II-6 was above the established background level (20  $\mu\text{g/L}$ ). An alternative source demonstration (ASD) report was prepared by WMI to investigate possible sources of the arsenic. Results of the evaluation suggested that LFG migrating from the unlined, closed Phase I may be impacting the groundwater in Phase II monitoring wells.

The ASD report was submitted to the DOH on July 21, 2006 (WMI 2006). Comments on the technical content of the report were received from DOH in correspondence dated August 6, 2006. A subsequent meeting with WMI and DOH was held on January 19, 2007 to clarify any remaining technical issues/concerns and discuss aspects of the August 6, 2006 DOH letter. As a result of this meeting, it was determined that revision and re-submittal of the original ASD report was warranted. As explained in the revised ASD report (WMI 2007), the analysis utilizes a "weight-of-evidence" approach to identify the likely source of the elevated arsenic concentrations detected in monitoring well MW-II-6. The revised ASD report concluded that the elevated arsenic concentrations are most likely attributable to naturally occurring arsenic mobilized from the aquifer matrix, and are not likely to represent a release from the landfill. Continued monitoring and sampling and analysis for the expanded list of chemical parameters proposed by WMI will allow for detailed analysis of the source of the arsenic detected in MW-II-6 groundwater.

As recommended in the ASD report (WMI 2007), the following measures have been implemented to confirm the conclusions regarding the source of the arsenic detected in the MW-II-6 groundwater and enhance the KLF groundwater monitoring program:

- The list of analytes for the KLF groundwater monitoring program has been expanded to include reduction/oxidation (redox)-sensitive parameters including manganese, iron, magnesium, and calcium. Chloride and sodium have also been added to enable ongoing geochemical evaluations.
- Field measurements of redox potential, dissolved oxygen, hydrogen ion concentration, and specific conductivity will be collected to assess geochemical changes associated with LFG.
- LFG probes for Phases I and II will be analyzed for all primary gasses ( $\text{CO}_2$ ,  $\text{O}_2$ , and  $\text{NO}_2$ ) in addition to  $\text{CH}_4$ .

- Data from gas probes adjacent to Phase I will be reviewed to assess the extent of subsurface migration.

Trace levels of volatile organic compounds (VOCs), detected at levels well below any cleanup action levels, were detected in groundwater samples during the first semi-annual monitoring event for 2007. The trace levels of VOCs detected were not considered statistically significant and did not trigger assessment monitoring. As explained in the revised ASD report (WMI 2007), the likely source of the trace VOCs is LFG. Pressure gradients beneath the site likely allow LFG to migrate from the unlined Phase I landfill to the Phase II landfill.

*Phase I Groundwater Monitoring.* Post-closure groundwater monitoring for the closed Phase I is conducted on a semi-annual basis in accordance with the *Revised Groundwater Monitoring Plan* (Earth Tech 2004) for Phase I. The purpose of the monitoring is to collect the data required to assess whether chemicals typically found in landfill leachate occur in groundwater downgradient of Phase I at concentrations that would warrant continued groundwater monitoring or corrective action. The methods and procedures presented in the *Revised Groundwater Monitoring Plan* (Earth Tech 2004) follow the general statistical approach described in the *State of Hawai'i Landfill Groundwater Monitoring Guidance Document* (DOH 2002).

Three groundwater monitoring wells (MW-I-1, MW-I-2, and MW-I-3) were installed hydraulically downgradient of Phase I for the post-closure monitoring program (refer to Figure 2-1 for monitoring well locations). Depths of the downgradient wells range from 18 to 19 feet bgs. Monitoring well MW-II-5 is located northeast of the Phase II expansion, and reaches a depth of 13 feet bgs; this well is sampled as a hydraulically upgradient well under the Phase I monitoring program.

During the July 2006 and February 2007 monitoring events, groundwater was sampled from wells MW-I-1, MW-I-2, MW-I-3, and MW-II-5 and analyzed for dissolved metals, VOCs, semi-volatile organic compounds, herbicides, total dissolved solids, alkalinity, ammonia, total organic carbon, and inorganic anions. Detected concentrations were then compared to groundwater protection standards to evaluate their significance. Concentrations of arsenic and select VOCs were detected above background levels, but below the groundwater protection standards. As a result of the evaluations, it is concluded that landfill leachate from Phase I is not significantly impacting the groundwater beneath the site and no corrective measures are required.

## 4.0 ENVIRONMENTAL CONSEQUENCES

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

Effects of the proposed project are divided into short-term and long-term effects. Short-term effects are related to construction activities. Long-term effects refer to the effects caused from implementation of the proposed action, and are longer in duration. Anticipated environmental effects of the proposed action and no-action alternative, cumulative impacts, and proposed mitigation measures, where applicable, are summarized below. This section analyzes the environmental consequences of full-build (e.g., analyzes the environmental consequences of expansion into Cells 1, 2, and 3).

### 4.1 AIR QUALITY

**Proposed Action.** During construction, potential emission sources that may affect air quality at the project site include: 1) fugitive dust emissions from excavation and construction activities, and 2) emissions from diesel and/or gasoline-powered construction equipment and motor vehicles. Construction vehicles traveling to and from the proposed project area and onsite construction equipment consisting of primarily diesel engines would contribute to local air pollution. Construction activities may also generate short-term fugitive dust particulate emissions. These sources would be combined with existing emissions from current landfill operations and local traffic.

Because levels of criteria pollutants in the State of Hawai'i are consistently well below federal and state air quality standards (DOH 2006), and because the prevailing trade winds rapidly carry pollutants off-shore limiting the effect on receptors, short-term increases in levels of criteria pollutants at the project area from construction activities are not expected to be significant.

The proposed Phase II lateral expansion would extend operations at the KLF for an additional 12 years at the current filling rate. Daily emissions from landfill equipment and refuse trucks would remain unchanged because the number of daily trips to the landfill and the daily quantities of waste placed on the landfill would not change. No changes in existing practices for odor control (e.g., compaction and daily covering of refuse) would occur. Adverse impacts related to nuisance odors are not anticipated.

Emissions of CH<sub>4</sub>, CO<sub>2</sub>, and NMOC from the decomposition of refuse would increase if the landfill capacity is expanded. A LFG collection system would be incorporated into the design for the Phase II lateral expansion. The LFG collection system would reduce the amount of methane gas and other NMOC that could otherwise pass through the landfill surface to the atmosphere or migrate horizontally through the soil. The LFG collection system to be developed for the lateral expansion would collect LFG from all fill areas to include the existing Phase I and Phase II as well as the proposed expansion Cells 1, 2, and 3. Collection of LFG from the existing Phase I would be necessary, as the passive vents from Phase I would no longer be operable once a liner is placed on top of Phase I.

Reported collection efficiencies for LFG collection systems range from 60 percent to 85 percent, with an average of 75 percent most commonly used. Collection efficiencies for landfills with synthetic covers are greater than 85 percent. Once collected, the gases are burned in a flare where destruction efficiencies are estimated at approximately 90 percent or greater for various landfill constituents. For methane, the destruction efficiency is estimated to be greater than 98 percent (Belt

Collins 1998). Because a LFG collection system would be incorporated into the design for the Phase II lateral expansion, long-term adverse impacts to air quality are not expected to be significant.

**No-Action Alternative.** Under the no-action alternative, the lateral expansion of Phase II would not occur. No additional emission sources would be added; hence, there would be no change to air quality. No additional impact to air quality is anticipated from the no-action alternative.

**Mitigation Measures.** Construction activities would be conducted in accordance with State of Hawai'i air pollution control regulations (HAR Title 11, Chapter 60.1) and would employ the proper administrative and engineered controls to reduce air emissions. Dust control measures including a dust control (watering) program, covering of soil stockpiles during transport or storage, and stabilization of graded or cleared areas would be implemented. Construction vehicles would either remain onsite or be scheduled to arrive and depart the project site during non-peak traffic hours, to reduce vehicle emissions. It is anticipated that EPA and DOH ambient air quality standards would not be exceeded during construction activities. Impacts to air quality due to waste decomposition would be mitigated through development of a LFG collection system for the Phase II lateral expansion.

## 4.2 BIOLOGICAL RESOURCES

**Proposed Action.** The proposed project is located on Kaua'i, which supports approximately 80 percent of the world's remaining Newell's shearwater breeding population. Hawaiian petrels also breed on Kaua'i but in smaller numbers than the Newell's shearwater.

Both of these species nest in mountainous forest habitat and fly over the lowland areas to reach the sea. During this migration, they can become attracted to outdoor lights, and as a result fall to the ground where they are injured or killed if not rescued by humans. The fledgling seabirds are particularly sensitive to lighting during their first flight to the sea, a migration that occurs annually from mid September through mid December.

Existing outdoor lighting at the KLF is limited to street lighting and outdoor lights placed above the maintenance shop, employee kitchen, employee restroom, and supervisor's doors. Normal operating hours are 7:00 a.m. to 5:00 p.m. Lighting is generally only needed during the early morning or evening hours during the winter months, when daylight hours are reduced. Outdoor lighting is controlled by timers that automatically turn off outdoor lights after the facility has closed and site personnel have left. Because placement of outdoor lighting is restricted to key locations outside administrative buildings and is only used seasonally and/or for short durations, the potential for attracting protected seabirds with existing lighting is minimal.

The proposed action does not include plans to add outdoor lighting beyond what is existing. Filling operations are conducted primarily during daylight hours and outdoor lighting would not be constructed for the lateral expansion. If a need arises to add additional outdoor lighting in the future, the County would incorporate the DLNR Division of Forestry and Wildlife's recommendations for outdoor lighting, whenever possible, to minimize impacts to protected seabirds (see Mitigation Measures below). No other potential impacts to protected species have been identified. Impacts to flora would be limited to disturbance of the existing landscaped vegetation presently covering the closed Phase I.

**No-Action Alternative.** Under the no-action alternative, the lateral expansion of Phase II would not be implemented and there would be no change to the biological resources of the project area. Therefore, no biological impacts are anticipated with implementation of the no-action alternative.

**Mitigation Measures.** Any future outdoor lighting to be constructed for the KLF would conform to the DLNR Division of Forestry and Wildlife's recommendations for outdoor lighting to minimize impacts to protected seabirds. Preferred walkway lighting would consist of low profile bollard lights with louvers. Preferred street lighting and parking lighting would consist of full cut-off low pressure sodium

streetlights and fully shielded National Electrical Manufacturer's Association (NEMA) lights. It is recommended that during construction and operation architectural lighting such as recessed can with baffles, glare busters, canister downlight, "eyelid" step light, downlight, and louvered step lights be utilized.

Unacceptable lighting, which would be avoided, includes: globe fixtures, unshielded carriages, wallpacks, acorn fixtures, drop-lens/sag-lens with exposed bulbs, unshielded streetlights, nautical wall sconce, unshielded high intensity floodlights, NEMA security lights, partially shielded floodlights, and drop-lens canopy lights. Further information and photos depicting acceptable and unacceptable lighting can be found in Appendix A.

### 4.3 CULTURAL RESOURCES

**Proposed Action.** The Phase II lateral expansion would remain within the existing footprint of the KLF and would involve minimal excavation. An archaeological inventory survey conducted in 1993 found no evidence of archaeological resources or historic properties within the ROI (Appendix B). Areas proposed for lateral expansion (e.g., the leachate lagoon [Cell 1], the valley between Phase I and Phase II [Cell 2], and over the closed Phase I [Cell 3]) have already been heavily disturbed. Therefore, no adverse impacts to historic properties are anticipated from implementation of the proposed action. The State Historic Preservation Division (SHPD) provided their concurrence that no historic properties would be affected in a letter dated August 10, 2007 (Appendix A).

Access to the 98 acre KLF facility is controlled by a perimeter fence and gated entrance to ensure the safety of customers and employees. There are no cultural uses within the KLF facility footprint. A cultural impact assessment, in accordance with Act 50 (HRS Chapter 343) included a request for statements or information relating to cultural practices in the project vicinity from persons and organizations identified by the Office of Hawaiian Affairs Kaua'i Community Resources Coordinator as having knowledge of cultural resources and practices in the Kekaha area (Appendix A). The cultural impact assessment did not yield any results regarding cultural practices within the project vicinity that would be impacted, and no adverse impacts to cultural practices are anticipated.

**No-Action Alternative.** Under the no-action alternative, the lateral expansion of Phase II would not be implemented and there would be no change to the cultural resources of the project area. Therefore, no cultural impacts are anticipated with implementation of the no-action alternative.

**Mitigation Measures.** In the unlikely event that historic resources including human skeletal remains are inadvertently discovered during excavation and construction activities, the construction contractor would cease all construction activities and immediately notify the SHPD, Kaua'i Section prior to the continuation of activities.

### 4.4 GEOLOGY AND SOILS

**Proposed Action.** PGE completed a geotechnical investigation for the Phase II lateral expansion in late November and early December 2006. PGE completed a total of eleven soil borings, seven test pits, and three field percolation tests. Three grab samples were also collected from the Phase I embankment for laboratory analysis. Based upon the borings, test pits, and laboratory results, PGE determined that the project site is suitable for construction of the proposed expansion from a geotechnical standpoint (Earth Tech 2007b).

The final geometry of the proposed Phase II lateral expansion with a maximum elevation of 85 feet above msl was verified for slope stability at final build-out. The final build-out condition represents the site's final shape after waste placement has ceased and final cover has been installed. Top slopes are designed to be sloped at 3 percent. Final cover side slopes are designed to be sloped at a ratio of 3.5 horizontal to 1 vertical. The stability analysis looked at two different failure scenarios based upon the geometry of the facility, foundation soils, and waste mass. Based on the soil and waste mass properties, the proposed landfill expansion is expected to remain stable (Earth Tech 2007b).

**No-Action Alternative.** Under the no-action alternative, the lateral expansion of Phase II would not be implemented and no new construction activities would occur at the KLF. Therefore, no geological or soil impacts are anticipated with implementation of the no-action alternative.

#### 4.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

**Proposed Action.** Short-term construction-related impacts from hazardous materials and hazardous waste would be possible, but not expected, with implementation of the proposed action. Construction equipment and vehicles contain hazardous materials such as gasoline, diesel, oil, hydraulic and brake fluids. Accidental release of these materials into the environment would be possible, but not anticipated.

The types of waste to be accepted at the KLF would not change under the proposed action and procedures to prevent disposal of hazardous waste at the facility would be maintained. Potential releases from landfill equipment and refuse trucks would remain unchanged because the number of daily trips to the landfill and the amounts of waste placed on the landfill would not change significantly. Adherence to the SPCC Plan developed for the KLF greatly reduces the likelihood of significant impacts resulting from any spill. No significant long-term impacts are anticipated.

**No-Action Alternative.** Under the no-action alternative, Phase II would not be expanded, resulting in closure of the landfill in approximately 2009 when the capacity is expected to be reached. No hazardous materials are disposed of at Phase II and no significant adverse impacts related to hazardous materials or hazardous waste are anticipated with implementation of the no-action alternative.

**Mitigation Measures.** Site-specific best management practices (BMPs), including procedures for hazardous material storage, handling, and staging; spill prevention and response; waste disposal; and good housekeeping would be developed and implemented by the construction contractor. Spill control measures would entail minimization of hazardous materials on the project site, good housekeeping, and rapid spill response in the event of a release. Material management practices would be used to reduce the risk of spills or other accidental release of materials and substances into the environment. Landfill operations would continue to be conducted in accordance with the Operating Plan and SPCC Plan developed for the KLF.

#### 4.6 LAND USE AND OWNERSHIP

**Proposed Action.** There will be no change to land use or ownership of the KLF facility with implementation of the proposed action and no adverse impacts are anticipated. Consistency of the proposed action with land use plans and policies is discussed in Section 4.16.

**No-Action Alternative.** Under the no-action alternative, land use at the KLF would change from an active landfill to a closed landfill in approximately 2009, when the landfill capacity is expected to be reached.

#### 4.7 NATURAL HAZARDS

**Proposed Action.** The KLF is located 1,700 feet inland from the coast. In the event of a hurricane, coastal storm surges would not impact the project area, and the project area is outside the 100-year and 500-year flood plain. Response procedures to protect against excessive erosion, flooding, and wind damage before and during severe storms are described as mitigation measures below.

Although, the site is located in the designated tsunami evacuation zone, it is not within a tsunami inundation zone (HLA 1994). Destructive tsunamis are rare occurrences. In the unlikely event that a destructive tsunami came ashore in the area of the KLF, the energy of any tsunami would be dampened when it hits, washes over, and moves through the coastal dunes prior to reaching KLF.

All MSW to be placed in expansion cells 1, 2, and 3 would be placed at elevations above 10-ft above msl. No tsunami run-ups in the Kekaha area have been recorded to reach above those elevations.

The KLF is not located in a seismic impact zone as defined under HAR § 11-58.1-13(e) and the Subtitle D regulations for municipal solid waste landfills (40 CFR Part 258.14). Therefore, an evaluation of seismic loading effects on the stability of the proposed expansion is not required and was not conducted. Response procedures to be implemented in the event of a significant earthquake are described as mitigation measures below.

No adverse impacts from natural hazards are anticipated with implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, Phase II would not be expanded resulting in closure of the landfill in approximately 2009 when the capacity is expected to be reached. No significant adverse impacts relative to natural hazards are anticipated with the no-action alternative.

**Mitigation Measures.** KLF maintains a detailed Emergency Management Plan that provides detailed procedures to be followed by site personnel in the event of an emergency. The Emergency Management Plan outlines chains of command and communication, preparatory activities, response procedures, personnel evacuation procedures, and recovery activities. Specific procedures established for natural disasters are described below.

*Severe Storms.* The following actions would be taken to protect against excessive erosion, flooding, and wind damage before and during severe storms.

During routine landfill operations, site personnel would inspect all drainage structures on the site and verify they are in working order. Excessive silt in ditches and basins would be removed, and the condition of pipes and discharge structures from basins would be verified. Prior to a forecast storm, site personnel would again inspect all drainage structures on the site, verify these structures are in working condition and take action if repairs are necessary. Diversion berms would be constructed around the current disposal area as needed to prevent run-off from upgradient areas from entering the waste fill, and to prevent run-off from the waste fill area to downgradient areas of the site. Interim cover would be placed over exposed waste at the end of the working day prior to the forecast beginning of a severe storm.

At the discretion of the site manager, the site may be closed for business during storm periods. In this event, the working face would be closed and covered with interim cover, which is graded to discharge runoff to the site surface water drainage system. Temporary diversion berms would be constructed as necessary to divert surface water run-off away from areas of exposed waste.

Facility personnel would periodically inspect site drainage systems during any prolonged storm involving extensive rain, and correct or repair as needed any conditions with potential to cause damage to onsite or offsite facilities.

*Earthquake.* In the unlikely event of a significant earthquake, KLF would immediately cease or limit landfill operations and promptly conduct a visual survey of the facility to identify any slope failure, fires, LFG collection system failures, or other conditions that could threaten employee or public safety.

## 4.8 NOISE

**Proposed Action.** Only short-term construction-related noise impacts are anticipated with implementation of the proposed action. Construction equipment employed to implement the proposed action may include trucks, cranes, bulldozers, scrapers, etc.

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

Properties adjacent to the KLF are used for agricultural purposes, a National Guard Rifle Range, and federal reserve lands at Barking Sands. The nearest town, Kekaha, is located 1.3 miles to the southeast. The daily operations of the landfill would not change as a result of the Phase II lateral expansion; therefore, it is not anticipated that noise levels would change or significantly impact the surrounding area.

**No-Action Alternative.** Under the no-action alternative, Phase II would not be expanded resulting in closure of the landfill in approximately 2009 when the capacity is expected to be reached. There would be no immediate change to the noise environment; noise sources would be reduced upon landfill closure. No adverse impacts from noise are anticipated under the no-action alternative.

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

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

#### 4.9 SAFETY AND HEALTH

**Proposed Action.** The proposed action would have long-term positive impacts on public safety and health by allowing for proper disposal of MSW on the Island of Kaua`i.

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

Current operating procedures in place to mitigate safety and health concerns related to heavy equipment operation, vector control, explosive gas, and landfill fires (Section 3.9) would continue. No significant adverse impacts to safety and health are anticipated from implementation of the proposed action.

**No-Action Alternative.** Under the no-action alternative, the landfill would not be expanded resulting in closure of the landfill in approximately 2009 when the landfill capacity is expected to be reached. Closure of the KLF prior to a new facility being sited and permitted to accept MSW would likely result in widespread illegal dumping across the Island of Kaua`i, with resulting adverse impacts to public safety and health.

**Mitigation Measures.** The safety and health of workers during construction would be the responsibility of the construction contractor. Mitigation measures addressing air quality at the construction site and occupational noise exposure are presented in Sections 4.1 and 4.8, respectively. Current procedures developed to ensure safe operation of the KLF, as specified in the Operating Plan (A-Mehr 2004), would be continued.

#### 4.10 SOCIOECONOMICS

**Proposed Action.** The proposed KLF Phase II lateral expansion would have no impact on employment, income, or demographics. Public comments received on the Draft EA included statements that continued operations at the KLF for an additional 12 years would have adverse impacts on the social and economic welfare of the Kekaha community and statements that the Kekaha community is disproportionately burdened by landfill related pollution, noise, odor, traffic, visual impacts, and litter. Commenters also expressed concerns regarding potential releases of hazardous materials in the event of natural disasters or other emergencies, as a result of failure of the base liner, or failure of the landfill itself, and the impacts that those releases would have on the Kekaha community. In response to public comments, the County has incorporated operating procedures and/or mitigation measures for landfill gas, odor, and dust control (Section 3.1), safety and health (Section 3.9), spill prevention (Sections 3.5 and 4.5), emergency response procedures (Section 4.7), visual impacts and litter control (Section 4.13), and groundwater monitoring (Section 4.14) into the Final EA. With implementation of these operating procedures and mitigation measures, no significant adverse impacts to the social or economic welfare of the Kekaha community would be anticipated.

**No-Action Alternative.** The no-action alternative should not significantly impact employment, income, or demographics within the ROI. However, closure of the KLF prior to a new facility being sited and permitted to accept MSW could result in significant increases in waste disposal costs if MSW had to be shipped off-island.

#### 4.11 TRANSPORTATION

**Proposed Action.** Currently, the KLF on average accepts approximately 40 commercial loads and 90 non-commercial loads per day (Kaohi 2007), which accounts for approximately 3 percent of the traffic volume on Kaumuali'i Highway in the vicinity of KLF (DOT 2007). It is assumed that filling rates would not change significantly over the life of the KLF Phase II lateral expansion and there would not be any significant change to landfill-related traffic on Kaumuali'i Highway. Therefore, significant adverse impacts to the transportation resource from implementation of the proposed action are not anticipated.

**No-Action Alternative.** Under the no-action alternative, the landfill would not be expanded resulting in closure of the landfill in approximately 2009 when the landfill capacity is expected to be reached. Commercial truck traffic to the KLF would cease upon closure of the KLF.

#### 4.12 UTILITIES AND INFRASTRUCTURE

**Proposed Action.** Lateral expansion of Phase II would not increase the daily load on public utilities (e.g., water, electrical power) over existing levels although use of public utilities would continue for an additional 12 years. The current KLF utility requirements do not exceed the existing capacity and no adverse impacts to utilities are anticipated from implementation of the proposed action.

The proposed action would increase the capacity of the existing Phase II, resulting in a positive impact for solid waste infrastructure on Kaua'i.

**No-Action Alternative.** Under the no-action alternative, Phase II would not be expanded and the County would be without a landfill for the disposal of MSW beginning in approximately 2009.

Therefore, adverse impacts to solid waste infrastructure are anticipated with implementation of the no-action alternative.

#### 4.13 VISUAL RESOURCES

**Proposed Action.** The County proposes to expand the limits of the Phase II fill area to include three additional cells. Cell 1 would expand the Phase II fill area into the existing leachate lagoon and adjacent acreage. Cell 2 would expand the Phase II fill area into the valley area between the closed Phase I landfill and the existing Phase II landfill. Cell 3 would expand the Phase II fill area directly over the closed Phase I landfill. Maximum height of these areas would not exceed the existing permitted height for Phase II of 85 feet above msl. The proposed expansion would increase the original Phase II fill area by 32.7 acres and would vertically expand over the Phase I fill area to 85 feet above msl.

The line-of-sight to Cells 2 and 3 from the northeast would be obscured by the existing Phase II landfill at full-build. Cells 1, 2, and 3 would be partially visible from the Kekaha-bound direction of Kaumuali'i Highway at full-build. Cells 2 and 3 would be partially visible from the PMRF-bound direction of Kaumuali'i Highway. KLF is not presently visible from the shoreline (see Appendix C). The maximum height of the facility would not change as a result of the lateral expansion and no visual impacts are anticipated from the direction of the shoreline.

The proposed action would not impact daily landfill operations. Only one landfill cell would be open and operational at a time and debris would be spread, compacted, and covered each night with daily cover. Closure plans for the KLF Phase II lateral expansion would include provisions for landscaping of the fill areas, as well as site perimeter, to minimize visual impacts (see the mitigation measures outlined below). With implementation of the mitigation measures described below, significant adverse impacts to visual resources are not anticipated.

The existing KLF is not within a view plane that exhibits a high degree of intactness or vividness and does not block any scenic landforms; scenic view planes; or shoreline views, as defined in Section 3.2.1 of the Kaua'i General Plan, it is not identified as an "important landform" on the West Side Planning District Heritage Resources Map, and is not visible from the shoreline. Therefore, the both the existing and the proposed expansion do not conflict with County policies for the protection of scenic resources.

The primary intent of designating scenic roadway corridors in Section 5.5 of the Kaua'i General Plan is to establish principals for roadway design and land use within scenic corridors which promote setbacks, landscaping, and views of scenic features. Scenic roadway corridors are intended to provide design guidance but not to restrict the principal land uses of urban areas. Incorporation of the mitigation measures described below for screening landfill operations and landscaping the landfill slopes is consistent with County objectives for scenic roadway corridors.

**No-Action Alternative.** Under the no-action alternative, no construction activities would occur and there would be no change to the visual quality of the project area. Therefore, no impacts to visual resources are anticipated under the no-action alternative.

**Mitigation Measures.** Mitigation measures for visual impacts would include a landscaping and revegetation program to include screen planting along frontage roads and the site perimeter as well as plans for revegetation of the landfill base and slopes. There would be plantings of the perimeter areas and the base of the landfill prior to closure to establish a screen for landfill operations. Screen plantings along frontage roads would be continuous. Plant densities, depth of planting, and species composition for screen planting would be adapted to ensure adequate screening and consistency of plantings with the surrounding environment.

After the landfill is closed, the surface would be covered with an engineered cap and soil, and then planted with vegetation. The top of the landfill would be vegetated primarily with native grasses due

to shallow soils. Random groups of shrubs and low trees would be planted on the landfill slopes, where the soil depth would be greater, and where taller plants may be used without penetrating the engineered cap. A variety of native trees and shrubs would be selected, with an understory of native species. Varying plant heights on the landfill top and side slopes and planting with native species would serve to break up the engineered topography of the landfill final cover grade and provide for a more natural appearance.

*Litter Control.* KLF uses permanent litter fences, portable screens, and routine site cleanup operations to prevent wind-blown litter from leaving the landfill premises and creating nuisance conditions in the area. Portable skid-mounted litter screens, typically 8 feet high, are located in downwind locations near the active MSW disposal area as the first line of defense against litter. The screens are relocated frequently as the active area moves across the site. Temporary litter fences, consisting of reusable fence posts and poultry wire, are near the working face in places where they will not hinder traffic control. The chain link fence surrounding the entire KLF property provides a final level of physical containment of any litter that leaves the active working area.

Routine site cleanup and litter collection are the final elements of the litter control program. KLF personnel remove litter from portable screens and permanent fences on a daily basis, and pick up litter anywhere on the site at any time. Daily inspections and litter cleanup activities are also conducted along the access road leading to the back gate of PMRF and the access road to the drag strip, firing range, and beach along the southeast property line. These measures would continue with implementation of the proposed action. The trucks that haul the MSW to the landfill will also continue to be monitored on a routine basis to ensure they are not contributing to litter along the truck haul routes and, if they were determined to be, corrective actions would be implemented immediately.

#### 4.14 WATER RESOURCES

**Proposed Action.** The proposed surface water management system for the Phase II lateral expansion is similar to the existing Phase II system in terms of storm water conveyance; however, all water would be transferred to a proposed infiltration pond on the northeast corner of the facility (Figure 2-3). The infiltration pond is required since the proposed expansion would remove the availability of the existing infiltration ditch between Phase I and Phase II for storm water discharge. Existing groundwater monitoring wells located between the current Phase I and Phase II would be properly abandoned and relocated.

The proposed surface water management system includes diversion berms at the perimeter of the landfill top deck that directs surface water to rock-lined downdrains. The downdrains convey water to drainage ditches which discharge to the infiltration pond via multiple culverts. The surface water diversion berms and perimeter channel for the Phase II lateral expansion are designed to convey runoff from a 100-year, 1-hour storm event and/or a 25-year, 24-hour storm event.

A base liner system and leachate collection system would be constructed for the Phase II lateral expansion. Installation of a composite liner system over the top and side slopes of Phase I for construction of Cell 3 would result in additional impermeable barriers that would help to prevent rainwater from entering the Phase I waste, thereby reducing leachate generation in Phase I. The new liner would be a "composite" liner consisting of a clay layer and an impermeable HDPE plastic liner. These layers would extend over the top of Phase I, which also has a HDPE geomembrane cover. Covering the closed Phase I would require that the passive gas extraction system currently in place for Phase I be replaced with an active LFG collection system, as the passive vents for Phase I would no longer be operable once a liner is placed over Phase I. Construction of a LFG collection system to actively collect and burn LFG from Phase I would reduce LFG emissions from Phase I, thereby reducing the potential for LFG from Phase I to contaminate groundwater.

Groundwater monitoring for the Phase II lateral expansion would be conducted in accordance with the requirements of HAR Title 11, Chapter 58 to ensure that groundwater underneath the KLF facility is not being contaminated by landfill operations.

Because the proposed Phase II lateral expansion would include a base liner system, a leachate collection system, and groundwater monitoring program, no significant adverse impacts to groundwater are anticipated.

**No-Action Alternative.** Under the no-action alternative, the Phase II lateral expansion would not be implemented and there would be no change to the water resources within the project area. Therefore, no impacts to water resources are anticipated with implementation of the no-action alternative.

#### 4.15 CUMULATIVE IMPACTS

Cumulative impacts refer to impacts on the environment that result from the incremental effect of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such actions. Cumulative impacts can result from individually minor yet collectively significant actions taking place over a period of time. Land use in the project vicinity is agricultural and undeveloped open space. A summary of resource attributes that may contribute to cumulative impacts is provided below.

**Air Quality.** Emissions associated with proposed expansion activities and operations at the KLF would not hinder conformance with the EPA and DOH ambient air quality standards. Construction activities would be conducted in accordance with State of Hawai'i air pollution control regulations and would employ proper administrative and engineered controls to reduce air emissions. A LFG collection system would be developed as part of the Phase II lateral expansion to control gas generation from waste decomposition. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to air quality when combined with implementation of the proposed expansion of the landfill.

**Biological Resources.** Flora and fauna of the KLF site are characteristic of disturbed areas and no special status species are known to occur within the project area. Implementation of the proposed action would include mitigation measures for outdoor lighting to minimize the attraction of protected seabirds, which may occur in the project vicinity. No adverse impacts to biological resources are anticipated with implementation of the proposed action and no other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to biological resources when combined with implementation of the proposed expansion of the landfill.

**Cultural Resources.** Proposed expansion activities would remain within the existing footprint of the KLF and would involve minimal excavation. An archaeological inventory survey conducted in 1993 did not identify any archaeological resources or historic properties within the project area. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to cultural resources when combined with implementation of the proposed expansion of the landfill.

**Geology and Soils.** Analysis of soil borings, test pits, and laboratory results indicate that the project site is suitable for construction of the proposed expansion from a geotechnical standpoint. Based on the soil and waste mass properties, and the designed slopes of the landfill, the proposed landfill expansion is expected to remain stable. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to geology and soils when combined with implementation of the proposed expansion of the landfill.

**Hazardous Materials and Hazardous Waste.** The types of waste to be accepted at the KLF would not change under the proposed action, and procedures to prevent disposal of hazardous waste at the facility would be maintained. Prior to implementing expansion activities, BMPs would be developed and implemented by the construction contractor to eliminate or minimize the potential of a release during expansion activities. Landfill operations would continue to be conducted in accordance with the Operating Plan and the SPCC Plan developed for the KLF. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative

impact to hazardous materials and hazardous waste when combined with implementation of the proposed expansion of the landfill.

**Land Use.** There would be no change to land use or ownership of the KLF facility with implementation of proposed expansion activities. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to land use when combined with implementation of the proposed expansion of the landfill.

**Natural Hazards.** There have been no historical adverse impacts the KLF facility from natural hazards. With implementation of the proposed action, no adverse impacts from natural hazards (e.g., hurricanes, storm surges, tsunamis, and earthquakes) have been identified. No other foreseeable actions have been identified in the vicinity of the KLF that would cause cumulative natural hazard impacts when combined with implementation of the proposed expansion of the landfill.

**Noise.** Only short-term construction-related noise impacts are anticipated with implementation of proposed expansion activities. Noise from construction activities would decrease with distance from the project area. Daily operations at the landfill would not change as a result of the proposed expansion. Properties adjacent to the KLF are used for agricultural purposes, a firing range, and federal reserve lands at Barking Sands, and the nearest town, is approximately 1.3 miles to the southeast. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative noise impact when combined with implementation of the proposed expansion of the landfill.

**Safety and Health.** Current procedures developed to ensure safe operation of the KLF, as specified in the Operating Plan, would be continued. The proposed expansion of the KLF would actually result in long-term positive impacts on public safety and health by allowing for proper disposal of MSW on the Island of Kaua`i. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to safety and health when combined with implementation of the proposed expansion of the landfill. Cumulative impacts are not expected.

**Socioeconomics.** No adverse impacts to employment, income, or demographics are anticipated from implementation of the proposed expansion activities. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative socioeconomic impact when combined with implementation of the proposed expansion of the landfill.

**Transportation.** Landfill filling rates are not expected to change significantly over the life of the KLF expansion and there would not be any significant change to landfill-related traffic on local roadways. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to transportation when combined with implementation of the proposed expansion of the landfill.

**Utilities.** Proposed expansion activities would not result in an increase in the daily load on public utilities although use of public utilities would continue for up to an additional 12 years, if deemed required. The current KLF utility requirements would not exceed the existing capacity of local utility purveyors. The proposed expansion would increase the capacity of the existing landfill, resulting in a positive impact for the solid waste infrastructure on Kaua`i. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to utilities when combined with implementation of the proposed expansion of the landfill.

**Visual Resources.** Maximum height of the landfill would be no greater than 85 feet above msl. The proposed expansion would increase the original Phase II by 32.7 acres and would vertically expand over the Phase I to 85 feet above msl. Closure plans for the KLF Phase II lateral expansion would include provisions for landscaping of the fill areas, as well as the site perimeter, to minimize visual impacts. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to visual resources when combined with implementation of the proposed expansion of the landfill.

**Water Resources.** Current sampling results from the groundwater monitoring wells located downgradient of the landfill indicate that groundwater beneath the unlined Phase I has not been significantly impacted by leachate. Because proposed expansion activities would include a base liner system and a leachate collection system, no significant adverse impacts to groundwater are anticipated from the KLF Phase II lateral expansion. Groundwater monitoring at the KLF would continue to be conducted. No other foreseeable actions have been identified in the vicinity of the KLF that would cause a cumulative impact to water resources when combined with implementation of the proposed expansion of the landfill.

#### **4.16 COMPATIBILITY OF THE PROPOSED ACTION WITH OBJECTIVES OF FEDERAL, STATE, AND LOCAL LAND USE PLANS AND POLICIES**

Compatibility of the proposed action with land use plans and policies is discussed below:

**Hawai`i State Plan.** The Hawai`i State Plan provides guidelines for the long range development of the State in Chapter 226, HRS. Objectives and policies pertaining to solid waste are outlined in Section 226-15. Specifically, Section 226-15(a) identifies the "Maintenance of basic public health and sanitation standards relating to treatment and disposal of solid and liquid wastes" as the planning objective for State facility systems with regard to solid and liquid waste. The KLF Phase II lateral expansion would support this objective as it would provide the means to maintain basic public health and sanitation standards relating to the disposal of MSW.

**County of Kaua`i General Plan.** In 2000, the County of Kaua`i Planning Department completed the Kaua`i General Plan. This plan describes the County's 20-year vision for Kaua`i and sets policies for achieving that vision. The County's role in solid waste management is outlined in Section 7.8 (Solid Waste) of the Kaua`i General Plan (County of Kaua`i 2000):

*"Using long-range integrated resource planning, the County shall manage an island wide system of solid waste collection, recycling and disposal that is environmentally sound and cost effective; increases diversion of waste from the island's landfill; and provides for the timely and orderly expansion of solid waste facilities."*

The proposed Phase II lateral expansion is consistent with Section 7.8 of the Kaua`i General Plan because it provides an environmentally sound and cost effective way to provide a timely and orderly expansion of solid waste facilities on Kaua`i.

Consistency of the proposed action with Section 3.2 (Scenic Views) and Section 5.5 (Scenic Roadway Corridors) of the Kaua`i General Plan is discussed in Section 4.13.

**State Land Use Plans.** The State land use designation for the KLF Phase II is Agricultural. Phase II was approved for use by the State Land Use Commission through the issuance of a Special Permit on July 1, 1993. This Special Permit allows for land classified as a State Agricultural District to be used for landfill purposes. The KLF Phase I is located within a Conservation District. Per HAR §13-5-22 (P-6), "land uses undertaken by the State of Hawai`i or the counties to fulfill a mandated governmental function, activity, or service for public benefit" are permitted land uses within the State Conservation District, provided that a Conservation District Use Permit is obtained in accordance with HAR §13-5-30, or an exception granted.

**County of Kaua`i Zoning Ordinances.** The County of Kaua`i developed comprehensive zoning ordinances as an implementing tool for the Kaua`i General Plan to address long-range growth and development. The KLF Phase II is located within a county Agricultural District. Phase I is within a county Special Planning Area. .

**HRS 205A: Coastal Zone Management.** The proposed expansion of the KLF Phase II landfill would not result in significant adverse impacts to recreational, historic, or scenic and open space resources; coastal ecosystems; public use beaches/shoreline access; or marine resources. The

project area is not located within flood plain, a tsunami inundation zone, an erosion-prone area, or on geologically hazardous land and is not at increased risk of damage from coastal hazards. Public participation was incorporated into the environmental review process for compliance with HRS 343. Therefore the proposed expansion is consistent with the objectives and policies of the coastal zone management program as outlined in HRS §205A-2.

#### **4.17 RELATIONSHIP BETWEEN SHORT-TERM USES OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY**

Construction of the proposed action would result in short-term impacts to air quality, soils, and noise. Impacts to these resources would be short-term and would be mitigated by implementation of construction BMPs as described in Sections 4.1, 4.4, and 4.8, respectively. Lateral expansion of Phase II would provide long-term benefits for solid waste infrastructure on Kaua'i by extending the life of the landfill. Environmental impacts resulting from this expansion would be minimal as the KLF facility is already in use as a MSW landfill, and the expansion would not expand Phase II beyond the existing 98-acre KLF facility footprint. The proposed action would add a base liner over the closed Phase I, which is expected to reduce the amount of leachate generated within the closed Phase I. The closed Phase I is unlined. The proposed action is expected to have positive impacts on long-term productivity of groundwater resources beneath the KLF by reducing leachate generated within the unlined Phase I.

#### **4.18 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES**

Environmental impacts resulting from this expansion would be minimal as the KLF facility is already in use as a MSW landfill, and the expansion would not expand Phase II beyond the existing 98-acre KLF facility footprint, which has already been set aside for landfill purposes by executive orders 1558 and 2872. Implementation of the proposed action would not result in an irreversible or irretrievable commitment of resources, except for the financial resources, fuel, and other consumable materials required for construction, operation, closure, and post-closure that would be required wherever such a facility is located.



## 5.0 FINDINGS AND DETERMINATION

The following sections summarize the significance criteria used to determine whether the proposed action would have a significant effect on the environment (Section 5.1) and the resulting determination (Section 5.2).

### 5.1 SIGNIFICANCE CRITERIA

In accordance with HAR §11-200-12, the proposing agencies have considered every phase of the proposed action, the expected consequences, both primary (direct) and secondary (indirect), and the cumulative as well as the short-term and long-term effects of the action, in order to determine whether the proposed action may have a significant effect on the environment. In making this determination, the proposed action has been evaluated with respect to the significance criteria established in HAR §11-200-12. These significance criteria are summarized below:

- **Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources.** The proposed Phase II lateral expansion would not cause significant adverse impacts to biological resources (Section 4.2), cultural resources (Section 4.3, geology and soils (Section 4.4), or water resources (Section 4.14), and, therefore, does not involve an irrevocable commitment to, loss or destruction of any natural or cultural resources.
- **Curtails the range of beneficial uses of the environment.** The proposed Phase II lateral expansion would expand the footprint of Phase II, but would not expand the overall footprint of the KLF facility or change the land use within the facility footprint. The approximately 98 acre KLF facility has already been set aside for use as a MSW landfill. Expansion of the fill area within the facility footprint would not curtail the range of beneficial uses of the environment.
- **Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.** The proposed Phase II lateral expansion is consistent with the state environmental policies, goals, and guidelines established in Chapter 344, HRS. The County has integrated the review of environmental effects with existing planning processes, and has developed the Phase II lateral expansion with consideration for avoiding, minimizing, and mitigating any adverse environmental effects. Other federal, state, and county agencies identified as having expertise or jurisdiction by law will be consulted during the planning and permitting processes. In accordance with HRS §344-5, this EA is made available for public review and comment for a period of thirty days. All comments received during the public comment period have been responded to in the Final EA. The proposed action is also consistent with Executive Orders 1558 and 2872 setting aside the KLF footprint for landfill purposes.
- **Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.** No significant adverse impacts to employment, income, or demographics are anticipated from implementation of the proposed action (Section 4.10). No cultural resources are present within the KLF footprint and the KLF facility is not associated with any cultural practices (Section 3.3).
- **Substantially affects public health.** The proposed action would have long-term positive impacts on public safety and health by allowing for proper disposal of MSW on the Island of Kaua'i. Current operating procedures in-place to mitigate for safety and health concerns related to heavy equipment operation, vector control, explosive gas, and landfill fires would continue (Section 3.9). No significant adverse impacts to public safety and health are anticipated from implementation of the proposed action.
- **Involves substantial secondary impacts, such as population changes or effects on public facilities.** No adverse secondary impacts are anticipated with implementation of the proposed action.

- **Involves a substantial degradation of environmental quality.** The design and construction of the proposed lateral expansion would conform to the provisions of HAR 11-58.1, including provisions for construction of a base liner, and LFG and leachate management systems. Installation of a composite liner system over the top and side slopes of Phase I for construction of Cell 3 would result in additional impermeable barriers that would help to prevent rainwater from entering the Phase I waste, thereby reducing leachate generation in Phase I. The new liner would be a "composite" liner consisting of a clay layer and an impermeable HDPE plastic liner. These layers will extend over the top of Phase I, which also has a HDPE geomembrane cover. Covering the closed Phase I would require that the passive gas extraction system currently in place for Phase I is replaced with an active LFG collection system, as the passive vents for Phase I would no longer be operable once a liner is placed over Phase I. Construction of a LFG collection system to actively collect and burn LFG from Phase I would reduce LFG emissions from Phase I. This would have positive impacts on air quality and would also reduce the potential for LFG from Phase I to contaminate groundwater.
- **Is individually limited, but cumulatively has considerable effect on the environment, or involves a commitment for larger actions.** The proposed action would not have significant cumulative impacts (Section 4.15) and does not involve a commitment for larger actions.
- **Substantially affects a rare, threatened, or endangered species or its habitat.** No special status species have been identified within the KLF facility. Implementation of the proposed action would include mitigation measures for outdoor lighting to minimize the attraction of protected seabirds, which may occur in the project vicinity. No adverse impacts to biological resources are anticipated from implementation of the proposed action.
- **Detrimentially affects air or water quality or ambient noise levels.** Only temporary construction-related impacts are anticipated to affect ambient noise levels (Section 4.8). The Phase II lateral expansion would be subject to requirements of a Covered Source Air Permit pursuant to HAR 11-60.1-82, and administered by the DOH Clean Air Branch. A LFG collection system would be incorporated into the design for the Phase II lateral expansion. The LFG collection system would reduce the amount of methane gas and other NMOC that could otherwise pass through the landfill surface to the atmosphere or migrate horizontally through the soil. Therefore, long-term operational impacts to air quality are not anticipated.

A base liner and leachate collection system would be constructed for the Phase II lateral expansion and groundwater monitoring would continue to ensure that groundwater underneath the KLF facility is not being contaminated by landfill operations. Therefore, detrimental affects to water quality are not anticipated.

- **Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.** The KLF facility is not located within a flood plain, a seismic impact zone, a tsunami inundation zone, an erosion-prone area, an estuary, freshwater, or coastal water.
- **Substantially affects scenic vistas and view planes identified in County or state plans or studies.** The existing KLF is not within a view plane that exhibits a high degree of intactness or vividness, as defined in Section 3.2.1 of the Kaua'i General Plan; is not identified as an "important landform" on the West Side Planning District Heritage Resources Map; and is set back approximately 1,700 feet from the shoreline. No significant adverse visual impacts are anticipated (Section **Error! Reference source not found.**).
- **Requires substantial energy consumption.** Energy requirements of the KLF include electricity for management and maintenance facilities and diesel fuel for operation of heavy equipment. The proposed Phase II lateral expansion would not increase the daily load on local utilities or increase daily consumption of fossil fuels.

## 5.2 DETERMINATION

Based on the above evaluation of the significance criteria and the discussion of impacts and mitigation measures contained in this document, it is anticipated that the proposed project would not have a significant adverse impact on the environment. Therefore, a Finding of No Significant Impact has been determined.



## 6.0 LIST OF PREPARERS

Ms. Betsy Alspaugh, Senior Environmental Engineer  
BS, Biology and Chemistry, Western Kentucky University, Bowling Green, 1979  
BS, Environmental Science, Western Kentucky University, Bowling Green, 1981  
Years of Experience: 23

Ms. Michelle Mason, Senior Environmental Professional  
BS, Urban Studies, Stanford University, 1987  
Years of Experience: 19

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

Ms. Dricka Brown, Staff Environmental Scientist  
BA, Environmental Science, University of California at Santa Barbara, 2000  
Years of Experience: 4



## 7.0 REFERENCES

- A-Mehr, Inc. (A-Mehr) 2004. *Operating Plan, Kekaha Landfill Phase II*. September.
- Belt Collins Hawai`i Ltd. (Belt Collins). 1998. *Final Environmental Assessment, Kekaha Landfill Phase II Vertical Expansion, Kaua`i, Hawai`i*. March.
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- . 2007a. *First Semi-Annual Monitoring Report for 2007, Kekaha Landfill Phase II, Kekaha, Kauai, Hawaii*. May.
- . 2007b. *Preliminary Engineering Report, Kekaha Landfill Phases I and II, Horizontal and Vertical Expansion, Kekaha, Kaua`i, Hawai`i*. May.
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———. 2007. *Revised Alternative Source Demonstration for Statistically Significant Increase, Detection Monitoring, Kekaha Landfill Phase II, Kekaha, Kauai, Hawaii*. April.

## 8.0 COMMENTS AND RESPONSES

Availability of the Draft EA was announced in the July 23, 2007 edition of the *Environmental Notice*, which initiated a 30-day public comment period. Copies of the Draft EA were provided to state and county agencies, public libraries, community organizations, and interested individuals. A public informational meeting was hosted by the County on August 9, 2007 at the Waimea Neighborhood Center. All comments received during the 30-day public comment period of July 23, 2007 through August 24, 2007 were considered during preparation of the Final EA. The distribution list for the Draft EA and comments received are presented below. A compilation of the comments received and the responses to the comments are included in Appendix D.

**Table 8-1: Distribution List for the Draft EA**

Distribution List for the Draft EA	Provided Comments
<b>State of Hawai'i Agencies</b>	
Office of Environmental Quality	
Department of Business, Economic Development, and Tourism	
Department of Health	
Department of Land and Natural Resources	
Division of Forestry and Wildlife –Kaua'i District	Yes
Engineering Division	Yes
Commission on Water Resource Management	Yes
Land Division –Kaua'i District	
State Historic Preservation Division	Yes <sup>a</sup>
Office of Hawaiian Affairs	Yes
<b>County of Kaua'i Agencies</b>	
Department of Water	Yes
Department of Planning	
Kaua'i County Council	Yes
<b>Public Libraries</b>	
Waimea Library	
Lihu'e Library	
Hawai'i State Library	
<b>Community Organizations</b>	
Kekaha Community Council	Yes
Kaua'i Westside Watershed Council	Yes
Gordon La Bedz, Surfrider Foundation	Yes
<b>Interested Individuals</b>	
Jose Bulatao	Yes
Debra Carr	Yes
Barb Childers	Yes
Sharon Hyla	Yes
Glenn Molander	Yes
Bruce Pleas	Yes
Ivy Sarmiento	Yes
Robert Tanita	Yes

<sup>a</sup> The SHPD concurrence of no effect dated August 10, 2007 can be found in Appendix A.



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



**BRYAN J. BAPTISTE**  
MAYOR



**DONALD M. FUJIMOTO**  
COUNTY ENGINEER  
TELEPHONE 241-6600

**GARY K. HEU**  
ADMINISTRATIVE ASSISTANT

**KYLAN K. DELA CRUZ**  
DEPUTY COUNTY ENGINEER  
TELEPHONE 241-6600

**AN EQUAL OPPORTUNITY EMPLOYER**  
**COUNTY OF KAUA'I**  
DEPARTMENT OF PUBLIC WORKS  
4444 RICE STREET  
MO'IKEHA BUILDING, SUITE 275  
LIHU'E, KAUA'I, HAWAII 96766-1340

May 17, 2007

Office of Conservation and Coastal Lands  
Department of Land and Natural Resources  
Kalanimoku Building, Room 131  
1151 Punchbowl Street  
Honolulu, HI 96813  
Attention: Mr. Samuel J. Lemmo, Administrator

Subject: Request for Determination, Conservation District Use Permit, Lateral Expansion of Kekaha Landfill, Kekaha, Kauai, Hawaii

Dear Mr. Lemmo,

The County of Kauai, Department of Public Works, Solid Waste Division (the County) is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kauai, Hawaii. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the island of Kauai and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001 (Figure 1-1). This facility is situated on approximately 98 acres of land adjacent to Kaunualii Highway approximately 1,700 feet from the shoreline of the Pacific Ocean. KLF is comprised of two distinct refuse fill areas identified as Phase I and Phase II. Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. Phase II began operations in 1993 and was originally permitted to reach a height of 37 feet above mean sea level (ft above msl), which should have allowed municipal solid waste (MSW) filling operations through 2003. However, due to all the debris from Hurricane Iniki, it quickly reached that capacity and was expanded vertically in 1998 to accommodate more MSW by increasing the height limit to 60 ft above msl. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 ft above msl. The Phase II facility is expected to reach capacity by approximately August 2009.

The County of Kauai proposes to expand the limits of the Phase II MSW fill area to include the following:

- Vertically expand the Phase I closed landfill ;
- Vertically and horizontally expand into the adjacent leachate lagoon; and
- Vertically and horizontally into the valley area between the closed Phase I landfill and the current Phase II landfill.

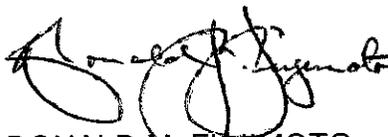
Maximum height of these areas would be no greater than 85 ft above msl. The proposed expansion would provide capacity for an additional volume of approximately 1,625,000 CY of MSW at the KLF. At the current filling rate, this would accommodate over 12 years of MSW filling operations. This expansion would provide the County adequate time to site, design, and construct a new landfill facility for the island of Kauai. As part of the proposed KLF expansion project, the Phase I fill area would be vertically expanded to 85 ft above msl. The Phase I portion of the KLF, identified by TMK 1-2-002:009, has a state land use designation of Conservation District, and therefore the proposed work is subject to the provisions of Title 13 Chapter 5 of the Hawaii Administrative Rules pertaining to Conservation Districts (Figure 1-2). However, the Phase I landfill footprint has been in existence for 54 years and the proposed future land use would not change this; no additional land within the Conservation District would be utilized with the implementation of the proposed expansion. Therefore, the County is requesting a waiver from the Conservation District Use Permit (CDUP) requirements. Please provide a determination at your earliest convenience, as to whether a CDUP will be required for the proposed Phase I vertical expansion.

Thank you for your assistance, and should you have any questions, please contact me at (808) 241-6880, or Michelle Mason with Earth Tech at (808) 356-5322.

Sincerely,

  
TROY K. TANIGAWA  
Solid Waste Program  
Administrative Officer

CONCUR:

  
DONALD M. FUJIMOTO  
County Engineer

Enclosures: Figure 1-1 Site Location Map  
Figure 1-2 State Land Use Districts

cc: Ms. Michelle Mason, Earth Tech

Attachments

LINDA LINGLE  
GOVERNOR OF HAWAII



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

Office of Conservation and Coastal Lands  
POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

ALLAN A. SMITH  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

PETER T. YOUNG  
DEPUTY DIRECTOR

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

REF:OCCL:TM

Correspondence: KA 07-261

Troy K. Tanigawa, Administrative Officer  
Solid Waste Program  
Department of Public Works  
4444 Rice Street Moikeha Building, Suite 275  
Lihue, Hawaii 96766-1340

JUN - 1 2007

Dear Mr. Tanigawa,

SUBJECT: Proposed Expansion of Kekaha Landfill Located at Kekaha, Island of Kauai  
TMK: (4) 1-2-002:009

DEPT. OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII  
2007 JUN - 7 A-10: 01  
RECEIVED  
CONSERVATION  
DIVISION

The Office of Conservation and Coastal Lands is in receipt of your correspondence dated May 17, 2007 regarding the subject matter. According to your information, the County of Kauai is proposing to expand the limits of the landfill for municipal solid waste for areas noted as Phase I and Phase II. Phase I began operations in 1953 and continued until operations ceased on October 9, 1993. Phase II began operations in 1993. The County of Kauai is proposing to expand the limits of the landfill area by: vertically expanding the Phase I closed landfill; vertically and horizontally expand into the leachate lagoon; and vertically and horizontally expand into the valley area between the closed Phase I landfill and the current Phase II landfill. The proposed maximum height of these areas would be no greater than 85' msl.

The OCCL notes, the subject area noted as Phase I appear to lie within the Conservation District Limited subzone. The Phase II portion of the area falls under the County of Kauai's jurisdiction. As noted by you, operations of Phase I ceased on October 9, 1993. Our files indicate that the Department on June 30, 1994 approved the closure of Phase I and the establishment of a debris recycling station. Should further improvements of the recycling station be desired that would include the placement of structures or expansion of services, Site Plan Approval would be required.

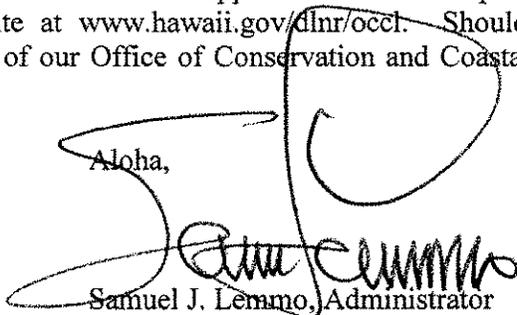
However, to reestablish the Phase I area as a landfill with expansion to a 85' msl, would require the filing of a Conservation District Use Application. The proposed use, PUBLIC PURPOSE is an identified land use pursuant to the Hawaii Administrative Rules (HAR), §13-5-22, P-6, PUBLIC PURPOSE USES, (D-1) land uses undertaken by the State of Hawaii or the counties to fulfill a mandated governmental function, activity, or service for public benefit and in accordance with public policy and the purpose of the conservation district. Such land uses may include transportation systems, water systems, communications systems, and recreational facilities.

Troy K. Tanigawa, Administrative Officer  
Solid Waste Program  
Department of Public Works

Correspondence: KA 07-261

You will find the Conservation District Use Application and Chapter 13-5, Hawaii Administrative Rules on our website at [www.hawaii.gov/dnr/occl](http://www.hawaii.gov/dnr/occl). Should you have any questions please contact Tiger Mills of our Office of Conservation and Coastal Lands at (808) 587-0382.

Aloha,

A large, stylized handwritten signature in black ink, appearing to read 'Samuel J. Lemmo', is written over the word 'Aloha' and extends to the right.

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

c: Chairperson  
KDLO  
County of Kauai, Department of Planning

**BRYAN J. BAPTISTE**  
MAYOR



**DONALD M. FUJIMOTO**  
COUNTY ENGINEER  
TELEPHONE 241-6600

**GARY K. HEU**  
ADMINISTRATIVE ASSISTANT

**KYLAN K. DELA CRUZ**  
DEPUTY COUNTY ENGINEER  
TELEPHONE 241-6600

**AN EQUAL OPPORTUNITY EMPLOYER**  
**COUNTY OF KAUAI**  
DEPARTMENT OF PUBLIC WORKS  
4444 RICE STREET  
MO'IKEHA BUILDING, SUITE 275  
LIHU'E, KAUAI, HAWAII 96766-1340

May 17, 2007

County of Kauai, Planning Department  
4444 Rice Street, Suite 473  
Lihue, Hawaii 96766  
Attention: Mr. Mike Laureta, Special Management Area Contact

Subject: Request for Determination, Special Management Area Permit, Lateral  
Expansion of Kekaha Landfill, Kekaha, Kauai, Hawaii

Dear Mr. Laureta,

The County of Kauai, Department of Public Works, Solid Waste Division (the County) is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kauai, Hawaii. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the island of Kauai and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001 (Figure 1-1). This facility is situated on approximately 98 acres of land adjacent to Kaunualii Highway approximately 1,700 feet from the shoreline of the Pacific Ocean. KLF is comprised of two distinct refuse fill areas identified as Phase I and Phase II. Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. Phase II began operations in 1993 and was originally permitted to reach a height of 37 feet above mean sea level (ft above msl), which should have allowed municipal solid waste (MSW) filling operations through 2003. However, due to all the debris from Hurricane Iniki, it quickly reached that capacity and was expanded vertically in 1998 to accommodate more MSW by increasing the height limit to 60 ft above msl. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 ft above msl. The Phase II facility is expected to reach capacity by approximately August 2009.

The County of Kauai proposes to expand the limits of the Phase II MSW fill area to include the following:

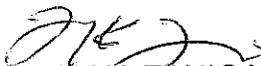
- Vertically expand the Phase I closed landfill ;
- Vertically and horizontally expand into the adjacent leachate lagoon; and

- Vertically and horizontally into the valley area between the closed Phase I landfill and the current Phase II landfill.

Maximum height of these areas would be no greater than 85 ft above msl. The proposed expansion would provide capacity for an additional volume of approximately 1,625,000 CY of MSW at the KLF. At the current filling rate, this would accommodate over 12 years of MSW filling operations. This expansion would provide the County adequate time to site, design, and construct a new landfill facility for the island of Kauai. As part of the proposed KLF expansion project, the Phase I fill area would only be vertically expanded to 85 ft above msl. The Phase I portion of the KLF, identified by TMK 1-2-002:009, has a county land use designation of Special Management Area (Figure 1-2), and therefore the proposed work subject to the Special Management Area Rules and Regulations of the County of Kauai. However, the Phase I landfill footprint has been in existence for 54 years and the proposed future land use would not change this; no additional land within the Conservation District would be utilized with the implementation of the proposed expansion. Therefore, the County is requesting a waiver from the Special Management Area Permit (SMAP) requirements. Please provide a determination at your earliest convenience, as to whether a SMAP will be required for the proposed Phase I vertical expansion.

Thank you for your assistance, and should you have any questions, please contact me at (808) 241-6880, or Michelle Mason with Earth Tech at (808) 356-5322.

Sincerely,

  
TROY K. TANIGAWA  
Solid Waste Program  
Administrative Officer

CONCUR:

  
DONALD M. FUJIMOTO  
County Engineer

Enclosures: Figure 1-1 Site Location Map  
Figure 1-2 State Land Use Districts

cc: Ms. Michelle Mason, Earth Tech

Attachments

**BRYAN J. BAPTISTE**  
MAYOR



**DONALD M. FUJIMOTO**  
COUNTY ENGINEER  
TELEPHONE 241-6600

**GARY K. HEU**  
ADMINISTRATIVE ASSISTANT

**KYLAN K. DELA CRUZ**  
DEPUTY COUNTY ENGINEER  
TELEPHONE 241-6640

**AN EQUAL OPPORTUNITY EMPLOYER**  
**COUNTY OF KAUA'I**  
DEPARTMENT OF PUBLIC WORKS  
4444 RICE STREET  
MO'IKEHA BUILDING, SUITE 275  
LIHU'E, KAUA'I, HAWAII 96766-1340

June 8, 2007

STATE OF HAWAII  
DLNR-STATE HISTORIC PRESERVATION DIVISION  
601 KAMOKILA BLVD, RM 555  
KAPOLEI, HI 96707  
ATTENTION: Melanie Chinen, Administrator

**SUBJECT: Chapter 6E-42 Historic Preservation Review, Phase II Lateral Expansion of Kekaha Landfill, Kekaha, Kauai, Hawaii, County of Kauai, Department of Public Works, Solid Waste Division**

Dear Ms. Chinen:

The County of Kauai, Department of Public Works, Solid Waste Division (the County) is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kauai, Hawaii. The purpose of the proposed action is to prolong the life of KLF as it is the only permitted Municipal Solid Waste (MSW) facility on Kauai. The need to construct the Phase II Lateral Expansion arises because the County would be without a landfill facility for the disposal of MSW beginning in approximately January 2009. The proposed action, identified as Phase II lateral expansion, would provide an additional landfill area for MSW filling operations for approximately 12 years, allowing the County adequate time to site, design, and construct a new landfill facility. This project would be subject to the National Pollution Discharge Elimination System (NPDES) permit requirement and is, therefore, subject to review under Chapter 6E-42 of the Hawaii Revised Statutes.

The scope of work is to expand the limits of the Phase II MSW fill area to include the Phase I closed landfill as well as the adjacent leachate lagoon and the valley area between the closed Phase I landfill and the current Phase II landfill. Maximum height of these areas would be no greater than 85 ft above mean sea level. The proposed expansion would increase the original Phase II landfill footprint by approximately 32.7 acres and would provide capacity for an additional volume of approximately 1,550,000 cubic yards of MSW at the KLF.

Construction activities to be undertaken include laterally expanding the Phase II fill area directly over the closed Phase I landfill. A base liner system would be installed on top of the existing Phase I cover system, which would allow for vertical expansion of the Phase I area to 85 ft above msl. A passive gas extraction system, currently in place for Phase I, would be rerouted during construction of the base liner system for the lateral expansion.

Expansion into the 5.8-acre leachate lagoon area would require development of a new leachate management system. The existing leachate lagoon would be demolished and replaced with aboveground leachate storage tanks near the current material drop-off area. The valley between Phase I and Phase II is currently used as an

STATE OF HAWAII  
DLNR-STATE HISTORIC PRESERVATION DIVISION  
June 8, 2007  
Page (2)

infiltration area for storm water runoff and is also the location of groundwater monitoring wells used to monitor the Phase II landfill. Therefore, the proposed action includes plans for a new infiltration basin to be constructed near the entrance to the KLF and relocation of existing groundwater monitoring wells.

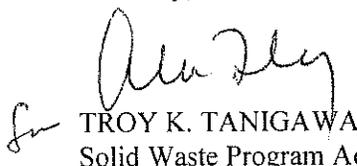
Proposed landfill expansion measures are planned within Tax Map Key (4) 1-2-002:009 and (4) 1-2-002:001. Figures showing the project location (Figure 1-1), existing site conditions (Figure 2-1), the proposed final cover grade (Figure 2-2), and cross sections of the proposed lateral expansion (Figure 2-3) are enclosed. The current project schedule is for construction to begin in June 2008.

Planned construction activities would not extend beyond the current footprint of the KLF site and would involve minimal excavation (primarily for the new infiltration basin). Specific areas proposed for lateral expansion (e.g., the leachate lagoon, the valley between the Phase I and Phase II fill areas, and over the closed Phase I fill area) have already been heavily disturbed.

Actions relevant to the State Historic Preservation Division for this project include historic preservation clearance. Due to extensive prior disturbance of the KLF site, intact subsurface deposits are not expected within the KLF facility footprint. Please provide concurrence that the proposed project would not have an adverse effect on significant historic properties at your earliest convenience.

Thank you for your assistance, and should you have any questions, please contact me at (808) 241-6880 or Michelle Mason at (808) 356-5322.

Sincerely,

  
TROY K. TANIGAWA

Solid Waste Program Administrative Officer

CONCUR:

  
DONALD M. FUJIMOTO  
County Engineer

cc: Nancy McMahon, SHPD, Kauai Archaeologist  
Jeff Impens, Earth Tech  
Michelle Mason, Earth Tech

Enclosures: Figure 1-1 Location Map  
Figure 2-1 Existing Site Conditions  
Figure 2-2 Proposed Action Final Cover Grade  
Figure 2-3 Proposed Action Cross Sections Proposed Action Cross Sections

LINDA LINGLE  
GOVERNOR OF HAWAII



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

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

LAURA H. THIELEN  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ALLAN A. SMITH  
INTERIM DEPUTY DIRECTOR - LAND

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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

August 10, 2007

Michelle Mason, Task Manager  
Earth Tech Inc.  
841 Bishop St. Suite 500  
Honolulu, Hawai'i 96813

LOG NO: 2007.2520  
DOC NO: 0708NM05  
Archaeology

Dear Ms. Mason:

**SUBJECT: Chapter 6E-42- Historic Preservation Review –  
DEA Kekaha Landfill Phase II Lateral Expansion  
Kekaha, Waimea, Kauai  
TMK: (4) 1-2-002: 009 and 001**

---

The aforementioned project is for expansion of the Kekaha Landfill.

We believe that “no historic properties will be affected” by this undertaking because:

- Intensive cultivation has altered the land
- Residential development/urbanization has altered the land
- Previous grubbing/grading has altered the land
- An accepted archaeological inventory survey (AIS) found no historic properties
- SHPD previously reviewed this project and mitigation has not been completed
- Other:

In the event that historic resources, including human skeletal remains are identified during the construction activities, all work needs to cease in the immediate vicinity of the find. The find needs to be protected from additional disturbance and the State Historic Preservation Division, Kauai Section, needs to be contacted immediately at (808) 742-7033.

Aloha,

A handwritten signature in black ink, appearing to read "Melanie A. Chinen".

Melanie A. Chinen, Administrator  
State Historic Preservation Division

NM:



October 9, 2007

Dr. Leila Nitta, Principal  
'Ele'ele Elementary School  
P.O. Box 38  
'Ele'ele, Hawaii, 96705

**Subject: Cultural Impact Assessment, Kekaha Landfill Phase II Lateral Expansion,  
Kekaha, Kauai, Hawaii, Tax Map Keys 1-2-002:009 and 1-2-002:001**

Dear Dr. Nitta,

The County of Kaua`i, Department of Public Works, Solid Waste Division (the County), is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kaua`i, Hawai`i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001. This facility is situated on approximately 98 acres of land adjacent to Kaunualii Highway approximately 1,700 feet from the shoreline of the Pacific Ocean (Figure 1-1).

The County proposes to expand the limits of the Phase II fill area to include three additional cells. Cell 1 would expand the Phase II fill area into the existing leachate lagoon and adjacent acreage. Cell 2 would expand the Phase II fill area into the valley area between the closed Phase I landfill and the existing Phase II landfill. Cell 3 would expand the Phase II fill area directly over the closed Phase I landfill. Maximum height of these areas would be no greater than 85 feet above msl. The proposed expansion at full-build would increase the original Phase II fill area by approximately 32.7 acres and would provide capacity for an additional volume of approximately 1,550,000 yd<sup>3</sup> of municipal solid waste at the KLF. The proposed action would not expand the overall footprint of the facility beyond the existing 98-acre footprint. The existing site conditions, proposed cell development boundaries, and proposed final cover grade are indicated on the enclosed Figures 2-1, 2-2, and 2-3.

The proposed Kekaha Landfill Phase II Lateral Expansion would occur on State of Hawai`i land and would use State of Hawai`i funds, and therefore, triggers the environmental review process mandated under Hawai`i Revised Statutes (HRS) Chapter 343. Earth Tech is currently in the process of conducting a cultural impact assessment for the proposed action in compliance with Act 50, Session Laws of Hawai'i, 2000 (now represented in HRS 343-2) and is therefore seeking statements from knowledgeable informants with regards to cultural practices in the project vicinity that could be impacted by the proposed action.

Per the *Guidelines for Assessing Cultural Impacts* (Environmental Council 1997), the types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The cultural resources that support such cultural practices and beliefs are also subject to assessment.

You have been identified as an individual that could be knowledgeable with regards to cultural practices in the project vicinity that could be impacted by the proposed action. If you are able to provide statements or information regarding cultural practices that could be impacted by the proposed action, please contact Ms. Michelle Mason of Earth Tech at:

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

Thank you for your assistance, and should you have any questions, please contact me at (808) 356-5322 or [michelle.mason@earthtech.com](mailto:michelle.mason@earthtech.com).

Sincerely,



Michelle Mason  
Task Manager

Enclosures: Figures 1-1, 2-1, 2-2, and 2-3.

cc: Kanani Kagawa, – Kaula'i Community Resource Coordinator, Office of Hawaiian Affairs

October 9, 2007

Ilei Beneiamina  
P.O. Box 330  
Makaweli, Hawaii, 96769

**Subject: Cultural Impact Assessment, Kekaha Landfill Phase II Lateral Expansion,  
Kekaha, Kauai, Hawaii, Tax Map Keys 1-2-002:009 and 1-2-002:001**

Dear Ilei Beneiamina,

The County of Kaua`i, Department of Public Works, Solid Waste Division (the County), is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kaua`i, Hawai`i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001. This facility is situated on approximately 98 acres of land adjacent to Kaumuali`i Highway approximately 1,700 feet from the shoreline of the Pacific Ocean (Figure 1-1).

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Honolulu, Hawaii 96813  
Fax: (808) 523-8950  
Email: [Michelle.Mason@earthtech.com](mailto:Michelle.Mason@earthtech.com)

Thank you for your assistance, and should you have any questions, please contact me at (808) 356-5322 or [michelle.mason@earthtech.com](mailto:michelle.mason@earthtech.com).

Sincerely,



Michelle Mason  
Task Manager

Enclosures: Figures 1-1, 2-1, 2-2, and 2-3.

cc: Kanani Kagawa, – Kaua'i Community Resource Coordinator, Office of Hawaiian Affairs

October 9, 2007

Mr. and Mrs. Pereira  
P.O. Box 31  
Waimea, Hawaii, 96796-0031

**Subject: Cultural Impact Assessment, Kekaha Landfill Phase II Lateral Expansion,  
Kekaha, Kauai, Hawaii, Tax Map Keys 1-2-002:009 and 1-2-002:001**

Dear Mr. and Mrs. Pereira,

The County of Kaua`i, Department of Public Works, Solid Waste Division (the County), is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kaua`i, Hawai`i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001. This facility is situated on approximately 98 acres of land adjacent to Kaumuali`i Highway approximately 1,700 feet from the shoreline of the Pacific Ocean (Figure 1-1).

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Thank you for your assistance, and should you have any questions, please contact me at (808) 356-5322 or [michelle.mason@earthtech.com](mailto:michelle.mason@earthtech.com).

Sincerely,



Michelle Mason  
Task Manager

Enclosures: Figures 1-1, 2-1, 2-2, and 2-3.

cc: Kanani Kagawa, – Kaua'i Community Resource Coordinator, Office of Hawaiian Affairs

October 11, 2007

Marlene Kali  
Waimea High School  
P.O. Box 339  
Waimea, Hawaii, 96796

**Subject: Cultural Impact Assessment, Kekaha Landfill Phase II Lateral Expansion,  
Kekaha, Kauai, Hawaii, Tax Map Keys 1-2-002:009 and 1-2-002:001**

Dear Marlene Kali,

The County of Kaua`i, Department of Public Works, Solid Waste Division (the County), is proposing an expansion to be undertaken at the Kekaha Landfill (KLF) site on Kaua`i, Hawai`i. The KLF is located 1.3 miles northwest of the town of Kekaha on the southwest side of the Island of Kaua`i and identified with Tax Map Keys 1-2-002:009 and 1-2-002:001. This facility is situated on approximately 98 acres of land adjacent to Kaunualii Highway approximately 1,700 feet from the shoreline of the Pacific Ocean (Figure 1-1).

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Thank you for your assistance, and should you have any questions, please contact me at (808) 356-5322 or [michelle.mason@earthtech.com](mailto:michelle.mason@earthtech.com).

Sincerely,



Michelle Mason  
Task Manager

Enclosures: Figures 1-1, 2-1, 2-2, and 2-3.

cc: Kanani Kagawa, – Kaula'i Community Resource Coordinator, Office of Hawaiian Affairs

**Appendix B**  
**Archaeological Inventory Survey**



Archaeological Inventory Survey and Subsurface  
Testing at the Kekaha Phase II Landfill Site

(TMK 1-2-02:9)

DRAFT

by

William H. Folk, B.A.  
and  
Hallett H. Hammatt, Ph.D.

with Historical Research  
by  
Gerald K. Ida, B.A.

Prepared for

Harding Lawson Associates

Cultural Surveys Hawaii  
August 1993



## ABSTRACT

An archaeological inventory survey including extensive subsurface test excavations by backhoe was conducted in May 1993 on 63.2 acres known as TMK 1-2-02:9 for the Phase II expansion of the Kaua'i County landfill at Kekaha, Kaua'i.

The ancient landscape, dominated by dunes of calcareous sand, was leveled for plantation use.

An historic canal cutting the parcel in two from north to south, and a linear mound oriented perpendicular to the canal were both constructed by mechanically mounding up sand deposits derived from the surrounding area. These features are the remains of an attempt, in the 1950s, to farm portions of this land. This information was related to the authors by Mr. William Martin of Kekaha sugar company.

No historic cultural resources were evident in the project area or in the subsurface deposits. It is likely that if cultural resources were present in the project area in the past they were removed with the sand dunes.

No further archaeological study is recommended for the proposed landfill expansion site.

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## INTRODUCTION

On May 19 through May 23, 1993 personnel of Cultural Surveys Hawaii conducted an archaeological inventory survey of the 63.2 acre site (TMK 1-2-02:9) proposed for Phase II expansion of the existing landfill located at Kekaha, Kaua'i (Figure 1-3). Inventory survey of this parcel included subsurface test excavations by backhoe (Figure 4). The archaeological work was done for Harding Lawson Associates at the direction of Kaua'i County.

### Scope of Work

The following Scope of Work, developed in conjunction with and approved by the State Historic Preservation Division, Department of Land and Natural Resources, was utilized for the inventory survey of the Phase II Landfill site at Kekaha;

1. A ground survey of the project area was conducted for the purpose of archaeological site inventory. All sites located were to be described and mapped with evaluation of function, interrelationships, and significance. Documentation was to include photographs and scale drawings of selected sites and complexes. Any historically significant sites were to be assigned State Site numbers.
2. Subsurface testing in the project area was conducted to determine stratigraphic history of sediments and to determine depth and quantity of cultural materials within archaeological sites, if any; and to obtain datable samples for chronological information. Because no surface archaeological sites were present in the project area, testing included excavation of approximately one trench per acre throughout the project area to determine presence or absence of buried cultural layers and to record stratigraphy.
3. Research on historic and archaeological background - including a search of historic maps, written records, Land Commission Awards and associated native and foreign testimony - was conducted. The research focused on the specific area with general background on the *ahupua'a* and district, with an emphasis on settlement patterns as they are related to the project area.
4. Preparation of this survey report which includes;
  - a. A map of the survey area showing the location of excavation trenches;
  - b. Description of the stratigraphic record of sediments within the project area today with selected photographs, scale drawings, and discussion;

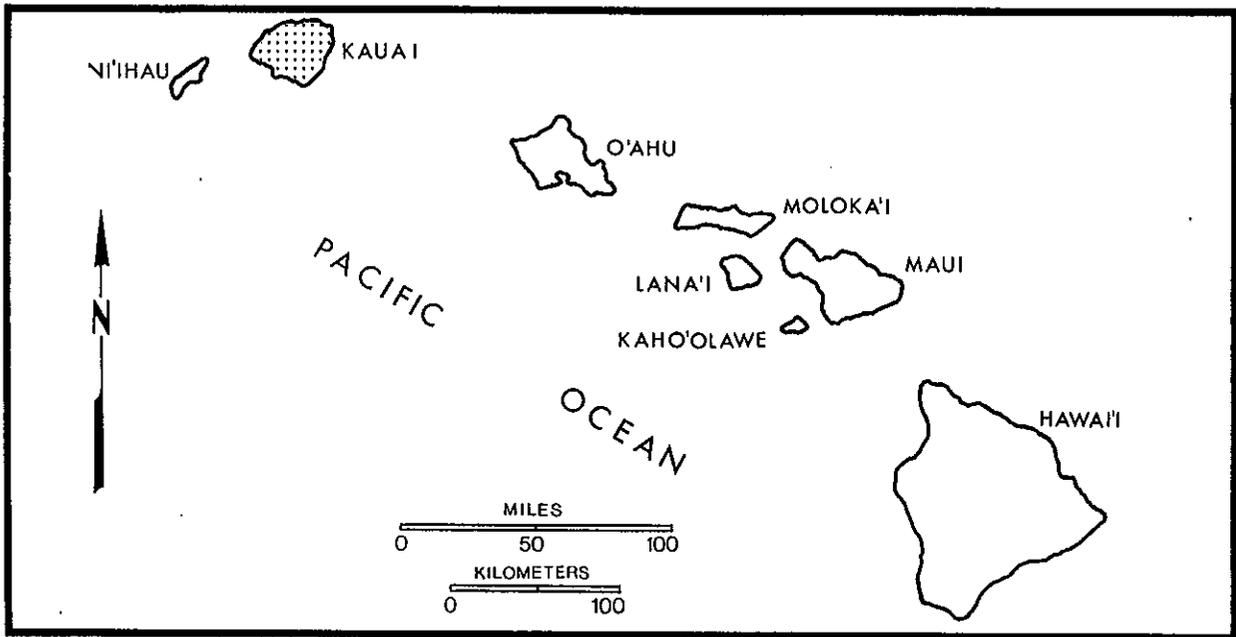


FIGURE 1  
State of Hawai'i

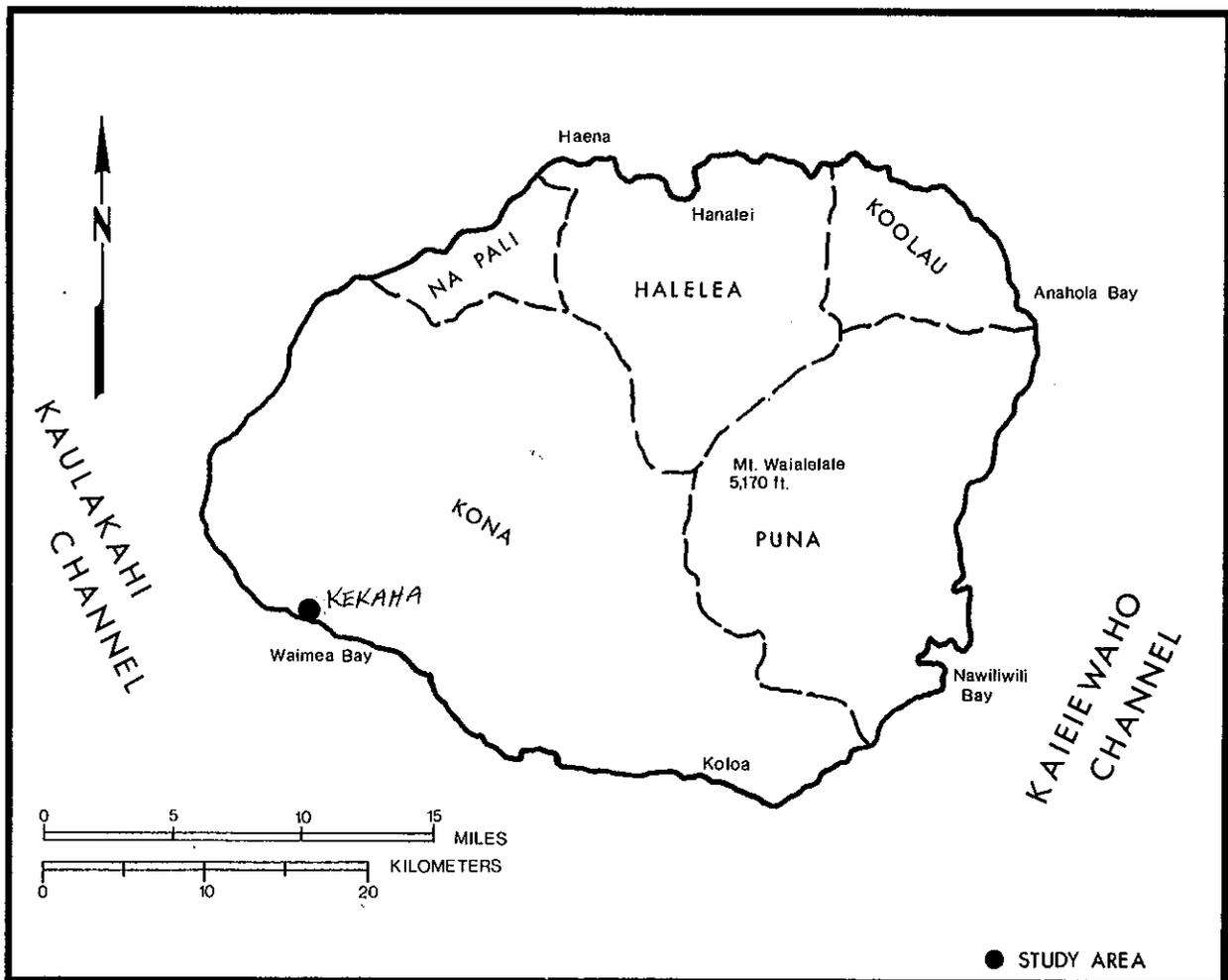
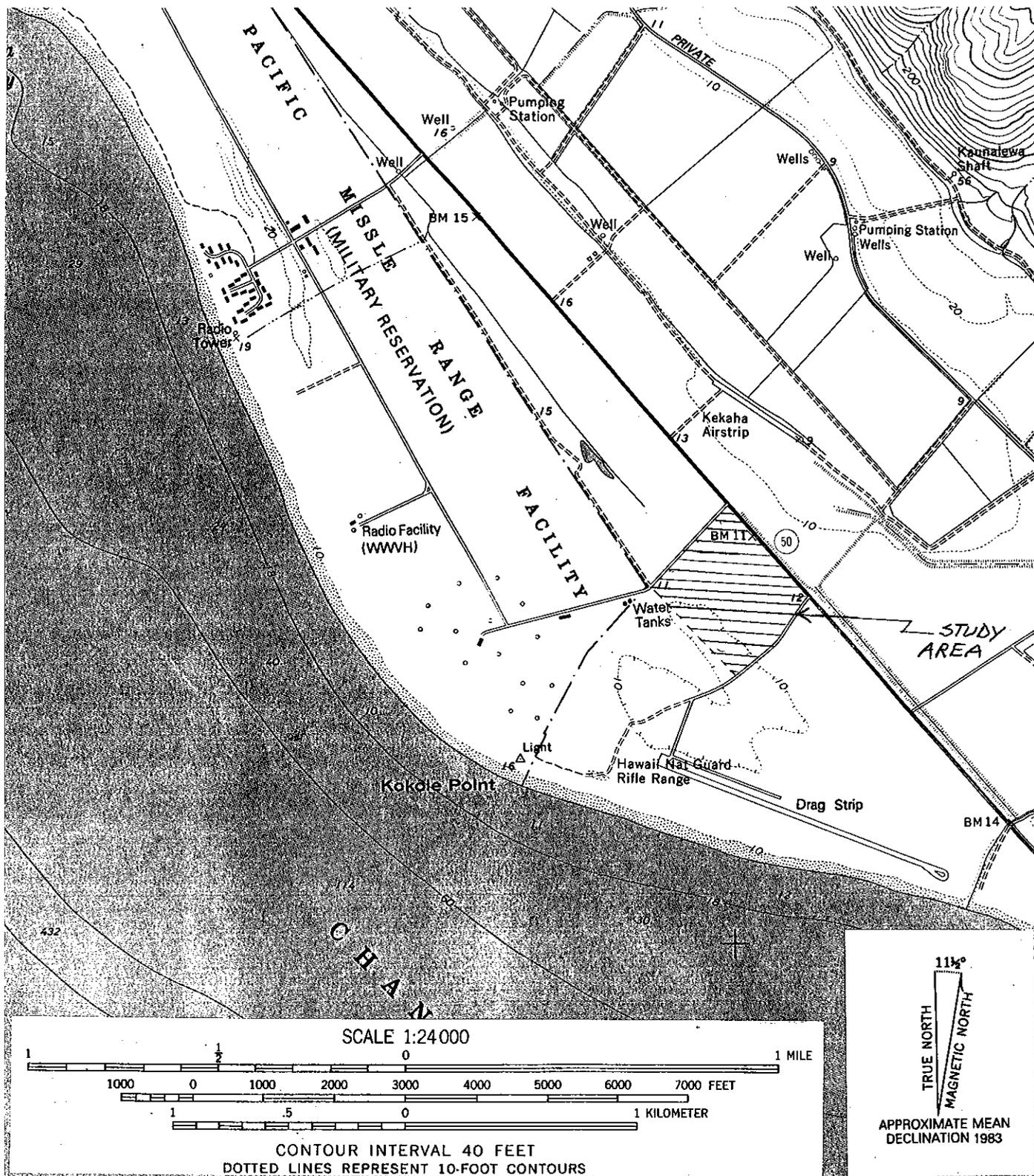
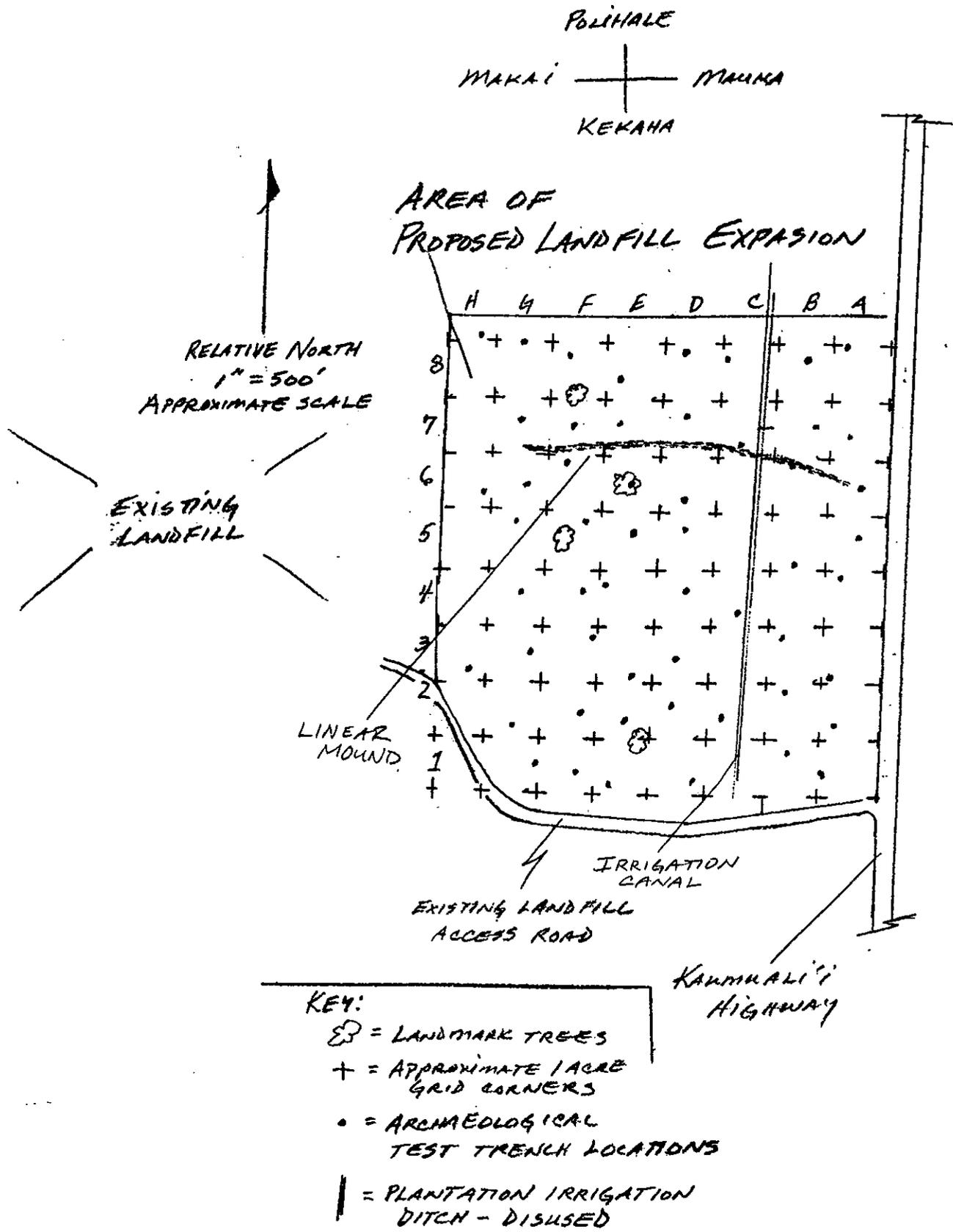


FIGURE 2  
General Location Map, Kaua'i Island



**Figure 3** Portion of USGS Topographic Map, 7.5 Minute Series, Portion of Kekaha Quadrangle, Showing Project Location



**Figure 4** Project Area Showing Location of Test Excavations and Historic Surface Features

- c. Historical and archaeological background section summarizing prehistoric and historic land use as they relate to the project area;
- d. Recommendations based on all information generated which will specify what steps should be taken to mitigate impact of development on archaeological resources, if any.

### **Project Area Description**

The Kekaha Landfill, and Phase II expansion - the area of archaeological study - is located at the south end of the Mānā plain. The Mānā Plain is situated at the base of ancient sea cliffs at the extreme western end of Kaua'i island. This plain is constructional in character with calcareous sands dominating the seaward margin, and terrigenous alluvium from the valleys of the western slopes of the island dominating the landward margin. The seaward margin of the plain is a beach ridge built upon a submerged wave-cut terrace (Macdonald and Abbott 1974:395). The beach ridge forms a barrier against the sea which created a shallow lagoon environment inland. The lagoon was drained and filled during the mid-nineteenth century to create Mānā Plain as it appears today. Part of the seaward barrier of the plain consists of a formation of "Moderately to well cemented calcareous sand dunes...[that] appear to have formed during the Waipio stand of the sea." (*Ibid*). Remnants of these cemented dunes are extant to the south near Kekaha but little evidence of them are found within the study area where beach sediments predominate.

The Kaua'i island soil survey by Donald Foote, *et al.* (1972) describes soils in the project area as Jaucas loamy fine sand, occurring on old beaches and on windblown sand deposits. Annual rainfall in the project area is less than 20 inches, occurring primarily in the fall and winter months (September to March). Maximum and minimum average temperatures throughout the year vary little from other coastal areas around Kaua'i, but in the field it feels considerably hotter due in part to more variable and lighter winds on this leeward side of the island.

**HISTORICAL AND CULTURAL OVERVIEW  
OF LAND SETTLEMENT AND USE IN KEKAHA, KAUAI**

by  
Gerald Ida, B.A.

**Introduction and Setting**

Kekaha is a locality in the *ahupua'a* of Waimea on the southwest side of the island of Kauai. Part of the old district or *moku* of Kona, the Waimea *ahupua'a* is by far the largest on the island, comprising 92,646 acres, more than a quarter of the total land area of Kauai. It encompasses all of the Waimea River Canyon area, the uplands of Kōke'e, the high swampy plateau of Alaka'i and the northwestern coastal valleys of Nu'alolo and Miloli'i (Boundary Commission 1875: 140-146).

On the southwestern leeward coast, a broad, flat plain stretches between the Waimea River delta and Polihale to the north. It is here that Kekaha is located, backed on the *mauka* side by steep low cliffs and a series of small valleys and gulches.

Because of its size, the Waimea *ahupua'a* includes several regions which are very different in climate and terrain. These differences essentially dictated the kinds of resources that were available, and hence had much to do with the way the *ahupua'a* was settled by prehistoric Hawaiians. The well-watered valley and delta of the Waimea River were ingeniously developed and engineered for wetland agriculture, and represent the epitome of the typical Hawaiian and Kauai'i-type valley settlement (Handy 1972:393-397).

In contrast, Kekaha and other settlements on the Mānā plain suffered from a definite lack of fresh surface water. The *mauka* gulches had only intermittent stream flows and water sources were primarily springs along the base of the cliffs. For this reason, this portion of the report will focus mainly on the specific area of Kekaha and not attempt to cover the entire *ahupua'a* of Waimea.

### The *Ahupua'a* of Kekaha?

Although the Boundary Commission officially surveyed and set the bounds of the *ahupua'a* of Waimea in 1875 as generally described previously, there are a few sources which contradict this, maintaining that Kekaha was a separate *ahupua'a*.

Testimony in the mid-1800s that supports the native land claim of R. Naumu refers to the "Kekaha *ahupua'a*" in describing the properties (Native Testimony, n.d. Vol. 11:15).

Valdemar Knudsen, an early *haole* settler in the area, also refers to the "*ahupua'a* of Ketaha" in a letter to John Dominis, Commissioner of Crown Lands (V. Knudsen 1866:3). A late 19th century map (Imlay 1891) shows a pie-shaped land section that is labelled "Kekaha," indicated by a dotted line boundary that encompasses the area from the top of Waiaka ridge to the shoreline (Figure 5).

Handy (1972:427) implies that Kekaha as well as Polihale and Mānā were individual *ahupua'a* of Waimea however the reasoning for this is not given. However, the native land claim of Elia Lihau for the land of Wai'awa, just west of Kekaha, concedes that this area was indeed part of the *ahupua'a* of Waimea (Native Claims 1848; Vol. 9:244).

Admittedly, it is unusual for a single *ahupua'a* to occupy such a large percentage of the land area of a major Hawaiian island. It could easily be argued that the comparatively low agricultural productivity of the Mānā plain due to the scarcity of water, is the basis for its inclusion into Waimea.

However the same cannot be said for the watered valleys of Nu'alolo and Miloli'i, both of which could easily support typical and self-contained valley settlements of perhaps small but stable populations.



It could also be speculated that Waimea, being one of the two areas of the island that traditionally was the domain of the high chiefs (the other being Wailua), commanded the resources of the large upland region of Kōke'e and Alaka'i, among them the large *koa* trees out of which the hulls of canoes were hewn, and forest birds which supplied the feathers for cloaks, capes, and other items associated with the *ali'i*.

It is quite possible that at one time, Waimea was divided into several smaller *ahupua'a* , perhaps before the Great Mahele or even in pre-contact times. To ignore this possibility could only cultivate a static and non-developmental view of the Hawaiian land system and Hawaiian society in general. The exploration of this matter could well be a major topic of further research.

### **The Place Name: Kekaha**

Pukui (1974:106) gives the literal translation of Kekaha as "the place." However, Handy's (1972:54) definition gives more insight as to the descriptiveness of the place name.

Kaha was a special term applied to areas facing the shore but not favorable for planting. Kekaha in Kona, Hawaii, was one so named, and Kekaha on Kauai another.

Kelly (1971:2) describes Kekaha on the island of Hawai'i as *'āina malo'o* or "dry land," and indeed the same could be said of Kekaha, Kauai'i if one considered the area's low annual rainfall and lack of perpetual streams. Kekaha, however, was not void of water or of a prehistoric population which made use of the local resources.

### **1797 to 1850**

A thorough search of major Hawaiian myths and legends found no mention of Kekaha, but the first western description of the place comes only nine years into the post-

contact era. William Beresford was the supercargo on board the British ship Queen Charlotte under Captain George Dixon which, along with the King George, captained by Nathaniel Portlock, sailed on an exploratory voyage to the northwest coast of America. In 1798 both ships wintered in Hawai'i, spending much time off Waimea, Kaua'i. On one of the several shore outings, Beresford visited nearby Kekaha, which he called "A Tappa" (Dixon 1968:124-126).

Having frequently heard our people who had been on shore speak of a village, called by the natives A Tappa, where a great number of people were commonly employed in manufacturing cloth, curiosity prompted me to walk to that place first, as I found it was not more than three miles distant, so that I could easily get back by Tyheira's dinner time.

The country, from the place where we landed to A Tappa is tolerably level, and for the space of two miles, very dry. The soil here is a light red earth, and with proper cultivation, would produce excellent potatoes, or any thing that suits a dry soil; but at present, it is entirely covered with long coarse grass: the inhabitants, I suppose, finding plenty of ground near their habitations, more conveniently situated for their various purposes. So far, the space from the beach to the foot of the mountains, is about two miles in breadth; but from hence to A Tappa, it grows gradually narrower, till it terminates in a long sandy point, which I have already observed, is the West extreme of Wymea Bay.

A Tappa is a pretty large village, situated behind a long row of cocoa-nut trees, which afford the inhabitants a most excellent shelter from the scorching heat of the noon-day sun. Amongst these cocoa-trees is a good deal of wet swampy ground, which is well laid out in plantations of taro and sugar-cane.

I had laid my account in seeing their method of manufacturing cloth; but here I was mistaken. A number of our people, prompted by the same curiosity as myself, were got to A Tappa before, where "Labour stood suspended as we passed." The people flocked eagerly about us; some asking us to repose ourselves under the shady branches of trees planted about their doors; other running to the trees for cocoa-nuts and presenting them to us with every mark of kindness and good nature; in short, every inhabitant of the village was fully employed, either in relieving our wants, or gratifying their curiosity in looking at us.

The day being very sultry, we walked leisurely back, and I returned by a different path from that I had taken, in going to A Tappa. On examining the grass, which in most places is higher than the knee, I found

it no altogether of a rough coarse sort, but intermixed with various sorts of flowers, together with different grasses, of the meadow kind; so that I have no doubt, with proper management, it would make excellent hay.

Oddly, Beresford's remark that the dry soil conditions in the area would be most suitable for potatoes is in line with Handy's (1972:410) assertion that the sweet potato was probably the prime staple of the village, and not taro because of the limited water resources.

While Beresford described taro, sugarcane and coconut being cultivated in Kekaha, no mention is made of *wauke*, the inner bark of which is the raw material for making *kapa* or bark cloth. This seems curious in light of his statement that cloth-making was a major activity of the village and the main purpose of his trek there was to observe this process.

Due to the climatic conditions, the Mānā plain was probably not a prime *wauke* growing area (*Ibid.*:209). However Beresford did note on a later excursion through the lower Waimea Valley that "cloth mulberry" trees were numerous around the house sites there (Dixon 1968:131). It may be likely that there was some sort of trade going on between the residents of Waimea and Kekaha involving the raw material and the labor which turned it into cloth.

Native claims for land made to the Board of Commissioners to Quiet Land titles in 1848 also sheds some light as to land settlement and use in the area during the early historic period. Only three claims were made in and nearby Kekaha.

Keaona (No. 8841) claimed a house lot, six *lo'i* and some *kula* land near the base of the *pali* at Pōki'i, about a mile north of Kekaha (Native Register 1848; Vol. 9:397). Elia Lihau (No. 6698) claimed all the land of Wai'awa (just west of Pōki'i), most of which was unused *kula* but included a restricted fishery. This claim was never awarded (Native Testimony, Vol 11:155).

The only one to claim land actually in Kekaha was B. Naumu (No. 5386). Mentioned here are *lo'i*, a house lot, salt bed (*aliapa'akai*) and a *muliwai* called Kapenu. Naumu developed the *lo'i* in 1844, stating that it was previously overgrown land (*Ibid.*:146).

A 1891 map of West Kaua'i by L.E. Imlay (see Figure 5) shows Kapenu as a stream entered the ocean just east of 'Ō'ōmanō Point. A later map (Evans 1921) does not show the stream but places one of Naumu's awarded lots in the same area near the shore (Figure 6). He was also awarded a parcel in Kekaha at the base of the *makai-facing pali* of Hululunui Ridge.

Interestingly, Evans' 1921 map shows an irregular-shaped depression occupying the southeast corner of Naumu's beach lot. In a more recent map (Tax Map; Figure 7) this same depression is labelled a fish pond, and was probably of the *pu'u one* type. Naumu makes no mention of such in his claim and the pond was probably developed in a later historic period by him or his heirs.

### 1850 to 1900

Most sources of historical accounts of Kekaha during this period are letters, papers, and books authored by Valdemar Knudsen and his immediate offspring Eric A. Knudsen and Ida Elizabeth Knudsen Von Holt. Knudsen came to Hawai'i from Norway via the mainland where he had business dealings. He settled at Wai'awa in 1854 as a rancher, agriculturalist and later, sugar planter.

Knudsen took over the lease of government land there from Archibald Archer and a Mr. Gruben. The two men were involved in a failing tobacco farming enterprise. Associated with them was a Mr. Clifford who made cigars (Lydgate 1991:92).

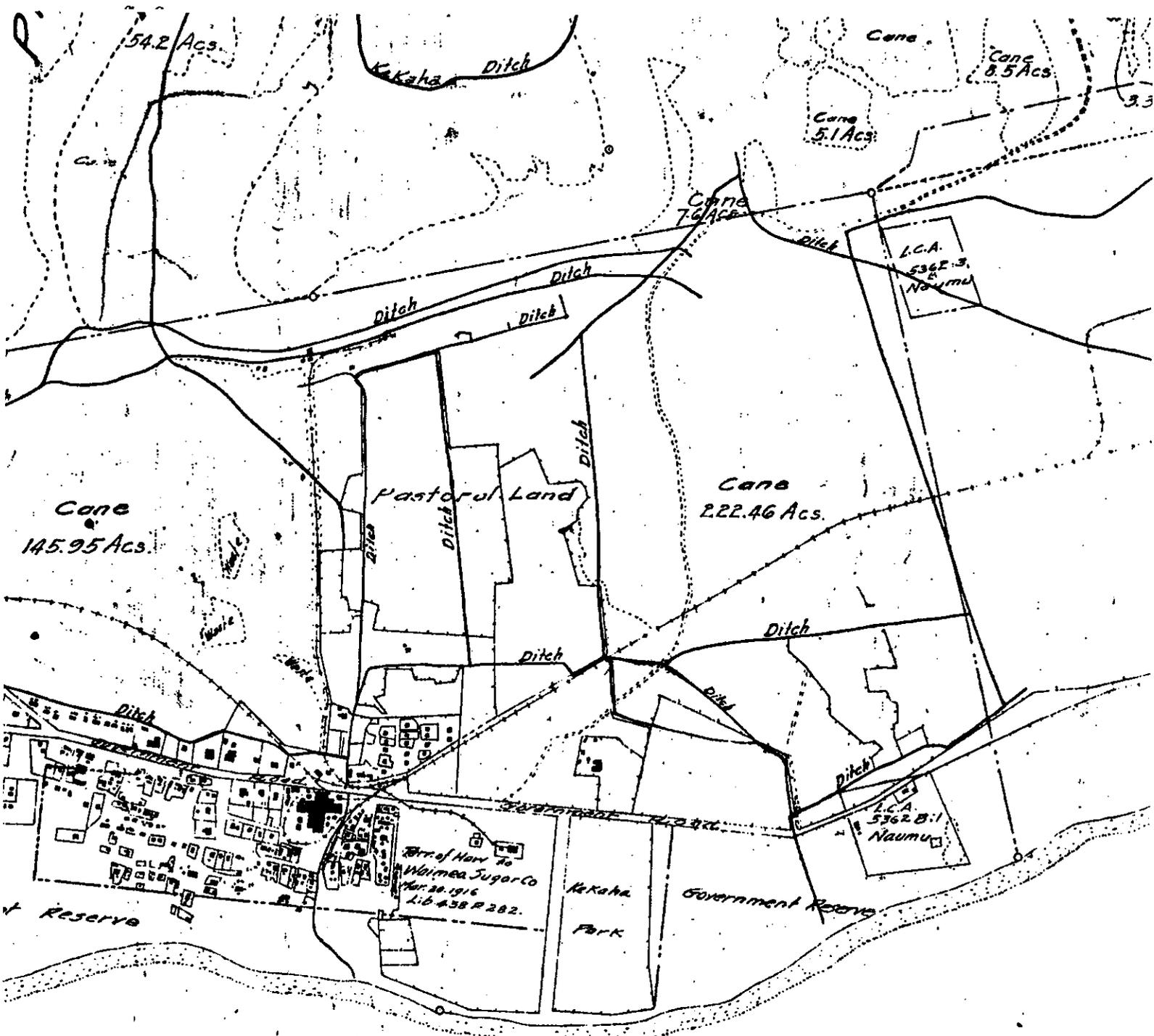


Figure 6 T. J. Evans Map of Kekaha Cane and Pasture Lands, circa 1921

OWNERS OF PARCEL 13  
Eloso Malama - 1/2  
Keiki Malama - 1/4 - 1/4  
Joe Ku Malama - 3/4 - Rdn.

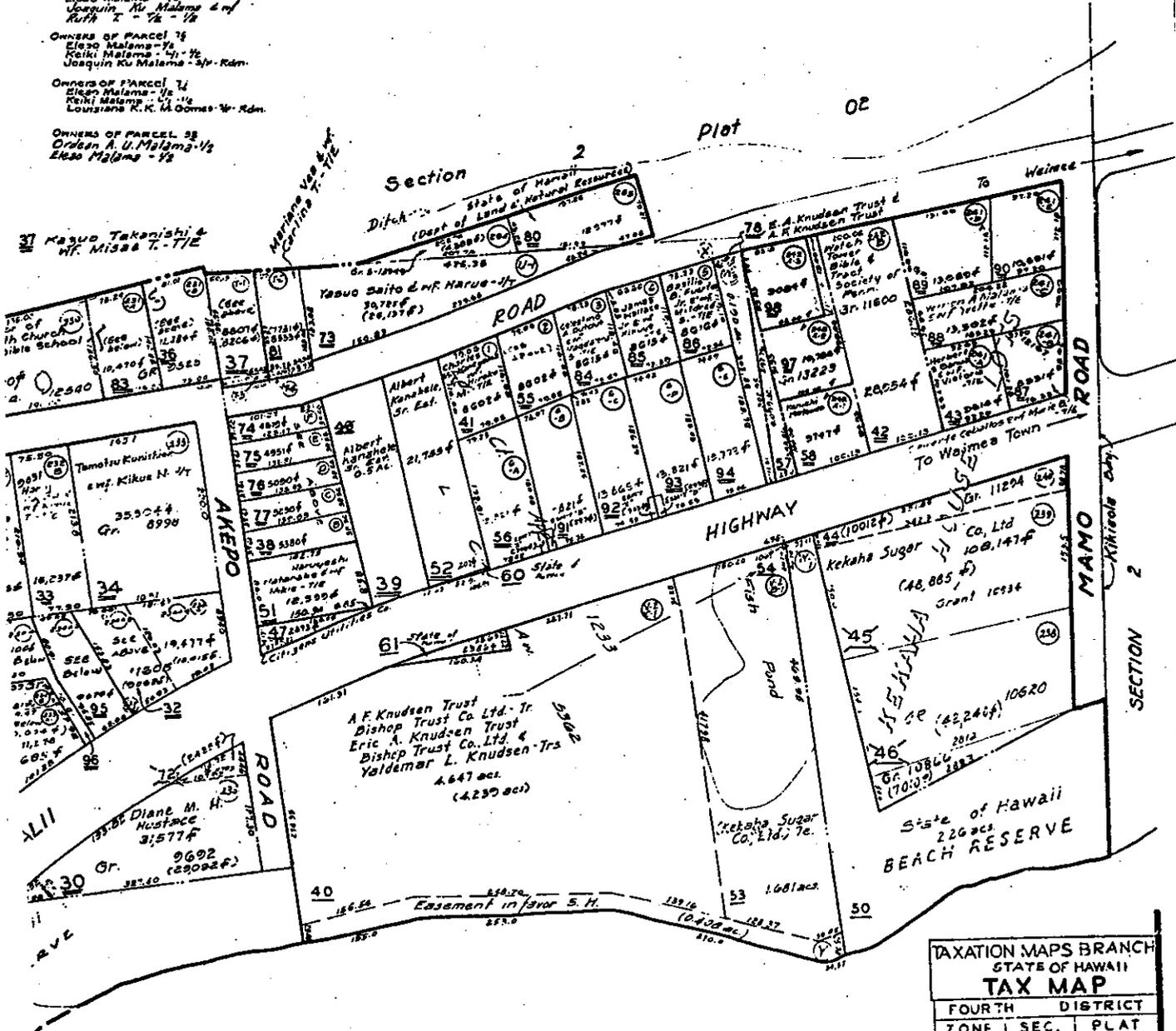
OWNERS OF PARCEL 18  
Eloso Malama - 1/2  
Joaquin Ku Malama & w/  
Kath T. - 1/4 - 1/4

OWNERS OF PARCEL 19  
Eloso Malama - 1/2  
Keiki Malama - 1/4 - 1/4  
Joaquin Ku Malama - 3/4 - Rdn.

OWNERS OF PARCEL 21  
Eloso Malama - 1/2  
Keiki Malama - 1/4 - 1/4  
Joaquin Ku Malama - 3/4 - Rdn.

OWNERS OF PARCEL 28  
Ordean A. U. Malama - 1/2  
Eloso Malama - 1/2

55 State of Hawaii and P. O. Box 111  
Edward J. Fogarty and Maye K. - 1/2 - Rdn.



TAXATION MAPS BRANCH		
STATE OF HAWAII		
TAX MAP		
FOURTH	DISTRICT	
ZONE	SEC.	PLAT
1	3	05
CONTAINING PARCELS		
SCALE: 1 in. = 100 ft.		

31 Walter D. Ines & w/  
Mercedes N. - T/E

83 John C. Taylor & w/  
Satsuki - T/E

56, 57, 58, 59, 60  
Bib June C. Franklin - 3/4  
Joseph W. Fitz - 1/2

Dropped parcels - 12, 19, 20, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60

Figure 7 Tax Map 1-3-05 Showing Area of Naumu Land Commission Award

Eventually Knudsen controlled the entire district, excluding *kuleana* lands, from Nu'alolo to Waimea, including all the *mauka* area (E. Knudsen 1945:35). In this post-Mahele era, he held the title of *konohiki*, and Hawaiians with no *kuleana* of their own who lived in the district, reportedly numbering three to four hundred people, worked for Knudsen three days out of the month as "rental" payment (Von Holt 1985:61).

As a side note, among the employees on Knudsen's ranch was a young Hawaiian from Kekaha named Ko'olau who would later become famous as the leprous "outlaw" who defied banishment to the leper settlement at Kalaupapa, Moloka'i and successfully held off a siege by government troops on his refuge in Kalalau Valley on the Nāpali coast of Kaua'i (Hofgaard 1991:108-109).

Knudsen described Kekaha as "a low marsh land, full of fish ponds and cocoanut-trees, but the ponds are overgrown with bulrushes and would cost more than they are worth to bring in order. I tried once and it cost me circa \$200.00. - There is not much grazing lands belonging to Ketaha and it is chiefly pili grass" (V. Knudsen 1866:304).

Valdemar's son Eric, later made this observation (1991:98):

From Waimea towards Mana there were no tree, no fences, no cane, all was open country; along the taro patches of Kekaha and Pokii grew quite a number of cocoanuts. The mango trees were planted by my father. Numbers of Hawaiians lived about Kekaha and Pokii, where there were springs and taro land. Then the land was bare again until you reached Waiawa. Above the road in Pokii, where the cane loaders now stand, was a row of thatched houses and the natives planted a lot of tobacco.

Evidently the area had changed little since Beresford's visit in 1787.

The perpetual swamplands of the plain apparently were greatly enlarged during periods of heavy winter rains. It was possible on these occasions to paddle a canoe from Mānā to Waimea on this inland waterway (*Ibid*:99; Von Holt 1985:77-78).

Waterfowl present in the wetlands provided a food resource for the area residents. Among them the koloa and especially the 'alae and āe'o (kukuluāe'o) were numerous (Von

Holt 1985:78). All three were traditionally caught and consumed by the Hawaiians (Malo 1951:39).

Kekaha was watered by a spring called Kauhika located at the base of the *pali*. The spring had a fishpond, then taro *lo'i* and rice fields before flowing into the swamp (E. Knudsen 1945:62).

Most of the residents also lived in this area, near the water source and cultivatable lands. An anecdotal description is given by Eric Knudsen (1991:101, 102):

A row of grass houses extended all the way along the foothills from Waimea to Mana. Every house site had a name. To find a man you had to find his house name. The natives seemed to know every name and would keep sending you along until you finally came to the spot you were looking for.

At certain hours all the women sat in their houses and beat tapa cloth and as they beat they talked to one another in a tapa beater's code. They could send a message with great speed from Waimea to Mana. When the men returned from the mountains with fire wood or canoes, the woman that saw them at once tapped out the news and it flew from house to house with the result that every man, when he came home, found his house in order and no surprised visitors hanging around. The men tried to learn this secret code but never did, though an old man at Mana told my father that the men had tried for years to learn the secrets of the tapa code but were never able to do so.

The grass houses were all built in one general design - one big living room and two doors - one on each side and opposite to one another. One day my father noticed that all were built with their gable-ends east and west and the doors facing the ocean and the hills. He asked one of the men why that was so and he replied, "Why, you know that Po, the abode of the dead, lies under the ocean just outside Polihale, where the cliffs and the ocean meet, and the spirits of the dead must go there. As the spirits wander along their way to Po, they will go around the gable-end of a house but if the house stood facing the other way, the spirits would walk straight through and it would be very disagreeable to have a spirit walk past you as you were eating your meal. "In fact," he continued, "we can always tell when a battle has been fought by the number of spirits passing at the same time."

Between the swamp and the shoreline was a broad sand deposit, likely inhabited by fishermen on the *makai* side. At Pu'upu'upa'akai ("salt piled in heaps") on the shore

directly *makai* of the sugar mill, was the only canoe landing through the reef in the area. A "large settlement" was there with "canoe sheds lining the beach" (E. Knudsen 1945:50).

### **Rice Cultivation**

Commercial rice growing came to the Kekaha-Mānā plain in the 1860s. The area's most prolific planter was Leong Pah On, a Chinese immigrant (Joesting 1984:206).

Pah On started farming in Waimea Valley and eventually met Valdemar Knudsen who allowed him to cultivate the swamp lands. He imported Chinese laborers, drained the swamps with ditches brought in water buffaloes and eventually acquired more land. At his peak he had about 600 acres in rice throughout Mana, Kekaha and Waimea (Char 1979:21).

Pah On's enterprise ended suddenly in 1922. The leases on government lands were expiring and H. P. Faye, manager of the Kekaha Sugar Co. convinced Pah On not to bid on new leases and let the sugar company take over control of the land. In return Kekaha Sugar would sub-lease the rice fields back to Pah On. The successful rice grower could have easily out-bid the sugar concern, but agreed to the plan. When Kekaha Sugar secured the leases its board of directors overruled Faye and denied any subleases to Pah On (*Ibid.*:22).

### **Sugar**

The Reciprocity Treat of 1876 between the United States and Hawai'i gave impetus for the expansion of the sugar industry throughout the islands. The first commercial cane in the Kekaha area was planted in 1878 near Pōki'i by Knudsen and a partner, Christian L'Orange. Hane P. Faye, Knudsen's nephew, was brought in as another grower, and it

was he who dug the first artesian wells in the islands at Kekaha. With a steady but still small water source, investors showed interest and the Kekaha Sugar Co. was incorporated in 1898 (Wenkam 1977:63; Joesting 1984:216-217). The mill was set up on the sand lands of Kekaha at the *makai* edge of the swamp, its foundations set deep into the underlying coral (E. Knudsen 1945:161-162).

The Kekaha Sugar Co. saw expansion after 1907 when the construction of the plantation's major irrigation ditch was completed. The engineering feat brought water to the area from eight miles up the Waimea River via a series of ditches, flumes, tunnels and siphons (Thrum 1918:158-159).

#### Summary and Settlement Patterns

A settlement pattern emerges through the study of historical material concerning the Kekaha area.

Permanent habitation areas were mainly among the *mauka* foothills, at the bases of the shore-facing cliffs. Extending up the gulches were agricultural areas watered by rainfall and intermittent streams. This has been confirmed by the archaeological investigations of Bennett (1931:103) and Sinoto (1978:2-6).

*Makai* of the foothills were fishponds and cultivated wetlands fed by springs. Beyond this was the great swamp, then the broad stretch of the sand lands which continued to the shoreline. Fishing camps and other temporary habitation areas existed on the beach and in the inland stretches of the sand there were burials.

This scenario was likely in place at the time of first western contact and remained relatively undisturbed throughout most of the 1800s.

Since then, much physical evidence of this settlement pattern has been obliterated

by commercial agriculture and other operations. The foothills and wetland areas have been extensively planted in cane, livestock has been run up the gulches, and even the beach areas have been much disturbed by massive shoreline stabilization projects.

### **Archaeological Research in Kekaha**

There has been little large-scale and systematic archaeological research in the Kekaha area. The authors checked with the Hawaiian Homes Land Planning Office in Honolulu and were told that no systematic survey of the Kekaha area was done by them, although notes had been gathered in old times (Mr. Charlie Ice, Pers. Comm.) However, the sizeable number of small-scale studies have covered a variety of terrain and elevations. A summary of these studies can help in developing a predictive model for site location in this leeward environment.

#### Narrow Valleys and Ridges

William Bennett, in his 1931 *Survey of Kauai* (Bennett 1931), recorded major prehistoric sites in the vicinity of Kekaha (Sites 11-16). These are listed by Bennett as

Site 11. Makahoe heiau and village site on Niu ridge, Kaunalewa.

A small, platform village shrine. Thrum describes the village as "Four and one-half miles from the coast and at an altitude of 1200 feet. This village had about 0.5 acres of taro land besides the dry crops to depend on." On the inland side of Niu ridge small valleys are found with small streams and a few taro terraces. Petroglyphs were reported for this area.

Site 12. Hooneenuu heiau, along the ditch line inland from the government road near the center of Kaunalewa ridge.

Site 13. Burial caves, on Kaunalewa ridge.

Site 14. Two small heiaus, near Waiawa, described by Thrum as a 12 by 20-foot shrine, and an 18 by 28-foot shrine.

Site 15. House sites and taro terraces, in Waiawa valley.

Some taro lines may still be seen in lower Waiawa valley. Many house sites are in evidence. They consist for the most part of leveled ground, faced in front with stone, or merely outlined with stone.

Site 16. Hauola heiau, in Hoesa valley at the base of Hauola ridge.

Site 17. Burial caves, on Pokii ridge (Bennett 1932:102-103).

Bennett provides greater detail on these sites in his text, but the important point is that he shows habitation evidence in small valleys dissecting Niu Ridge as well as on the ridge itself. Waiawa Valley contains "many" house sites and associated taro *lo'i* and *heiau* appear both in valleys and on ridges.

A check of the USGS Map shows that even the narrowest valleys and ridges have names and if one compares this to other dissected slopes in leeward environments. The place names are not always so ubiquitous on small features such as these.

Bennett's Survey apparently predated at least some of the land impact associated with sugar growing and was early enough to record sites at the base of the Waimea slope and to allow us to take note of the former importance of this area for the traditional Kekaha Hawaiians.

Sinoto returned to the bases of these narrow valleys overlooking present Kekaha Town in 1978 during a study for potential rock borrow areas for the Corps of Engineers (Sinoto 1978). Archaeological sites were noted in Waiakea, Pawa, Waipoao, Waiawa, Kahoana and Hō'ea. These sites survived in spite of heavy impact of sugar activities and grazing and provide reinforcement for this particular zone edging on the Kekaha flats as being a focus of permanent Hawaiian habitation with a steady supply of water from springs.

### The Swamp Lands

The swamp lands between the cliffs and the sand flats are now the level sugar fields of Kekaha. Draining of the once giant swamp for agriculture began before this century and presently archaeological potential here is nil. However, this does not mean that the Hawaiians did not use this land. Its fringes would be useful for taro, and water fowl must have been abundant at times. There are accounts of widespread seasonal flooding of these lands. It is a reminder of the adaptability of Hawaiian planters to recount a unique method of taro growing practiced at Mānā as related by Pukui,

As the plants grew, the rootlets were allowed to spread undisturbed, because they helped to hold the soil together. When the rainy season came, the whole was flooded as far as Kalamaihiki, and it took weeks for the water to subside.

The farmers built rafts of sticks and rushes, then dived into the water. They worked the base of the taro mounds free and lifted them carefully, so as not to disturb the soil, to the rafts where they were secured. The weight of the mounds submerged the rafts but permitted the taro stalks to grow above the water just as they did before the flood came. The rafts were tied together to form a large, floating field of taro (Pukui 1983:232).

### The Sandy Plan and Shoreline

The bulk of the short archaeological studies in Kekaha have been done on the flat lands near the coast. Sand deposits between the swamp lands (now drained sugar fields) and the ocean have high potential for shoreline occupation and scattered human burials, particularly along the *mauka* fringes of the sand bar.

Human burials have been discovered in sand deposits in Waimea Town to the east of Kekaha (Cox 1975; Kikuchi 1985) and short archaeological reconnaissance studies of sand areas have noted potential for burials even though none were immediately found (Ching 1982; McMahon 1988a, 1988b; Bordner 1977).

Although Bennett recorded cave burials along the slopes and ridges it is also clear

that sand burial was commonly practiced around Kekaha. Although human burials could occur scattered throughout the sandy plains it is predicted that the larger clusters of burials will be found at the *mauka* fringes of the sand bar, fringing onto the former marsh.

An existing public cemetery lies at the east end of Kekaha down Iwipolena Road (See Figure 7). This cemetery of nearly 2 acres was examined during the present project. Tombstones show interments throughout the last fifty years in the main part of the cemetery. However, at the northern end are older style graves marked by rectangular stone alignments and stone-lined earthen mounds. It could be that this cemetery has been in use well into the last century and perhaps even before.

Closer to the shoreline would have been the fishing oriented settlements now represented by cultural layers buried in backshore sand deposits. There were probably also occasional fishponds and salt pans. The occurrence of Hawaiian activity along the shoreline would be strongly influenced by the location of suitable canoe landings. For example, *pu'u pu'u pa'a kai* was a canoe landing *makai* of the sugar mill with a large settlement (Knudsen 1945:50).

In short, we can divide the traditional Hawaiian settlement of the Kekaha region into 5 zones:

1. Ridges above the cliffs for dryland agriculture, forest gathering, and religious structures;
2. narrow valleys and slope bases with intermittent streams, narrow alluvial terraces, and some permanent springs. These areas supported taro growing and permanent habitation. The steep slopes of these valleys would contain burial caves. House sites were reported to be plentiful and closely spaced;

3. The swamp and marsh lands, the fringes of which would have supported taro farming and fishponds and which were probably an important source of water fowl.
4. The *mauka* part of the sand plain would be the preferred location for human burial;
5. Along the shoreline - the fishing camps and the settlements would be clustered around canoe landings with a few small *pu'u one* fishponds and many salt pans.

This can be expressed in table form, hopefully without oversimplifying.

Zone	Environment	Resources	Kinds of Sites
Zone 1	ridges and slopes	Kula land, forest products, dryland cultigens	<i>heiau</i> , burials on slopes
Zone 2	narrow valleys and slope bases	intermittent streams, springs, taro, sugar cane	<i>lo'i</i> , permanent houses, <i>heiau</i> , and terraces
Zone 3	marsh lands	taro, sugarcane, fowl, fish	fishponds, taro <i>lo'i</i> on marsh edges
Zone 4	sand plain, <i>mauka</i> portion	coconuts	clustered burials
Zone 5	sand plain, <i>makai</i> portion	coconuts, marine resources, salt	fishing camps, canoe landings, fishponds, isolated burials, salt pans

### **The Edge Effect**

Perhaps the essence of the dynamic relationship between the Hawaiians and their environment in this fairly unique area is not in terms of a narrow perception of coping with a hot harsh land, but in terms of a concept known in ecology as the "edge effect" or use of ecotones. The most productive environment is that at the edge of 2 ecological zones. The boundaries between environments in Kekaha are sharply defined rather than transitional and most importantly there is much land occurring along these edges between environmental zones. This phenomenon serves to increase options and access to resources for human subsistence and can do much to explain the presence of a particularly flourishing community as reported in historic and archaeological sources.

## SURVEY RESULTS

### Surface Survey

#### Field Methods

The archaeological surface survey of the project area was carried out by walking contiguous parallel transects across the project area in a generally *mauka-makai* or east-west orientation with archaeologists spaced 50-60 feet apart. Ground visibility was good to excellent over approximately 80% of the area because of the presence of grazing animals and very dry climatic conditions. The 20% obscured area was covered by *kiawe* thicket, however, during testing some of the obscured area was penetrated with the backhoe and underwent subsurface testing. Our position in the field, and the location of adjacent survey transect lines were known at all times with the aid of an aerial photograph.

Analysis of the subsurface deposits was accomplished by excavating 55 backhoe trenches (refer to Figure 4) of a minimum of 10 feet in length and of varying depth, depending on cementation of subsurface layers and depth of the ground water table. The trenches were distributed roughly one per acre across the project area. A modern irrigation canal and an associated linear mound were excavated by trenching perpendicular to their lengths to illustrate their recent position in the stratigraphic sequence.

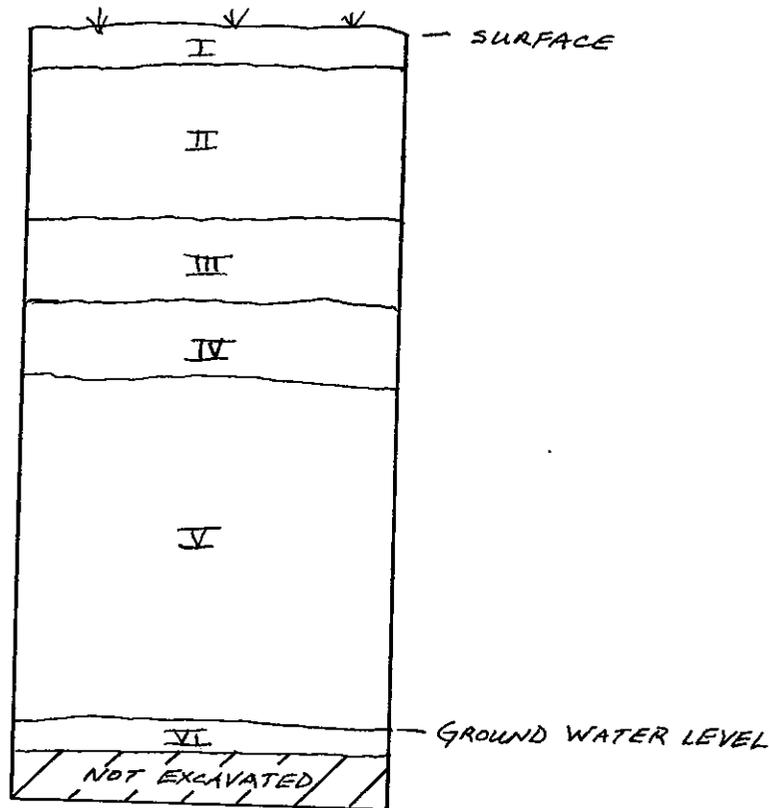
The stratigraphy in each of the 55 trenches was documented by means of profile drawings to scale with soil descriptions, of a representative one meter section. The stratigraphic profiles throughout the project area were uniform and predictable with similar strata and sequences and only minor differences in thickness. For this reason only a typical profile is shown to avoid presentation of repetitive information. Trenches through the modern canal and linear mound were drawn in their entirety.

## Findings

The former natural landform is viewed by us to have been one of linear sand dunes oriented southeast to northwest, created by the northeast tradewind flow as it circles around the east and south sides of Kaua'i. These dunes once extended into the project area from at least as far east as the present day town of Kekaha. The last remnants of the dunes can still be seen there rising 30 to 40 feet (9-12 meters) above the leveled plain, now in cultivation. And the dune bases, on a foundation of beach sand extending well below the ground water level, can be traced across the landscape in various profiles of drainage canals and excavations for water lines and aquaculture ponds and throughout the project area. A typical profile in the project area is illustrated in Figure 8. That these dunes were altered or in large part obliterated by mechanical means to create level graded land for plantation agriculture and pasturage of plantation animals is clear from geomorphic and stratigraphic observations, reinforced by local oral sources - sugar company employees and long-time residents.

Since removal of the upper extent of the sand dunes, a weak A-horizon has developed on the new surface. The A-horizon averages about 10 centimeters thick across the majority of the project area (refer to Figure 8), except where it has been disturbed. There are places where the A-horizon has been removed by recent activity such as vehicular traffic and small scale (individual) sand mining. And beneath the few large trees in the project area the uppermost sediment layers are mixed by the milling of horses there.

Two modern-era surface features are present in the proposed landfill site or project area. These are an irrigation canal of mounded sand, and a low linear sand mound for irrigation control in the pasturages (see Figure 4). Both features stratigraphically post



KEY:

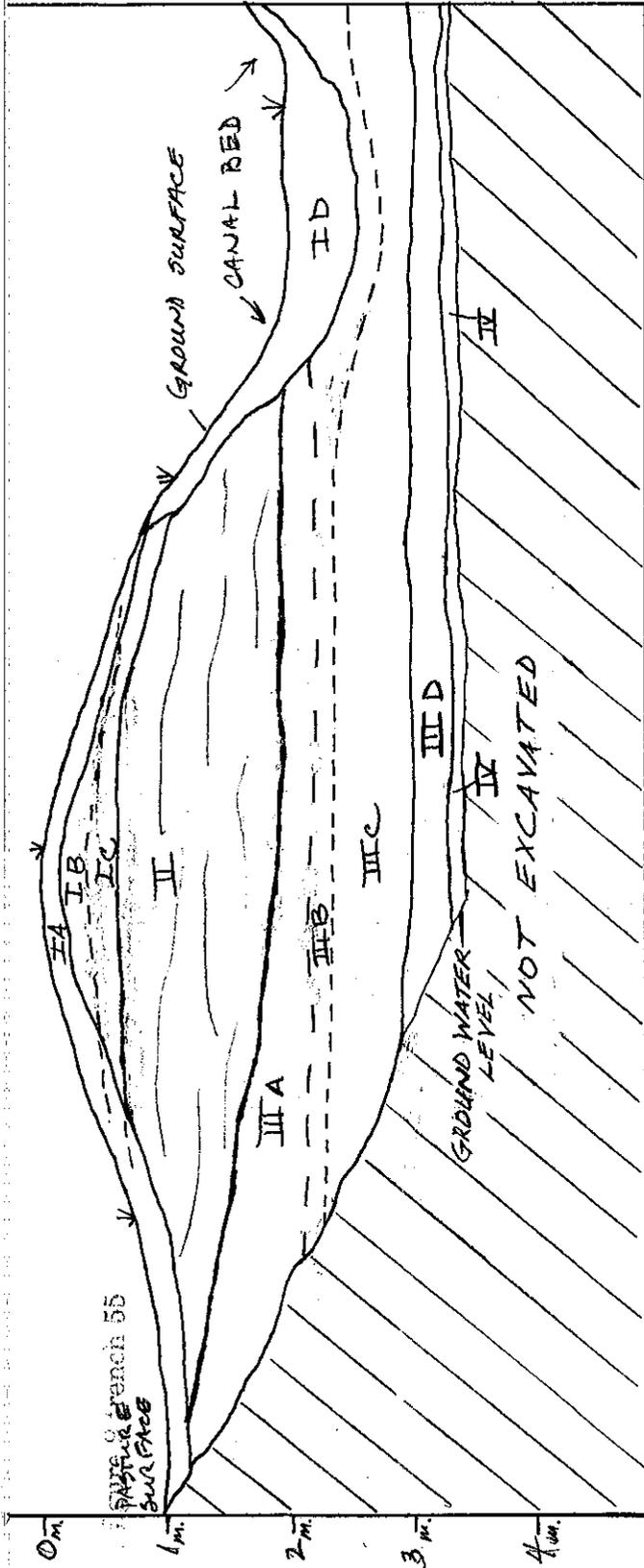
- STRATUM I 10YR 5/3 BROWN. FINE LOAMY CORALLINE SAND. LOOSE. MODERN A-HORIZON. NO CULTURAL MATERIAL.
- STRATUM II 10YR 7/6 YELLOW. FINE, WELL SORTED, CORALLINE SAND. LOOSE EOLIAN DEPOSIT. NO CULTURAL MATERIAL.
- STRATUM III 10YR 8/2.5 WHITE TO VERY PALE BROWN. FINE WELL SORTED CORALLINE SAND. STRONGLY CEMENTED.
- STRATUM IV 10YR 8/6 YELLOW. FINE POORLY SORTED CORALLINE SAND. LOOSE BEACH SAND. NO CULTURAL MATERIAL.
- STRATUM V 10YR 8/4 VERY PALE BROWN. FINE, GRADING DOWNWARDS TO MEDIUM OR COARSE CORALLINE SAND. WEAKLY TO STRONGLY CEMENTED. NO CULTURAL MATERIAL.
- STRATUM VI 5Y 7/1 LIGHT GRAY. COARSE CORALLINE SAND WITH CORAL GRAVELS AND PEBBLES COMMON. LOOSE BEACH OR LAGOONAL DEPOSIT. NO CULTURAL MATERIAL.

Figure 8 Trench 43, Illustrating The Typical Profile in Project Area

date the removal of the sand dunes from the project area, and were pointed out by Mr. William Martin of Kekaha sugar company, as having been made in the 1950s for experimental farming of these sandy lands.

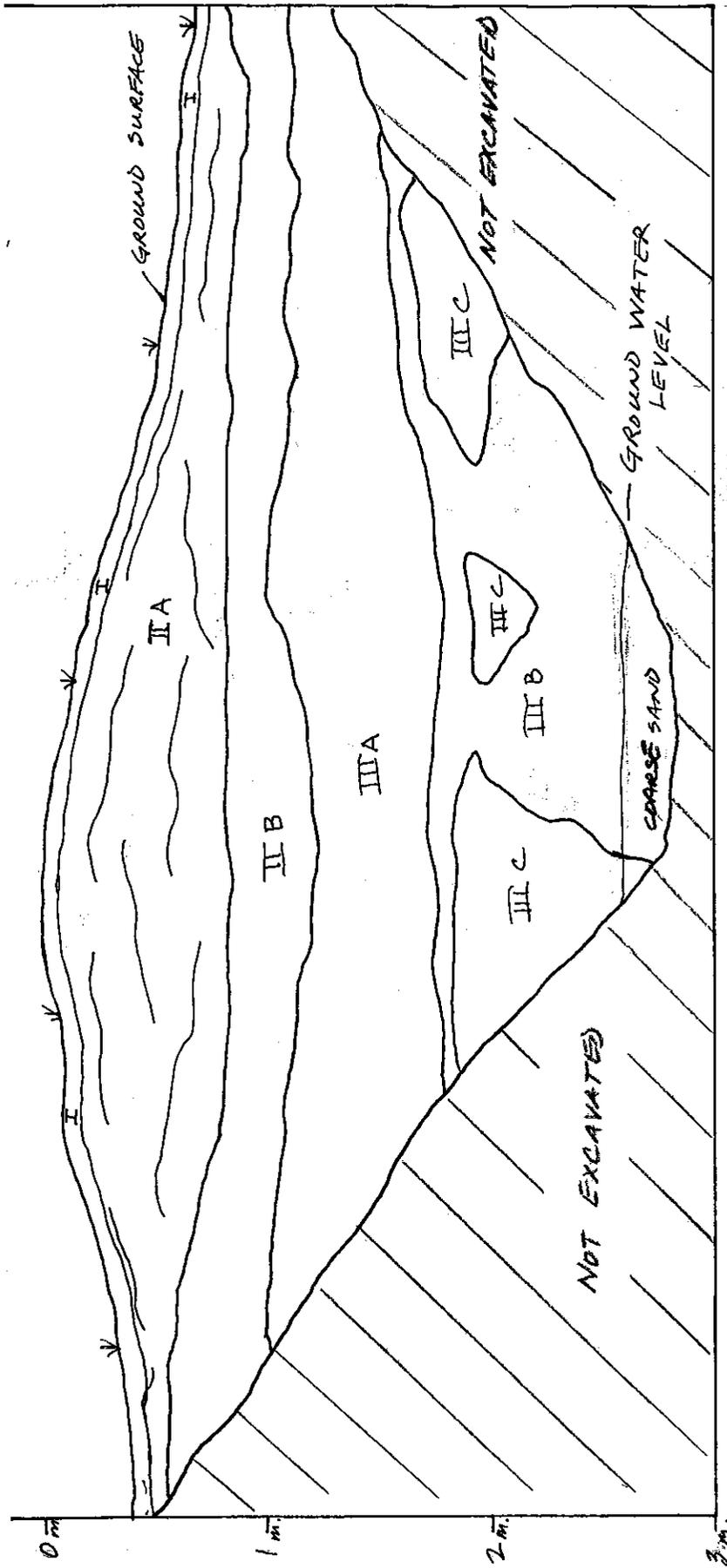
The irrigation canal (Figure 9) is a large feature made from two parallel mounds of sand over 6 feet (about 2 meters) in height. These features are oriented in a north-south direction, cutting the project area in two. The bed of the canal formed by the mounded sides is at a lower elevation than the ground surface outside of the canal.

The low linear mound for irrigation control runs roughly perpendicular to the length of the irrigation canal (refer to Figure 4). On the surface, the linear mound is clearly visible for much of its length, rising about 3 feet above the surrounding ground surface. The mound itself is composed of slightly compact, silty coralline sand with horizontal mottles of brown and light brown color (Figure 10). This mottling is physical evidence of mechanized construction of the mound by scraping and piling up the surrounding area's surface layers. Thus, the mound construction post dates removal of the ancient dunes, and development of the modern A-horizon in the project area. The linear mound extending out from the opposite side of the drainage canal was also cross sectioned, by Trench 13 (Figure 11), and yielded similar findings for the age and character of the linear mound.



- KEY:
- STRATUM IA 104R5/3 BROWN, LOAMY SAND MODERN A-HORIZON. LOOSE.
  - STRATUM IB 104R 7/3 VERY PALE BROWN, MEDIUM SAND. LOOSE.
  - STRATUM IC 104R 6/4 LIGHT YELLOWISH BROWN, VERY FINE SAND. LOOSE
  - STRATUM ID 54R 6/8 GRADING DOWN TO 54R 4/6 SILTY SAND. CEMENTED.
  - STRATUM II 104R 4/4 DARK YELLOWISH BROWN WITH HORIZONTAL MOTTLES OF 104R 5/4 YELLOWISH BROWN LOAMY SAND. CANAL CONSTRUCTION LAYER. LOOSE.
  - STRATUM III A 104R 7/6 YELLOW FINE SAND. SLIGHTLY COMPACT.
  - STRATUM III B 104R 7/6 YELLOW, MEDIUM SAND 10% LAVA GRANS
  - STRATUM III C 104R 7/6 YELLOW, FINE SAND. INCREASING CEMENTATION
  - STRATUM III D 104R 8/3 VERY PALE BROWN. STRONGLY CEMENTED FINE SAND.
  - STRATUM IV 54R 1/1 LIGHT GRAY, VERY FINE SAND. LOOSE.

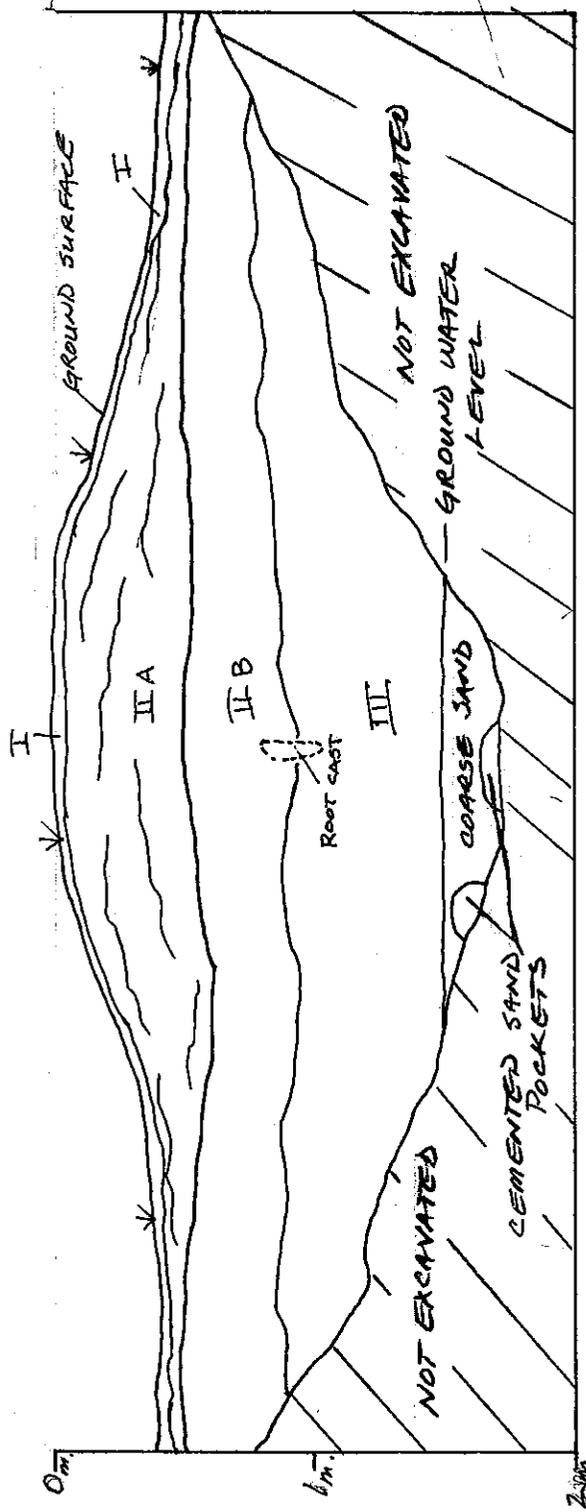
Figure 9 Trench 55 Profile of North Face Showing West Bank and Bed of Drainage Canal



0 0.5 1.0  
METERS

KEY:  
 STRATUM I 104R 5/3 BROWN, LOAMY SAND  
 MODERN A-HORIZON, LOOSE.  
 STRATUM II A 104R 7/3 BROWN WITH HORIZONTAL  
 LAMINAE OF 104R 6/3 PALE BROWN,  
 LOOSE, LOAMY SAND, LINEAR  
 MOUND CONSTRUCTION LAYER.  
 STRATUM II B 104R 7/1 LIGHT GRAY LOAMY  
 SAND, LOOSE  
 STRATUM III A 104R 7/4 VERY PALE BROWN,  
 MEDIUM SAND, SLIGHTLY  
 CEMENTED.  
 STRATUM III B 104R 8/2 WHITE, FINE SAND,  
 CEMENTED.  
 STRATUM III C 104R 8/4 VERY PALE  
 BROWN, COARSE, UNSORTED  
 SAND.

Figure 10 Trench 29 North Profile



- KEY:
- STRATUM I 104R 5/3 BROWN, LOAMY SAND. MODERN A-HORIZON
  - STRATUM II A 104R 4/3 BROWN WITH HORIZONTAL MOTTLES OF 104R 6/3 PALE BROWN, LOOSE, LOAMY SAND. LINEAR MOUND CONSTRUCTION LAYER.
  - STRATUM II B 104R 7/2 LIGHT GRAY, LOAMY SAND, LOOSE.
  - STRATUM III 104R 8/4 VERY PALE BROWN. FINE TO MEDIUM, UNSORTED SAND.

Figure 11 Trench 13 South Profile

## SUMMARY AND RECOMMENDATIONS

### **Site Significance**

The canal and linear mound, both constructed in the 1950s by the mounding up of sand deposits derived from the surrounding area, are of recent age relative to the removal of the former sand dune deposits for plantation use of the lands. This is clearly evident in that they are constructed upon the ground surface that was created by the truncating and grading of the original dunes to the present elevation. Neither feature is an historic site.

No historic cultural resources were evident in the project area or in the subsurface deposits. It is likely that if cultural resources were present in the project area in the past they were removed with the sand dunes.

### **Recommendations**

No further archaeological study is recommended for the proposed landfill expansion site.

Archaeological monitoring on site was initially proposed during removal of the remaining sand deposits at the proposed site. However, the shallow depth of cemented sand deposits, and the truncated character of the ancient dunes here may argue against the necessity -for on site monitoring.

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**Appendix C**  
**Photo Log**





Photo 1. View toward the southeast from Kaumuali'i Highway – 0.2 mile from KLF.



Photo 2. View toward the southeast from Kaumuali'i Highway – 0.6 mile from KLF.



Photo 3. View toward the southeast from Kaumuali'i Highway – 0.9 mile from KLF.



Photo 4. View toward the southeast from Kaumualii Highway -1.3 mile from KLF.



Photo 5. Entranceway to KLF on Kaumuali'i Highway.



Photo 6. View toward the northwest from Kaumuali'i Highway – 0.2 mile from KLF.



Photo 7. View toward the northwest from Kaumuali'i Highway – 0.5 mile from KLF.



Photo 8. View toward the northwest from Kaumuali'i Highway – 1.1 mile from KLF.



Photo 9. Makai-mauka viewplane from the shoreline adjacent to KLF.



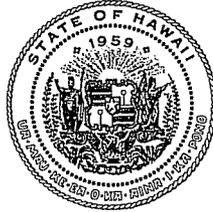
Photo 10. Makai-mauka viewplane from the shoreline adjacent to KLF.



**Appendix D**  
**Comments and Responses**



LINDA LINGLE  
GOVERNOR OF HAWAII



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

DIVISION OF FORESTRY AND WILDLIFE  
KAUAI DISTRICT  
3060 EIWA STREET, ROOM 306  
LIHUE, KAUAI, HAWAII 96766

August 16, 2007

LAURA H. THIELEN  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

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

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

Re: Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kaua'i, Hawai'i.

Dear Ms. Mason,

The Kaua'i Division of Forestry and Wildlife has reviewed the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kaua'i, Hawai'i.

We recommend that any and all outdoor lighting needed at any time during the lifetime of the project is fully shielded lights that achieve best possible protection against causing attraction of endangered and threatened seabirds such as Newell's shearwater and Hawaiian petrel.

Attached are outdoor lighting guidelines for future reference.

If you have any questions on lighting, please call Ms. Andrea Erichsen, Kauai Seabird Habitat Conservation Planning Coordinator at 808-338-1361 or 808-346-3489 cellular.

Mahalo,

A handwritten signature in black ink, appearing to read "Alvin Kyono".

Alvin Kyono  
Kauai Branch Manager

cc: Nelson Ayers, DOFAW Administration

attach.





www.hawaii.gov/dlnr/

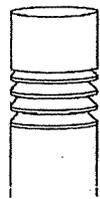
www.dofaw.net

# ACCEPTABLE ONLY WITH PROPER BULB(S)

# UNACCEPTABLE

**WALKWAY/PATH LIGHTING**  
**STREET/PARKING LIGHTING**  
**ARCHITECTURAL LIGHTING**

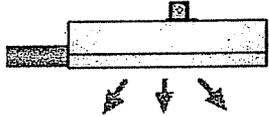
**Bulbs for all fixtures should be of the Yellow 'Bug' Light variety incandescent or compact fluorescent.**



Low Profile Bollards with Louvers



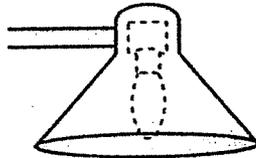
Fully Shaded NEMA Light



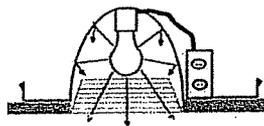
Full Cutoff Low Pressure Sodium Streetlight



Canister Downlight



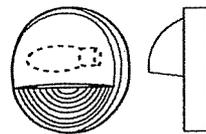
Downlight



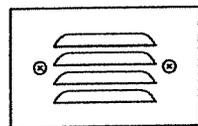
Recessed Can w/ baffles



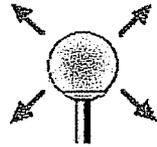
Glare Buster



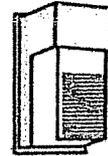
'Eyelid' Step Light



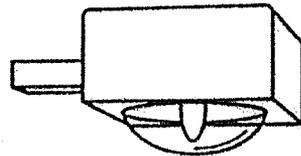
Louvered Step Light



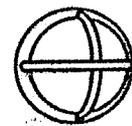
Globe Fixture



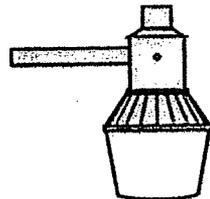
Wallpack



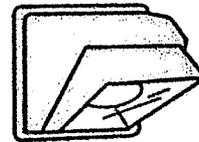
Drop-Lens/Sag-Lens w/ exposed bulb



Nautical Wall Sconce



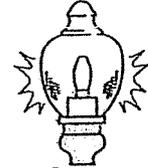
NEMA Security Light



Shielded Security Light



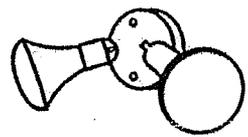
Unshielded Carriage



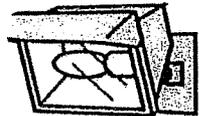
Acorn Fixture



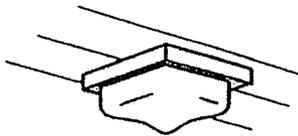
Unshielded Streetlight



Floodlight



Partially Shielded Floodlight

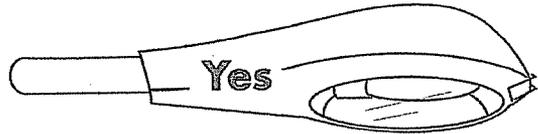
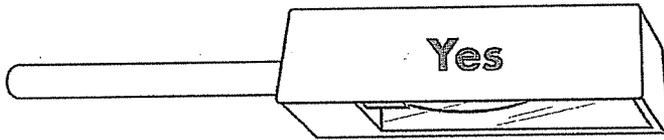
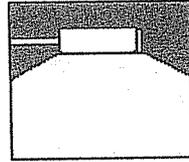


Drop-Lens Canopy Light

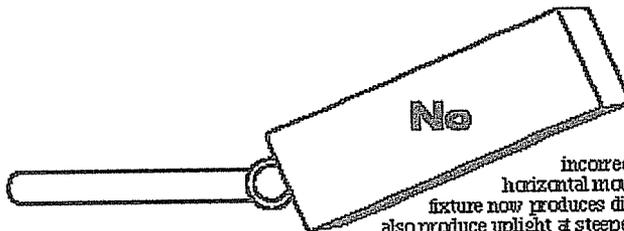
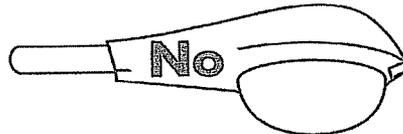
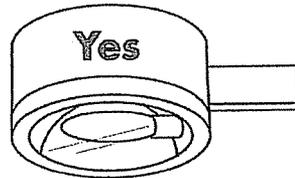
10/98

International Dark-Sky Association – Information Sheet 143

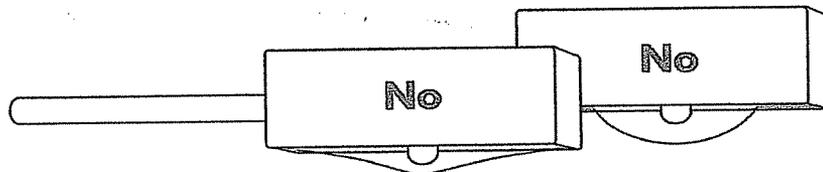
### What is a True "Full Cutoff" Outdoor Lighting Fixture?



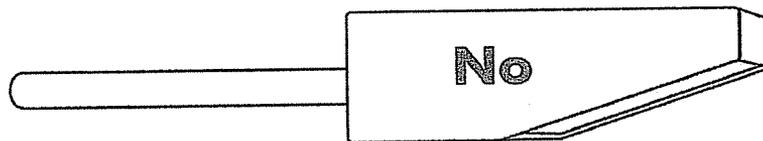
Flat glass lens, eliminates or minimizes direct glare, no upward throw of light. The housing for these fixtures is available in many styles.



Same fixture as above mounted incorrectly—defeating the horizontal mounting design. The fixture now produces direct glare, and can also produce uplight at steeper mounting angles.



Known as just "Cutoff". Center "drop" or "sag" lens with or without exposed bulb, produces direct glare.



## Security Lighting: Let's Have Real Security, Not Just Bad Lighting

One of the main goals for nighttime lighting is to have good safety and security at night, both at home and away from home, for ourselves, our families, our homes and property, and indeed for everyone. However, the task is to be safe, not just to feel safe. This means that we need effective and efficient lighting. Good visibility is the goal. We want to be able to see well, rather than just lighting the criminal's way. This goal exists for us at home, on the streets, in parking lots, at work, wherever. Good lighting can be a help; poor lighting always compromises safety.

Most crime actually occurs during the day, or inside buildings. However, we want the feeling and the reality of being safe outside at night. That does not mean putting in the brightest light we can find, blinding everyone in the area, creating light trespass, and lighting up the night sky. What we do need is effective lighting, lighting that puts light where we need it (and nowhere else) and where it will help visibility. That means: no glare, no light trespass, no direct uplight, no harsh shadows, no steep transitions from light to dark, etc. Lighting by itself does not insure safety. Is there more crime in the "well lit" centers of large cities or in smaller towns with much less lighting? A cynic might derive a positive correlation between crime and light: the more light, the more crime. Current and past studies by competent crime authorities can be summarized as follows: "The paucity of data preclude any definitive statement regarding the relationship of lighting and crime, but there is a strong indication that lighting decreases the fear of crime." Quality lighting rather than poor lighting is essential for any real security.

Here are some examples of bad security lighting—lighting that too often compromises safety. These poor quality fixtures can give the illusion of safety or the feeling of security, but in reality they don't add to safety at all; they often make things worse. They are beacons to the criminal: "Come and get me, my lighting will help you, not me." In essence, criminal friendly lighting.

**1. The 175-watt dusk-to-dawn "security light".** This fixture was designed in the old days when energy was cheap, when there were no good lighting fixture designs, and when the adverse effects of bad lighting were not

well appreciated. It sells for \$29.95 or less, but uses over 200 watts of power. That means it costs about \$70 per year to operate in most locations—much more in high electricity cost areas. A good deal of the light output is wasted, going up or sideways where it does no good at all. It has a great deal of glare, often blinding the homeowner and others. It splatters light everywhere, alienating neighbors. It casts harsh shadows behind trees and buildings, allowing criminals plenty of dark areas to hide in. It is a prime example of bad lighting. But it is in use by the millions throughout the country. Why? It's cheap, and bright. We see lots of glare so we think there is lots of light. But it is a most ineffective and inefficient light. (See IDA Information Sheets No. 3, 26, and 103 for more information.)

**2. Globes.** Again, light is splattered everywhere. Because it wastes so much light, one must put a high-wattage lamp inside to get any light on the ground. That means a great deal of glare is produced, so much that often one can't easily see the ground! Why are so many of these inefficient fixtures used? Mainly because they look good in the daytime! If one likes that look, then one should use only a very low wattage lamp (as in the days of gas lighting), preserving the daytime appearance and providing a nice nighttime "ambience". One can install a separate, quality lighting system to light the ground. There is no glare or light trespass from this good system, so it doesn't detract from the looks of the globes. One gets the desired attractiveness and also good lighting and safety. It costs more initially, but there is now good lighting.

**3. Poorly shielded "wall packs" or similar fixtures.** These also splatter light everywhere, some of the light getting where needed but most being wasted. They also create lots of glare. Well-shielded wall packs can be excellent light sources, but one must be sure of what one is buying. Some wall packs have good light control, many nearly none.

**4. Poorly designed or installed flood lights.** Flood lights can be good, if they have good light control. But they must be well-designed and well installed to

*continued*

take advantage of their pluses. Often they are poorly installed, aimed at what seems a random direction or, worse, right at the street (causing terrible glare for motorists) or at the neighbor's yard or bedroom window. We have all seen many examples of such bad lighting at night.

Enough of the bad, here now are some examples of good quality security lights:

1. A well-shielded low pressure sodium (LPS) fixture: well-controlled light, energy efficiency, no glare. A lack of color rendering is not a disadvantage for most security lighting. Visibility is excellent with LPS lighting.
2. A similar full-cutoff high pressure sodium (HPS) or metal halide (MH) fixture, or the new low-wattage compact fluorescent (PL) lamps used in good fixtures: no uplight and no glare.
3. Well-controlled and installed flood lights or spot lights. These need great care in design and installation to be in the "good" camp, for most all present installations are clearly not that way.
4. The infrared sensor spot lights that come on when someone walks into the field of view of the infrared (IR) detector. (They can activate an alarm too, if wanted.) These are very cost-effective and are effective security lights. They scare intruders away, they offer good visibility to the homeowner when needed (e.g. when taking out the garbage, or when there is an intruder). They must be installed so as to put the light only where it is needed, not shooting up into the sky or onto the neighbor's property. Under the house's eave is often a good location.

To see well, we need adequate light, but not too much. Too much can ruin our adaptation to darker areas at night, blinding us just when we need to see. When we go from too bright to too dark or vice versa, we have poor visibility for a while. This effect is called "transient adaptation", and good designs should minimize its adverse effect on visibility.

To see well, we need to minimize any glare. Glare never helps visibility. To see well, we need to minimize any dark areas near well-lit areas. This means good lighting design is required.

To see well, we must not allow the eye to be flooded with too much light when driving or walking at night. "Luminance overload" can easily compromise vision and dark adaptation.

Think, too, about energy savings. We should not waste light nor use inefficient light sources. We waste far too much energy and money (over a billion dollars annually in the U.S.A., much more throughout the world) due to poor lighting.

What else can we do to maximize safety at night? Here are some ideas (consult libraries, the local police, companies specializing in security equipment, and others for details and other ideas): Use good locks, use a peep hole in the door to see who is there before answering the door, have an effective alarm system, include motion sensors (such as are used in the IR spot-light mentioned above), have good phone sense (what you say when answering the phone or on your answering machine), play the radio when gone, put indoor lights on a time switch, put good labels on your property (and put security labels on your windows), have a dog, join or promote a neighborhood watch program (one of the best ideas: promote quality outdoor lighting through such a group, too!), and so forth.

Write IDA for a list of additional information sheets about outdoor lighting; we also have excellent slides that illustrate the differences between poor lighting and quality lighting.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: DFW Kauai District  
 Date: August 16, 2007

Comment No.	Comment
1	<p>The Kaua'i Division of Forestry and Wildlife has reviewed the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kaua'i, Hawai'i.</p> <p>We recommend that any and all outdoor lighting needed at any time during the lifetime of the project is fully shielded lights that achieve the best possible protection against causing attraction of endangered and threatened seabirds such as Newell's shearwater and Hawaiian petrel. Attached are outdoor lighting guidelines for future reference.</p> <p>If you have any questions on lighting, please call Ms. Andrea Erichsen, Kaua'i Seabird Habitat Conservation Planning Coordinator at 808-338-1361 or 808-346-3489 cellular.</p>

Response: Existing outdoor lighting at the KLF is limited to street lighting and outdoor lights placed above the maintenance shop, employee kitchen, employee restroom, and supervisor's doors. Normal operating hours are 7:00 a.m. to 5:00 p.m. Lighting is generally only needed during the early morning or evening hours during the winter months, when daylight hours are reduced. Outdoor lighting is controlled by timers which automatically turn off outdoor lights after the facility has closed and site personnel have left. Because placement of outdoor lighting is restricted to key locations outside administrative buildings and is only used seasonally and/or for short durations, the potential for attracting protected seabirds with existing lighting is minimal.

The proposed action does not include plans to add outdoor lighting beyond what is existing. Filling operations are conducted primarily during daylight hours and outdoor lighting would not be constructed for the lateral expansion. If a need arises to add additional outdoor lighting in the future, the County would incorporate the DLNR Division of Forestry and Wildlife's recommendations for outdoor lighting whenever possible, to minimize impacts to protected seabirds. This has been incorporated into Section 4.2 of the Final EA.



LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
INTERIM CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

August 16, 2007

EarthTech  
841 Bishop Street Suite 500  
Honolulu, Hawaii 96813-3920

Attention: Ms. Michelle Mason

Gentlemen:

Subject: Draft Environmental Assessment for County of Kauai Kekaha Landfill  
Phase II Lateral Expansion, Kekaha, Kauai, Tax Map Key: (4) 1-2-2:9 and  
1

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Engineering Division, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji  
Administrator



**DEPARTMENT OF LAND AND NATURAL RESOURCES  
ENGINEERING DIVISION**

**LA/RYT**

**Ref.: DEAKekahaLandfillPhII  
Kauai.58**

**COMMENTS**

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

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

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

Should you have any questions, please call Ms. Suzie Agraan of the Planning Branch at 587-0258.

Signed:   
ERIC T. HIRANO, CHIEF ENGINEER  
Date: 7/30/07



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: DLNR Engineering Division  
Date: July 30, 2007

Comment No.	Comment
1	We confirm that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zone X. The Flood Insurance Program does not have any regulations for developments within Zone X.
Response: Comment noted.	



LINDA LINGLE  
GOVERNOR OF HAWAII



Laura H. Thielen  
Interim Chairperson  
Board of Land and Natural Resources  
Commission on Water Resource Management



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
LAND DIVISION

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

August 31, 2007

Earthtech  
841 Bishop Street Suite 500  
Honolulu, Hawaii 96813

Attention: Ms. Michelle Mason

Gentlemen:

Subject: Draft Environmental Assessment for County of Kauai Kekaha Landfill Phase II  
Lateral Expansion, Kekaha, Kauai, Tax Map Key: (4) 1-2-2:9 and 1

Thank you for the opportunity to review and comment on the subject matter. The Department of Land and Natural Resources' (DLNR) Land Division distributed or made available a copy of your report pertaining to the subject matter to DLNR Divisions for their review and comment.

Other than the comments from Commission on Water Resource Management, the Department of Land and Natural Resources has no other comments to offer on the subject matter. Should you have any questions, please feel free to call our office at 587-0433. Thank you.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell Y. Tsuji".

Russell Y. Tsuji  
Administrator



LINDA LINGLE  
GOVERNOR OF HAWAII



LAURA H. THIELEN  
INTERIM CHAIRPERSON  
MEREDITH J. CHING  
JAMES A. FRAZIER  
NEAL S. FUJIWARA  
CHIYOME L. FUKINO, M.D.  
DONNA FAY K. KIYOSAKI, P.E.  
LAWRENCE H. MIIKE, M.D., J.D.

KEN C. KAWAHARA, P.E.  
DEPUTY DIRECTOR

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

August 29, 2007

REF: DEA Kekaha Landfill Phase II.dr

TO: Russell Tsuji, Administrator  
Land Division

FROM: Ken C. Kawahara, P.E., Deputy Director  
Commission on Water Resource Management

SUBJECT: Draft Environmental Assessment, Kekaha Landfill Phase II Lateral Expansion  
Kekaha, Kauai, TMK (4)1-2-2:9 & 1

FILE NO.:

R

RECEIVED  
LAND DIVISION  
2007 AUG 31 A 10:00  
DEPT. OF LAND AND NATURAL RESOURCES  
STATE OF HAWAII

Thank you for the opportunity to review the subject document. The Commission on Water Resource Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management. For more information, please refer to the State Water Code, Chapter 174C, Hawaii Revised Statutes, and Hawaii Administrative Rules, Chapters 13-167 to 13-171. These documents are available via the Internet at <http://www.hawaii.gov/dlnr/cwrm>.

Our comments related to water resources are checked off below.

1. We recommend coordination with the county to incorporate this project into the county's Water Use and Development Plan. Please contact the respective Planning Department and/or Department of Water Supply for further information.
2. We recommend coordination with the Engineering Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.
3. There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

Permits required by CWRM: Additional information and forms are available at [www.hawaii.gov/dlnr/cwrm/forms.htm](http://www.hawaii.gov/dlnr/cwrm/forms.htm).

4. The proposed water supply source for the project is located in a designated ground-water management area, and a Water Use Permit is required prior to use of ground water.
5. A Well Construction Permit(s) is (are) required before the commencement of any well construction work.
6. A Pump Installation Permit(s) is (are) required before ground water is developed as a source of supply for the project.

DRF-IA 03/02/2006

August 29, 2007

- 7. There is (are) well(s) located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
- 8. Ground-water withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.
- 9. A Stream Channel Alteration Permit(s) is (are) required before any alteration can be made to the bed and/or banks of a stream channel.
- 10. A Stream Diversion Works Permit(s) is (are) required before any stream diversion works is constructed or altered.
- 11. A Petition to Amend the Interim Instream Flow Standard is required for any new or expanded diversion(s) of surface water.
- 12. The planned source of water for this project has not been identified in this report. Therefore, we cannot determine what permits or petitions are required from our office, or whether there are potential impacts to water resources.
- 13. We recommend that the report identify feasible alternative non-potable water resources, including reclaimed wastewater.
- OTHER:

If there are any questions, please contact Roy Hardy at 587-0274.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: DLNR Commission on Water Resource Management  
 Date: August 31, 2007

Comment No.	Comment
1	Thanks you for the opportunity to review the subject document. The Commission on Water Resources Management (CWRM) is the agency responsible for administering the State Water Code (Code). Under the Code, all waters of the State are held in trust for the benefit of the citizens of the State, therefore, all water use is subject to legally protected water rights. CWRM strongly promotes the efficient use of Hawaii's water resources through conservation measures and appropriate resource management.
Response: Comment noted.	
2	There may be the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
Response: Comment noted. Implementation of the proposed action must be authorized under a Solid Waste Management Permit and is therefore subject to the review and approval of the State Department of Health Solid and Hazardous Waste Branch. The County will comply with all conditions incorporated into the Solid Waste Management Permit.	
3	There is (are) wells located on or adjacent to this project. If wells are not planned to be used and will be affected by any new construction, they must be properly abandoned and sealed. A permit for well abandonment must be obtained.
Response: Comment noted. There are groundwater monitoring wells on the subject property that are routinely sampled: 3 at the Phase I Landfill and 6 at the Phase II Landfill. Any wells that would need to be abandoned with implementation of the proposed action would be properly abandoned and a permit obtained. Permit requirements for well abandonment have been added to Table 1-1 of the Final EA.	





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

HRD07/3129

August 23, 2007

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

**RE: Request for comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kaua'i, TMKs: 1-2-002:009 and 1-2-002:001**

Dear Michelle Mason,

The Office of Hawaiian Affairs (OHA) is in receipt of your July 18, 2007, request for comments on the above proposed project, which would include the lateral expansion of the Kekaha Landfill by 33 more acres of Section 5(b) Ceded Lands and extend its lifespan by approximately 12 years, or until the year 2021. OHA offers the following comments.

The current Draft Environmental Assessment (DEA) does not include adequate consideration of a suitable number of alternatives: only the preferred/proposed action and the required no-action alternative. The alternatives presented in a DEA are the legal heart of the assessment, and an inadequate range of alternatives is one of three major sources of successful litigation against agencies' EAs. The purpose of the alternative analysis is to compare different methods of conducting a project that will result "in the least detrimental effect on the human environment." (*Environmental Guidebook*, page 17).

To be properly evaluated, a DEA's requisite alternatives section must provide a clear choice among options to the public and the decision-makers. The range presented here is not an adequate representation of a possible range of alternatives, particularly considering the detail presented in the Proposed Action alternative, which includes three disparate cells and phases of work, and the amount of years of extended life provided by the Proposed Action alternative. Surely the County does not need until 2021 to find a new landfill site and gather the appropriate approvals to construct it.

Equally surely the Kekaha community does not deserve another 14 years of life with an ever-growing garbage dump in their backyards. Environmental justice concerns for a predominantly Hawaiian community must be addressed. At least one alternative should include the use of only one or two cells, a more limited lifespan for the landfill, and a commitment on the County's part to find a replacement site within a reasonable timeline.

Federal appellate courts have noted that because possible alternatives could be infinite, an agency only had to consider an array of alternatives that represented the range of possibilities. Even this has not been accomplished here. The County must not presume, as it seems to do in this document, that its preferred alternative will be the chosen alternative. Equally, the Kekaha community should not automatically be presumed to pay the price for the County's apparent lack of foresight and long-range planning for the eventual end of the landfill's apportioned lifespan. This landfill has already been expanded vertically twice to accommodate un-planned for needs of the County: once in 1998, mainly because of the amount unforeseeable waste spawned by Hurricane Iniki, and once in 2005. At either of these times, when the County obviously knew that the landfill was reaching capacity earlier than planned, it could have and should have begun the process of looking for new sites. No evidence of possible new site selection is noted in the DEA.

OHA finds it interesting that the County, in its No-Action alternative, states that the landfill will reach its capacity at approximately January 2009, thus leaving the County without an active landfill and open to fines. The County offers no option for it to take any responsibility for the situation and try to speed toward a process of fixing the problem. It simply accepts the problem and creates a band-aid for it.

On page 2-13 of the DEA, the applicant begins describing "Alternatives Considered But Not Carried Forward." These four alternatives, which potentially would have addressed OHA's above-noted concerns and issues, were dismissed because they "were determined to be not feasible and were eliminated from further consideration." These four alternatives include those with minimized impacts on the community and shorter continued lifetimes for the landfill. "Vertical Expansion" was eliminated because two vertical expansions had already occurred. "Horizontal Expansion into the Leachate Lagoon Area Only" was eliminated because it was estimated to only add 3.4 years to the lifetime of the landfill, and the County estimates 5 to 6 years of siting, designing and constructing a new landfill facility. "Excavation of Phase 1 to Construct a New Subtitle D Base Liner System" was eliminated because it was too expensive and would only add 1.8 years of life to the landfill. "Off-Island Disposal" was eliminated for a variety of logistical, infrastructure, cost and potential social impacts.

All of these decisions should not have been made before the drafting of the DEA. The DEA is a pre-decisional document that is supposed to be used by decision-makers in assessing the proposal. It is not a decision-made document.

Furthermore, nowhere in the DEA is it explained why 5 to 6 years are needed by the County to site, design and construct a new landfill facility. The public and other agencies should not have to take this estimate on faith. Even if that estimate is correct, however, the DEA needs to explain why the "Proposed Action" allows for 14 years from today of continued life for this landfill, next to a community that has suffered its ill effects of stench, regular littering by refuse trucks, and probable seepage from the original, unlined landfill.

Compounding OHA's concern about this proposal is that these are all Section 5(b) Ceded Lands, and the community members most negatively impacted by this proposal are Hawaiians. Neither of these integral facts or significant impacts is addressed in the DEA. The continued, neglectful impacts to the Kekaha community by these ever-extended actions on adjacent Ceded Lands constitute substantial impacts on the economic and social welfare, and the cultural practices of the Kekaha community. This DEA addresses potential impacts on the wider Kaua'i community, which the County has only estimated to be negative if they are left to deal with the mess that the County, not the Kekaha community, made by not planning appropriately. Thus, OHA argues that an Environmental Impact Statement should be required for this project, with multiple, realistic alternatives described and evaluated, and including accurate and thorough explanations and descriptions of the land, the community, and the natural and cultural resources impacted by extending the lifespan of this landfill beyond its originally prescribed limits.

The Mana Plain, for example, holds much cultural history and many cultural resources that cannot adequately be addressed by the language now on page 3-2 of the DEA:

Pre-contact Hawaiians built houses on the mauka side of the dunes and cultivated taro in the nearby marsh. Temporary shelters were located on the top and makai side of the dunes during the fishing season. Human remains were buried in the dunes all along this coastline; remains have been found in numerous locations on the federal reserve lands, just north of the KLF [Kekaha Landfill Facility].

Please consult with Kanani Kagawa, OHA's Kaua'i Community Resources Coordinator (address below) about this issue and for more contact information about other people who should be consulted about this description of the area and the County's subsequent conclusion that no cultural resources will be negatively impacted by continuing and expanding the lifespan of this landfill on these Ceded Lands on the Mana Plain. The three paragraphs provided in Section 3.3 cannot be seen to fulfill the requirement or intent of Act 50, Session Laws of Hawai'i, 2000 (now represented in Hawaii Revised Statutes Section 343-2).

Michelle Mason  
Earth Tech, Inc.  
August 23, 2007  
Page 4

Should any expansion of the landfill ultimately be approved, OHA will further rely on the applicant's assurances that should iwi kūpuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions, please contact Heidi Guth at (808) 594-1962 or e-mail her at [heidig@oha.org](mailto:heidig@oha.org).

Sincerely,



Clyde W. Nāmu'o  
Administrator

C: Kanani Kagawa  
Community Resources Coordinator  
OHA – Kaua'i Office  
3-3100 Kuhio Hwy., Suite C4  
Līhu'e, HI 96766

County of Kaua'i  
Department of Public Works  
Solid Waste Division  
4444 Rice Street  
Mo 'Ikeha Building, Suite 275  
Līhu'e, HI 96766

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Office of Hawaiian Affairs  
 Date: August 23, 2007

Comment No.	Comment
1	<p>The current Draft Environmental Assessment (DEA) does not include adequate consideration of a suitable number of alternatives: only the preferred/proposed action and the required no-action alternative. The alternatives presented in a DEA are the legal heart of the assessment, and an inadequate range of alternatives is one of three major sources of successful litigation against agencies' EAs. The purpose of the alternative analysis is to compare different methods of conducting a project that will result "in the least detrimental effect on the human environment." (<i>Environmental Guidebook</i>, page 17).</p> <p>To be properly evaluated, a DEA's requisite alternatives section must provide a clear choice among options to the public and the decision-makers. The range presented here is not an adequate representation of a possible range of alternatives, particularly considering the detail presented in the Proposed Action alternative, which includes three disparate cells and phases of work, and the amount of years of extended life provided by the Proposed Action alternative. Surely the County does not need until 2021 to find a new landfill site and gather the appropriate approvals to construct it.</p>

Response: The County is responsible for ensuring that there is adequate landfill capacity to accommodate continued municipal solid waste (MSW) disposal. There is no viable alternative to expansion into Cells 1 and 2 given the short timeline for the existing Phase II facility to reach capacity. A new landfill cannot reasonably be sited in less than 6 years and could possibly take longer (e.g. greater than 8 years). The general steps to be taken to site, permit, and construct a new landfill and the expected durations for those steps are summarized below. Please note that these are estimated durations; actual durations could vary from what is depicted below.

**IMPLEMENTATION SCHEDULE TO SITE, PERMIT, AND CONSTRUCT A NEW LANDFILL**

Item	Duration
Complete MSW Landfill Siting Study	1 year
Prepare Initial Site Report and EIS	1 ½ years
Acquire Land	2 years
Prepare Feasibility Report	1 year
Prepare Operations Plan and Design	1 year
Permit Application to DOH	1 year
Construct MSW Landfill	1 year

The County has considered the public opposition to expansion into Cell 3 and in response has stated that if siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed. This has been added to Section 2.2 of the Final EA. Section 2.3 of the Final EA has been revised to represent three phases of construction corresponding to Cells 1, 2, and 3 with separate cost and schedule information provided for each Cell.

2	<p>Equally surely the Kekaha community does not deserve another 14 years of life with an ever-growing garbage dump in their backyards. Environmental justice concerns for a predominantly Hawaiian community must be addressed. At least one alternative should include the use of only one or two cells, a more limited lifespan for the landfill, and a commitment on the County's part to find a replacement site within a reasonable timeline.</p>
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Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Office of Hawaiian Affairs  
 Date: August 23, 2007

Response: The demographics of Kekaha indicate a predominantly Asian population (43.6 percent) with 12.4 percent being Pacific Islander (see Section 3.10 of the Draft EA). Therefore, the County does not concur with OHA's characterization that Kekaha is a "predominantly Hawaiian community". Demographic and income characteristics within the Kekaha CDP are not significantly different from the County of Kauai as a whole and environmental justice concerns are therefore unfounded.

Please see response to Comment 1 for an explanation of the steps necessary to site a new landfill and the expected duration for those steps. Actions have already been taken by the County to begin siting a new landfill. An island-wide siting study for a municipal solid waste landfill was completed in 2001. A new siting study is currently underway. The project to site the new landfill will involve a community advisory group (CAG) composed of approximately 15 to 21 individuals. The County will utilize a consulting firm to facilitate and guide the process, which will include several meetings with the CAG to develop criteria and criteria weighting to be used for ranking candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008. It is the intent of the County to keep the public well informed as the siting study progresses.

3	<p>Federal appellate courts have noted that because possible alternatives could be infinite, an agency only had to consider an array of alternatives that represented the range of possibilities. Even this has not been accomplished here. The County must not presume, as it seems to do in this document, that its preferred alternative will be the chosen alternative. Equally, the Kekaha community should not automatically be presumed to pay the price for the County's apparent lack of foresight and long-range planning for the eventual end of the landfill's apportioned lifespan. This landfill has already been expanded vertically twice to accommodate un-planned for needs of the County: once in 1998, mainly because of the amount unforeseeable waste spawned by Hurricane Iniki, and once in 2005. At either of these times, when the County obviously knew that the landfill was reaching capacity earlier than planned, it could have and should have begun the process of looking for new sites. No evidence of possible new site selection is noted in the DEA.</p>
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Response: See responses to comments 1 and 2.

4	<p>OHA finds it interesting that the County, in its No-Action alternative, states that the landfill will reach its capacity at approximately January 2009, thus leaving the County without an active landfill and open to fines. The County offers no option for it to take any responsibility for the situation and try to speed toward a process of fixing the problem. It simply accepts the problem and creates a band-aid for it.</p> <p>On page 2-13 of the DEA, the applicant begins describing "Alternatives Considered But Not Carried Forward." These four alternatives, which potentially would have addressed OHA's above-noted concerns and issues, were dismissed because they "were determined to be not feasible and were eliminated from further consideration." These four alternatives include those with minimized impacts on the community and shorter continued lifetimes for the landfill. "Vertical Expansion" was eliminated because two vertical expansions had already occurred. "Horizontal Expansion into the Leachate Lagoon Area Only" was eliminated because it was estimated to only add 3.4 years to the lifetime of the landfill, and the County estimates 5 to 6 years of siting, designing and constructing a new landfill facility. "Excavation of Phase 1 to Construct a New Subtitle D Base Liner System" was eliminated because it was too expensive and would only add 1.8 years of life to the landfill. "Off-Island Disposal" was eliminated for a variety of logistical, infrastructure, cost and potential social impacts.</p> <p>All of these decisions should not have been made before the drafting of the DEA. The DEA is a pre-decisional document that is supposed to be used by decision-makers in assessing the proposal. It is not a decision-made document.</p>
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Response: An EA needs only to carry *feasible* alternatives through the environmental analysis. There is no viable alternative to expansion into Cells 1 and 2 given the short timeline for the existing Phase II facility to reach capacity. The County has considered the public opposition to expansion into Cell 3 and in response has stated that if siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed. This has been added to Section 2.2 of the Final EA.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Office of Hawaiian Affairs  
 Date: August 23, 2007

5	Furthermore, nowhere in the DEA is it explained why 5 to 6 years are needed by the County to site, design and construct a new landfill facility. The public and other agencies should not have to take this estimate on faith. Even if that estimate is correct, however, the DEA needs to explain why the "Proposed Action" allows for 14 years from today of continued life for this landfill, next to a community that has suffered its ill effects of stench, regular littering by refuse trucks, and probable seepage from the original, unlined landfill.
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Response: The County expects that a new landfill cannot reasonably be sited in less than 6 years (see response to Comment 1). If there are significant regulatory, technical, or community issues to overcome, siting a new facility could take much longer (e.g. greater than 8 years). It is uncertain whether a new facility can be sited within the expected life for Cells 1 and 2, and disposal of MSW in Cell 3 may be necessary. Although, the County does not expect that 14 years will be required to site a new landfill, if Cell 3 is developed for any amount of MSW disposal, filling would continue until the Cell has reached capacity, which is expected to occur in 2021. Operating procedures for odor control have been added to Section 3.1 of the Final EA. Mitigation measures for litter control have been added to Section 4.13 of the Final EA. Additional discussion of groundwater monitoring data has been added to Section 3.14 of the Final EA.

6	Compounding OHA's concern about this proposal is that these are all Section 5(b) Ceded Lands, and the community members most negatively impacted by this proposal are Hawaiians. Neither of these integral facts or significant impacts is addressed in the DEA. The continued, neglectful impacts to the Kekaha community by these ever-extended actions on adjacent Ceded Lands constitute substantial impacts on the economic and social welfare, and the cultural practices of the Kekaha community. This DEA addresses potential impacts on the wider Kaua'i community, which the County has only estimated to be negative if they are left to deal with the mess that the County, not the Kekaha community, made by not planning appropriately. Thus, OHA argues that an Environmental Impact Statement should be required for this project, with multiple, realistic alternatives described and evaluated, and including accurate and thorough explanations and descriptions of the land, the community, and the natural and cultural resources impacted by extending the lifespan of this landfill beyond its originally prescribed limits.
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Response: The demographics of the Kekaha CDP do not support OHA's assertion that the Kekaha community is a predominantly Hawaiian community. A discussion of impacts to the social and economic welfare, and the cultural practices of the Kekaha community has been added to Sections 4.3 and 4.10 of the Final EA. The proposed landfill expansion would be designed, constructed, and operated in accordance with the provisions of HAR 11-58.1 developed to prevent pollution, conserve natural resources, and protect public health and safety. Design of the landfill expansion would include a base liner, and landfill gas and leachate collection systems, to ensure the protection of air and water resources. Additional operating procedures and/or mitigation measures for odor and dust control, biological resources, hazardous materials and hazardous waste, natural hazards, safety and health, visual resources, and water resources have also been incorporated to minimize impacts to the natural and human environments, such that no significant adverse impacts are anticipated from operation of the Phase II Lateral Expansion. Therefore, the County has determined that preparation of an Environmental Impact Statement is not warranted.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Office of Hawaiian Affairs  
 Date: August 23, 2007

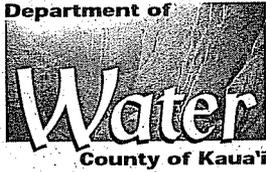
7	<p>The Mana Plain, for example, holds much cultural history and many cultural resources that cannot adequately be addressed by the language now on page 3-2 of the DEA:</p> <p>Pre-contact Hawaiians built houses on the mauka side of the dunes and cultivated taro in the nearby marsh. Temporary shelters were located on the top and makai side of the dunes during the fishing season. Human remains were buried in the dunes all along this coastline; remains have been found in numerous locations on the federal reserve lands, just north of the KLF [Kekaha Landfill Facility].</p> <p>Please consult with Kanani Kagawa, OHA's Kaua'i Community Resources Coordinator (address below) about this issue and for more contact information about other people who should be consulted about this description of the area and the County's subsequent conclusion that no cultural resources will be negatively impacted by continuing and expanding the lifespan of this landfill on these Ceded Lands on the Mana Plain. The three paragraphs provided in Section 3.3 cannot be seen to fulfill the requirement or intent of Act 50, Session Laws of Hawai'i, 2000 (now represented in Hawaii Revised Statutes Section 343-2).</p>
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Response: An archaeological inventory survey of the entire 63.2-acre Phase II parcel was conducted by Cultural Survey Hawaii in May 1993, with the Department of Land and Natural Resources (DLNR) oversight. The archaeological inventory survey included extensive subsurface test excavations by backhoe. The survey report did not identify any historic properties within the project area and no further archaeological study of the area was recommended. A copy of the 1993 archaeological inventory survey report prepared for the subject property has been added to the Final EA as Appendix B; additional information on the affected environment for cultural resources has been added to Section 3.3 of the Final EA. A letter of concurrence from the State Historic Preservation Division that no historic properties would be affected by the proposed action has been added to Appendix A.

Per OHA's recommendation, OHA's Kaua'i Community Resources Coordinator was contacted for a list of contacts to be consulted to assess potential impacts to cultural practices, in accordance with Act 50. Results of these consultations have been added to Section 4.3 and Appendix A of the Final EA.

8	<p>Should any expansion of the landfill ultimately be approved, OHA will further rely on the applicant's assurances that should iwi kupuna or Native Hawaiian cultural or traditional deposits be found during ground disturbance or excavation, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.</p>
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Response: The following statement is included in the mitigation measures for Section 4.3: "In the unlikely event that historic resources including human skeletal remains are inadvertently discovered during excavation and construction activities, the construction contractor would cease all construction activities and immediately notify the SHPD, Kaua'i Section prior to the continuation of activities."



*Water has no substitute.....Conserve it*

August 20, 2007

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

Dear Ms. Mason:

Subject: Draft Environmental Assessment (EA), Kekaha Landfill Phase II Lateral Expansion,  
TMK: 1-2-02:001; 1-2-02:009, Kekaha, Kaua'i, Hawai'i

Water service is limited to the existing water meter servicing the Kekaha Landfill. In accordance with the "Three Party Service Agreement" executed in 1994 between the County of Kauai, Department of Public Works, PMRF, and the County of Kauai, Department of Water, water use from the existing Landfill water meter is limited to 31,000 gallons per month.

If you have any questions, please contact Mr. Keith Aoki at (808) 245-5418.

Sincerely,

A handwritten signature in black ink, appearing to read "Gregg Fujikawa". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Gregg Fujikawa  
Chief of Water Resources and Planning

KA:mll  
ea- kekaha landfill w1-2-001 T-8893



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: County of Kauai Department of Water  
Date: August 20, 2007

Comment No.	Comment
1	Water service is limited to the existing water meter servicing the Kekaha Landfill. In accordance with the "Three Party Service Agreement" executed in 1994 between the County of Kauai Department of Public Works, PMRF, and the County of Kauai, Department of Water, water use from the existing Landfill water meter is limited to 31,000 gallons per month.

Response: Comment noted. Water service limitations have been added to Section 3.12 of the Final EA. There will be no changes in operations at the landfill facility and there will be no changes in the amount of water currently used. Therefore, there will not be a request for additional water or a larger sized meter.



# Written Comment Sheet

## Public Meeting Attendance Record

### Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kauai, Hawaii

Thank you for providing your comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion. Comments may be submitted at this meeting or via U.S. Postal Service to the address below postmarked no later than August 24, 2007.

① WATER QUALITY MUST BE TESTED; BOTH OCEAN & WATER TABLES

② PMRF FLIGHT PATH OBSTRUCTED BY CURRENT HEIGHT OF LANDFILL

Name: Mel Rapozo

Address (Street/City/Zip):

\* Phone number & e-mail (optional):

Mail Comments to:

Earth Tech

c/o Michelle Mason

841 Bishop Street, Suite 500

Honolulu, HI 96813

or

Michelle.Mason@earthtech.com



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Kaua'i County Council, Council Vice Chair Mel Rapozo

Comment No.	Comment
1	Water quality must be tested; both ocean and water tables.
<p>Response: The region of influence for water resources at the Kekaha Landfill includes the surface water bodies and drainage features within, or downgradient of, the facility and the underlying aquifer. Groundwater monitoring and reporting is performed upgradient and downgradient of the site and is performed in compliance with the DOH approved groundwater monitoring and reporting plan. The plan is based on the distinct hydrogeologic characteristics of the area and on the potential influence the landfill may have on the hydrogeologic system as it exists today, and as it is projected to exist in the future. There is no requirement to conduct ocean monitoring.</p>	
2	PMRF flight path obstructed by current height of landfill.
<p>Response: Mr. Tom Clemens, Public Affairs Officer at PMRF, was contacted regarding this comment. His response is as follows: "We completed our search of documents and have determined that landfill height was of concern in previous years due to future programs intending to use the PMRF airfield. Those programs are no longer being considered and this landfill expansion proposal does not affect current airfield operations at PMRF. Given the potential for conflict with continued landfill expansion (vertical and horizontal), close coordination with PMRF should be included in any future landfill planning processes."</p> <p>Therefore, based on this response, there would be no flight path obstruction at the PMRF with the implementation of the proposed action.</p>	



Mary Jean Buza-Sims, President  
P.O.Box 66  
Waimea, Kauai, HI 96796  
August 20, 2007

Re: Submittal of Responses, Concerns, and Questions in Regard to the Kekaha Landfill Expansion and Extension Plans

To Whom It May Concern:,

In conjunction with the Kaua'i Westside Watershed Council, the Kekaha Community Council submits a cumulative presentation of the responses, concerns, and questions that arose in the review of the assessments made regarding the Kekaha Landfill Expansion and Extension Plans.

I attended the public meeting regarding the Kekaha Landfill at the Waimea Neighborhood Center on Thursday, August 9, 2007. As a concerned citizen and the president of the Kekaha Community Council, as well as the residents of the community of Kekaha we have big concerns about the close proximity of Kauai's only licensed municipal landfill since 1953 and it's impact on the community of Kekaha.

Both councils, along with the residents of community of Kekaha are seeking some answers as to how you arrived at the conclusions that were presented that night regarding past, present and future processes and procedures regarding hazardous waste materials. We are requesting for the immediate release of all the documentations of studies regarding environmental impacts on the surrounding areas specifically as it relates to the natural and finite resources of the aina from mauka to makai. We want assurances for the safety and health considerations that can be substantiated by these studies.

We expect that the clarifications, documentations, and assurances be provided to us in a timely manner (similar to the request that we present our questions and concerns) and that the format will be in writing, as well. The standard 30 days is what we are looking for as a response timeline.

If you have any further questions please don't hesitate to call me at 346-2342.

Sincerely,

Mary Jean Buza-Sims  
President, Kekaha Community Council



# DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

## KEKAHA LANDFILL PHASE II LATERAL EXPANSION Kekaha, Kauai, Hawaii

JULY 2007

### Public Comments

#### Definitions, Your Guide to the Environmental Review Process

1. According to the DEA Environmental Notice, "The Public has 30 days to comment on the Draft DEA from the date of the first notice."

How is the public being encouraged to actively participate in the Environmental Review Process? What method is currently being used to efficiently notify citizens of their rights to attend public meetings? Does this method go beyond reach, when people "remotely" cannot be there?

If the Kekaha people do not have computers, do not read the newspaper, and do not have transportation, what means of communication is made available to them about a deadline they have to meet regarding their environmental impacts? What is our local government doing to inform all the people? What is our local government doing to inform the Kekaha residents?

#### Kaua'i Notices

2. In the Kauai Notices, dated July 23, 2007, on Kekaha Landfill Phase II Lateral Expansion (HRS 343 DEA), Public Comment Deadline: August 22, 2007. (Noted: GI Kauai News, August 7, 2007, all comments must be received postmarked by August 24, will be considered and responded to in the Final EA.)

Why didn't the Kauai Notice go out sooner? Why wasn't the public alerted sooner? Why weren't the people notified as to the means to send comments. Written on a form vs going to the meeting and making verbal comments. If people did not attend the meeting we would not have known that the comments had to be written on a special form!

#### Kekaha Landfill Expansion – Environmental Assessment

3. The 51 pages of the Draft Environmental Assessment pertaining to the specific details of the proposed expansion was offered for viewing at the Lihue Public Library on July 28, 2007, and finally available On-line Friday, August 10, 2007.

Why wasn't the DEA given to the Kekaha residents right away? Why wasn't a copy of the DEA given directly to the Waimea Library? Why weren't the Kekaha residents given ample notice of this DEA so that they could effectively meet the deadline for public comment? How is the 18 days deadline for public comment promoting justice to the Kekaha people? Why isn't the public being allowed 30 days to input their comments?

#### Communications Outreach – through the Kaua'i Notices

4. A long distance phone call was made to the County Council on August 3, 2007, at 11:16am asking for information about a meeting for the Kekaha Landfill. The person who answered said "there was no meeting scheduled in the near future". (GI August 7, 2007, Kauai News – Kekaha Landfill meeting Thursday.)

Why was the "Kekaha" Landfill meeting held in "Waimea" on Thursday, August 7, 2007, and not in Kekaha? Why couldn't the officials who had an earlier discussion of the issues set a meeting at an earlier date?

5. A long distance phone call was made on August 3, 2007 at 11:03am, to the Proposing Agency, the County of Kauai Department of Public Works, to Mr. Troy Tanigawa. A message was left for Mr. Tanigawa to return this call regarding the Kekaha Landfill Phase II Lateral Expansion (HRS 343 DEA) proposal.

Why didn't a public figure, Mr. Tanigawa return the call to open communications with the caller?

6. A phone call was made to the Determination Agency Consultant, Earth Tech. Inc., at the number provided on the July 23, 2007 Kauai Notice. The number was changed.

Why didn't the Determination Agency Consultant assessment firm make their purpose more available?

#### Kauai Notices

7. According to Kauai Notices, March 8, 1997, there was a DEA, (1) Kekaha Landfill, Phase II Vertical Expansion, DEA First Notice, pending public comment. Deadline: April 7, 1997.

Where is the copy of the DEA for the Kekaha Landfill, Phase II Vertical Expansion, April 7, 1997? Explain vertical expansion? Who took the action to approve of this expansion? What was the reasoning behind this action? Was an environmental impact study completed? Was the action taken without public address? What were the publics' inputs and comments to this expansion? Where are the records and minutes of the Council from that meeting? What permits were required, and what permits were obtained for this action? Was there any tax payers monies spent on this vertical expansion? How can we be certain that no illegal dumping was performed at this expansion?

#### Summary of Federal Funds Obtained by DBEDT to Assist Renewable Energy and Cost-Effective Conservation

8. In March 2005, the County Solid Waste Division and the County of Kauai Landfill Gas Analysis for the Kekaha Landfill was funded \$10,000 from the USDOE (US Department of Energy) PRBEP (Pacific Regional Biomass Energy Program), to complete a landfill gas analysis at the County's only active landfill to determine suitability for power production. The analysis found that the Phase 2 is suitable for power production using internal combustion engines and microturbines.

Was the appropriation of this sum acted upon at any County Council meeting? Are there any records authorizing the spending of this \$10,000? What will happen to this analysis? How will the results of this analysis be applied to the Kekaha Landfill? When will it be applied? Who will fund this project? Who will benefit from this analysis? How will the people benefit from this analysis?

#### Garden Island Kauai News – Archives

9. In the GI news Archives, posted Tuesday, August 29, 2006, the Solid Waste Advisory Committee (SWAC), "announced plans to open a new landfill on the island, as well as complete a lateral extension of the current landfill", per the solid waste coordinator. "SWAC will submit a draft plan for approval in October, initiating a process that should take about six to eight months", Tanigawa said."

"The County Council will review the plan and hold a public hearing before its vote." "The draft plan will address the new landfill and waste facilities," ....but it won't detail the new site."

What is a lateral extension? Was a draft plan for a lateral extension actually submitted on time? When was the public notified of these plans? Where is the copy of the plans to open a new landfill? Where is the copy of the draft plan that was supposedly submitted for approval in October? What were the results of the review of the plan by the County Council? Was there a notice of this public hearing? What was the outcome at that public hearing before it was voted on? Was it voted on? Why wasn't a new site in the discussion plans? Why wasn't the new site part of the plans?

10. In the same article, GI Archives, posted Tuesday, August 29, 2006, it was said that "the old site closes once it reaches capacity", "The county will set up a facility to capture the methane released on the site," ....something similar to the anaerobic digestion proposal currently before the SWAC." "The next meeting is scheduled from 11 a.m. to 2p.m. on Sept. 26."

Explain the capacity of a landfill site? What happens to that location of the landfill when it reaches capacity? What happens to all the trash that is buried under there? What is methane? Is it dangerous? What is done about it once you "capture" it. What is anaerobic digestion? Will the public be asked to input comments about anaerobic digestion? What does SWAC stand for? Where can we get a copy of the results from the Sept. 26, 2006 meeting of the SWAC who are representatives of Kauai Businesses, citizens, government, environmental organizations, and waste industry?

#### Special Council Meeting Notice and Agenda

11. A meeting of the Special Council was called to order, on Wednesday, May 23, 2007, in the County Council Chambers, regarding Communication (05/10/2007) from Mel Rapozo, Public Works Committee Chair, requesting agenda time at the May 23, 2007, Council meeting for the Administration to update the Council on the Integrated Solid Waste Management Plan.

What is a "Special Council"? Are the people invited to attend these meetings? Are there any county council records of this meeting? Is there a copy of the minutes from this meeting? What is an "Integrated" Solid Waste Management Plan?

#### Kauai General Plan, Building Public Facilities and Services

12. 7.8.2 New Facilities Needed by 2020. Over the next two decades, the amount of solid waste generated by residents and visitors on Kauai is expected to increase by nearly 50 percent from approximately 67,590 tons in FY 1999 to a projected 100,480 tons in 2020. New facilities needed by 2020 to accommodate this increase and changes to existing facilities are highlighted below:

Do the people know that there is a Kauai General Plan? How were the people notified of these new public facilities being needed? Was there a meeting identifying these needs? Did the people have input to these needs? Who is footing the bill for these new facilities? What is the responsibility of the visitors to Hawaii?

13. 7.8.2 New Facilities Needed by 2020. Additional Landfill Capacity. "A new landfill site should be identified in about one year [1995] and the cost of developing the facility is estimated at \$37 million. Factors that may limit expansion capacity is availability of feasible sites."

Do the people know that they need an additional landfill? Do they realize why they need one more landfill? Is the public being made aware of the problems in the landfill. Do they know that they should consider a second location? Has any other properties been identified as potential landfill sites? If so, where and why is it not being utilized? The identification should have been made back in 1995, but we see no evidence of a site that has been identified at this time.

14. 7.8.3 Status of Long-Range Plan. Para. 1., Lines 4-5. In 1994, the Kauai County Council approved the County of Kauai Integrated Solid Waste Management Plan (SWMP)...According to state law, the SWMP (Solid Waste Management Plan) must be updated and submitted to the State once every five years.

Where is the copy of the minutes and approval of the 1994 SWMP? Was the public aware of this law? What did the County Council do to update this plan? Are there any discussions, minutes, or actions taken and recorded in accordance with this law? What did the county finally submit to the State?

#### Kauai General Plan, Building Public Facilities and Services

15. 7.8.4 Policy. The following specific policies to guide solid waste programs should be provided in the long-range 1994 SWMP: Para. (a) (2) increases diversion of waste from the island's landfill(s); and (3) provides for the timely and orderly expansion of solid waste facilities.

Explain item (a) (2), "increase diversion of waste"? Show how the time and order was provided to expand, in particular, the Kekaha Landfill Phase II, Vertical Expansion? Show how the time and order was provided to expand the Kekaha

Landfill, Phase II Lateral Expansion? How are these long-range plans being reviewed and processed?

16. 7.8.4 Policy. Para. (c), Line 3-4. Among other options, the County shall consider opportunities for utilizing the waste stream for energy generation.

What is the "waste stream? What is "energy generation"? Why should this be an option? What does it have to do with "renewable energy? Could it involve internal combustion engines and microturbines? How fast can something like this be developed?

17. 7.8.5 Implementing Actions, 1994. The County Government Shall:
- (a) Prepare a long-range Solid Waste Integrated Management Plan, to be adopted by the County Council and updated every five years. The SWMP shall set policies to guide solid waste programs, facility planning, capital improvements, operations, user fees, and financing.
  - (b) Commit the necessary funding and staff resources to implement the County Integrated Solid Waste Management Plan.
  - (d) Establish a set of measurable goals to evaluate County efforts to divert solid waste from the island's landfill.
  - (e) Develop a proactive process for siting and designing sanitary landfills and other facilities that incorporates early and detailed consultations and negotiation among the utility, the County government, community stakeholders, and the general public.

Was this Actions implemented in 1994? Is there a long-range Solid Waste Integrated Management Plan 1994? How did the County Council go about adopting the plan? Have these plans been updated since then, every five years? How can we get a copy of this plan? Were the people actively involved in the long-range planning? Where is the capital improvements and budget expenditure report for this 1994 plan? What measurable goals did the Committee come up with for the years between 1994 and 1999?

The Senate Twenty-Second Legislature, 2003. State of Hawaii.  
S.B. NO. 1099, A Bill For An Act.

18. E. Solid Waste Facilities \$216,000. (Design new Disposal Facility) Authorizes capital improvement projects (CIP) on the county of Kauai...Solid Waste Facilities. The director of finance is authorized to issue general obligations bonds in the sum of...(specifically in this case of \$216,000), appropriated for fiscal year 2003-2004, Solid Waste Facilities (Design New Disposal Facility).

"This project is needed to identify and evaluate disposal alternatives, selection of preferred disposal method, site selection, environmental assessment, and permitting. The county is currently performing necessary planning and permitting tasks for a vertical expansion.... Future landfill capacity must be developed to meet the solid waste disposal needs...prior to the Kekaha Landfill phase II closure...."an island-wide siting study for a new MSW landfill, environmental impact statement"...."obtaining land use permits", "land acquisition", "design"..."to have landfill capacity on-line when the Kekaha Landfill phase II reaches capacity"..."receives public input"...."The county is near completion of the island-wide siting study for a new MSW landfill, having released the draft study for public comment." "The study was finalized in March 2001."

Was there a draft study completed and finalized in March 2001? Where do we get a copy of this plan?

#### Hazardous and Solid Waste

19. In 1984 amendments are referred to as the Hazardous and Solid Waste Amendments (HSWA) is divided into four distinct yet interrelated programs. Subtitle "C" (hazardous waste) and Subtitle "D" Commercial Solid Waste (solid, primarily nonhazardous, waste) the latter of which is the Kekaha Landfill.

Can you explain interrelated programs? Is the Kauai HSWA an interrelated/inter-connected program? To where does the hazardous waste material from any facility on the island go?

If "solid" waste is regulated garbage under RCRA – it can be solid, liquid or gas, - it's just called "solid waste". According to the EPA regulations, an RCRA "solid waste" means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities.

Is there gaseous materials and sludge from a wastewater treatment plant in the Kekaha Landfill? We would like to see a complete log-in of what type of solid waste or remaining trash is discarded into the closed Phase I landfill? What are the tons of trash made up of mostly?

\* \* \* \* \*

[Executive Summary \(DEA Kekaha Landfill Phase II Lateral Expansion, July 2007\)](#)

20. Page i., Para. 1., Lines 12-13. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 feet above msl.

Where can we get a copy of the DEA second Vertical Expansion of Phase II, 2005?

21. Para. 2., Line 1: "prolong the life of KFL"...Phase II lateral expansion, would provide an additional landfill area for MSW filling operations for approximately 12 years."

Is this proposal, "in addition to", the Phase II facility that is expected to reach capacity by January 2009? Does this mean that the permits for this proposed expansion will expire in 2021?

22. Para. 2., Line 3: "provide an additional landfill area"...."for approximately 12 years". Kauai Notices, July 23, 2007: "to include three additional cells. Cell 1 – leachate lagoon and adjacent area. Cell 2 – area into valley area between closed Phase I and Phase II. Cell 3 – area directly over the closed Phase I.

Is this, proposal to add three additional cells, same as the proposal to "prolong", "expand", or "stretch" the Phase II lateral expansion? Why is Cell 3 going to sit directly on-top of the closed Phase I? Is this idea legal? How will this idea change or help the landfill solid waste problem? What hazards and long-term effects can this create for the people, land, and surrounding areas? Not to mention wild life and marine life?

#### Executive Summary, Proposed Action and Alternatives

23. Proposed Action. Para. 1, line 2. Cell 1 would expand the Phase II fill area into the existing leachate lagoon and adjacent acreage.

"No system to exclude water from the landfill is perfect and water does get into the landfill." Water percolates through the trash and it picks up contaminants. This water is called leachate. How will you guarantee that leachate will not contaminate ground water or the ocean? What would happen if animals, insects, and rodents land near the pond?

24. Proposed Action. Para. 1, Lines 8-9. "The expansion would provide the County adequate time to site, design, and construct a new landfill facility for the Island of Kauai.

How did you arrive at the 12 years of operations to adequately design a new Landfill facility? 12 years is a long time, the task is an ambitious one and may be too overwhelming, anything can happen, those involved in planning might not be around, change is constant, and too much time can delay actions. Do you have

alternative plans for a practical/do-able short-term (3-5 years) solution? From year 2009 through year 2013?

There have been passed claims as to actions being taken regarding Long Range 1994 SWMP; 7.8.5 Implementing Actions 1994; Kekaha Landfill, Phase II Vertical Expansion, March 8, 1997; S.B. NO. 1099, A Bill For An Act, 2003; March 2001 Finalized Study; and this Kekaha Landfill II Lateral Expansion; additional 3 cells, and renewable energy-suitability for power production, but to no avail.

What did these 12 years gone by do to help improve the Kekaha Landfill? Is there a "discrepancy" list to go by to prevent mistakes from happening again? Have these actions been accepted?

25. No-Action Alternative. Under the no-action alternative, the KLF facility would be left *status quo*.

So, where's the encouragement in this? The root of the problem is based at Federal, State, and County governments for not "looking out" for the future of the people. Status quo is because there was no "Zero Tolerance" for the lack of initiatives and prompt actions by our leaders. How can you promote "NO-ACTION" to be an alternative to the landfill crisis.

#### Summary of Environmental Impacts

26. Proposed Action. The proposed action involves the implementation of an expansion at the KLF.

Is this proposed action a nice reaction to the "the nothing that had been done" in regards to the 7.8.5 Implementing Actions, dated 1994? Why wasn't there any productivity done to prevent this short deadline? Does this involvement include people who can make sound decisions and who can correct their mistakes?

27. Proposed Action. No significant long-term adverse impacts are expected. No significant adverse impacts are anticipated from operation of the Phase II Lateral Expansion.

What about the noise, smell, pollution, mosquitoes, flies, rats, mice, other pests that spread disease, algae, chemicals used to control bugs, or breakdown matter, harmful chemicals in the landfill, threat to coral reefs, algae depleting substances, offshore deposits, flooding from the leachate field, lining to catch the run-off from reusing the first landfill, a mountain top eyesore seen from tourist

boats out at sea, and how will this affect the future development in and around the vicinity and community? What about the mental, emotional, and spiritual stress on the lives of the people who live there? What about the races and cultures of people who have to live with the "burdens" of a landfill? What about the people who once lived there lives in harmony with the natural environment and lived off the land there? How did you arrive at this conclusion?

### Determination

28. According to the Resource Conservation and Recovery Act (RCRA), enacted by Congress in 1976, primary goals to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure the wastes are managed in an environmentally sound manner.

How is the county going to fulfill their duty to the Kekaha people for the injuries that was done to them in the past? How are they going to make sure that the primary goals enacted by Congress in 1976 was faithfully acted upon. How are the minds of the long time residents of Kekaha, those who lived there since 1976 and who lived with the landfill for 54 years are going to be protected from what already has been damaged? These people have carried the "burden" of the landfill too long not to be compensated for the loss of their dignity. They have been mistreated and taken advantage of. Too many people have died of cancer and suffered birth defects from the hazards of waste water seepage into the water tables of the communities in Kekaha Gardens. How will this be prevented from reoccurring in the future?

### 1.0 Introduction, pg. 1.1

Phase II began operations in 1993...have allowed municipal solid waste (MSW) filling operations...due to all the debris from Hurricane Iniki...

If Phase II was the only operating landfill on the island, and all the debris from Hurricane Iniki went there, does "all" mean debris from business, industry, state or federal government, including military, educational, and environmental agencies?

### 1.1 Purpose of and Need for Action

The proposed action, identified as Phase II lateral expansion, would provide an additional landfill area...

Does this include Cells I, II, and III? What used to be in place of the areas where the Cells I and II will be? What is the composition of the underlying soil and bedrock? What is the flow of surface water over the site? What is the impact

of the proposed landfill on the local environment and wildlife? What is the historical and/or archaeological value of the proposed site?

1.2 Environmental Permits, Consultations, and Approvals. Table 1-1: Permits and Approvals for Implementation of the Proposed Actions.

What is HAR 11-58. 1-04, HAR 11-60. 1-82, HAR 15-150, HAR 13-5, HAR 13-275, HAR 11-55, Appendix C? What is HRS 342H, Chapter 6E-8, HRS 342D? What is 40 CFR Part 60, CWA (33 U.S.C. 1251 et seq.), and Ordinance No. 808? Have any of these permits been granted so far? Did the public have input to the Plans for Implementation? Can you provide dates of when these permits will be issued? What representation from the public supported these?

2.1 Project Location and Background. Phase I ceased operations on October 8, 1993. The Phase I landfill has no liner system beneath the refuse.

What guidelines were available to build the Phase I landfill? What health and environmental permits were granted to build the Phase I landfill? How much total monies were raised and utilized for this project? How many feet below the road surface does the landfill go down? How many parts, and what are the parts of this landfill made of? Was this landfill designed to address specific problems? Can you draw a cross-section drawing showing the structure of this solid waste landfill? Indicate the flow of the leachate in this drawing?

Howstuffworks, "How Landfills Work", Bottom Liner System

"A landfill's major purpose and one of the biggest challenges is to contain the trash so that the trash doesn't cause problems in the environment. A bottom liner system separates trash and subsequent leachate from groundwater. The bottom liner prevents the trash from coming in contact with the outside soil, particularly the groundwater.

Is there any groundwater in the area? What plans are in place to remedy the situation of a missing liner?"

2.1 Project Location and Background. The KLF Phase II is a permitted MSW landfill for the disposal of non-hazardous solid wastes.

How can we find out if there wasn't any illegal dumping being done at the landfill, especially after Hurricane Iniki? It being the only dumpsite for the island at the time, how can we find out if there aren't any hazardous materials buried there? Can we get a 1993 reading of the condition of the landfill before the 1993

permit was issued? Can you provide a diagram of the 32 acres of land being subdivided into 14 waste disposal cells?

2.1 Project Location and Background. Background, Para. 2. KLF Phase II was initially permitted...However, to accommodate waste generated by Hurricane Iniki in 1992, a vertical expansion was required and...

Howstuffworks, "How Landfills Work" , Cells (Old and New)

Landscape is a precious commodity and overriding problem in a landfill air space. Trash is compacted into cells.

Are you increasing the air space? How are cells arranged? How many days of trash fit into each cell? What is the amount of trash to be within each cell? What is the amount of trash that will be compressed. Once this cell is made, how is it covered? How is space being conserved? What happens to the other solid waste materials?

Explain how the first and second vertical expansions are connected to Phase II? Can we get a copy of the Environmental Impact Study (EIS) for this Vertical Expansion? How can we guarantee that this vertical expansion dumpsite does not have hazardous waste materials buried there, since it was the only means of a place to dump "all" waste products?

2.1 Project Location and Background. Background, Para. 3. The Phase II landfill containment system consists of a liner, leachate collection system, and an evaporation lagoon. The base liner consists of geosynthetic clay layer (bentonite [clay with high shrink-well properties]) overlain by a geomembrane liner...

What physical and chemical properties are found in bentonite? What is montmorillonite? Why was bentonite chosen over other materials? What are the long term effects? How much information can be relied on about widespread distribution of bentonite in nature? How much information can be relied on about exposure to bentonite dust mines, processing plants, and user industries. What are the reported values for dust and respirable dust? What are the effects on the lungs from the toxicity of quartz in the clay? What about fibrosis and pulmonary infection? What effects could it have on growth rates, the liver, bronchitis? Does the ability of the properties in bentonite affect the utilization and commercial value of the product?

Howstuffworks, "How Landfills Work" , Storm Water Drainage

It's important to keep the landfill as dry as possible to reduce the amount of leachate.

Are there any nearby rock and gravel layers that can tear or puncture the liner? How dry is the landfill? What is being done to keep the landfill dry? How do you prevent liquids from getting into the landfill? What if the solid waste materials contain liquids? How do you keep rainwater out of the landfill? Where is the rainwater diverted to? What sort of containment is built for rainwater? Is the rainwater tested for contaminants? What if animals, insects, and rodents should go to the water area? Can you provide pictures/photos of this system in place?

Howstuffworks, "How Landfills Work" , Leachate Collection System

As water percolates through the trash, it picks up contaminants organic and inorganic chemicals, metals, biological waste products of decomposition. This is leachate and it is typically acidic.

What is leachate? How do you detect leachate? What tests are being done for the leachate problem? What do you look for in this kind of testing? What happens to the leachate after its been tested? What happens to the leachate in the pond? Can leachate be reused?

Howstuffworks, "How Landfills Work" , Covering or Cap

Soil can take up space. But soil can be used to cover the "man made" cap. Vegetation can be planted in the soil to prevent erosion by rainfall and wind. It can help the old landfill to look natural and beautiful.

Has the fine-grained silty clay from the former Kekaha Sugar Company mill waste water settling basin been tested for hazardous and toxic waste chemicals? Can we see a report of the tests for contaminants and toxicity? What happens if you see leachate seeping through a week point in the covering? How is seepage and the flow of leachate controlled?

Howstuffworks, "How Landfills Work" , Methane Collection System

Bacteria in the landfill break down the trash in the absence of oxygen (anaerobic) because the landfill is airtight.

Explain what happens when there is an absence of oxygen in the landfill? Can the result of anaerobics be a hazard. What can be done to prevent this hazard? What can the landfill give back in terms of resources?

2.1 Project Location and Background. Compliance with HAR Title 11, Chapter 58.1 requires that groundwater and landfill gases be performed as part of the landfill operations.

In the groundwater monitoring, how does decomposition of solid waste affect the groundwater? Explain how you might detect groundwater contamination.

How do you determine if there are any landfill-related contaminants present in groundwater? What measures are used to determine if there is presence of leachate or seepage?

2.2 Proposed Action. The County proposes to expand the limits of the Phase II fill area to include three additional cells.

How will you determine which cells should be built first? What order of priority will these cells take? What is the reason for the priority of building these cells? How will each cell be used up? What is the anticipated years for each one to be filled up?

Cell 1: What will happen to the leachate that was in the lagoon? Will the leachate lagoon be tested for acceptable levels of various chemicals (biological and chemical oxygen demands, organic chemicals, pH, calcium, magnesium, iron, sulfate and chloride)? Will these be allowed to settle before the fill goes into it? Will the leachate lagoon be treated like any other sewage/wastewater? Will the leachate be recirculated? The location of the new leachate lagoon, next to the office and scale house does not work for humans. Something as hazardous as that should be kept out of sight and inhalation.

Cell 3: Why do you keep piling trash on top of the closed Phase 1 landfill? Trash is just merely being buried there, it doesn't break down trash. The groundwater must be monitored and maintained for 30 years. What are the results of the groundwater testing in Phase 1? Have other alternatives such as bioreactors been considered to speed the breakdown of trash?

### MORE OPINIONS, QUESTIONS, COMMENTS, AND SUGGESTIONS

1. Couldn't we be provided with better blueprints? The black and white is not effective. It's very small to read and understand what you are proposing.
2. To have a landfill located on flat land with no trees, or mountains to hide it from view is a "sight for sore eyes". From the ground level, the highway, and the

ocean, how will 85 feet of solid waste appeal to the minds of the people? How will the smell affect them? The idea of a "trash dump" is already a negative impact on the life of the people. How is this expansion going to protect the dignity of the people?

3. Our priority should not be to expand a landfill so that we can fill it up. All peoples must take responsibility for the environment. We should cut back on waste and divert other waste products to different sites. Different sites should be built for types of disposal. Certain waste can be recycled or reused. Increase the waste products diversion from 21% to 50%. Launch a periodic strategic campaign and give incentives. Make contests between cities. The indication from the people at the public hearing is that they are ready to be proactive and reuse, and recycle all garbage before it goes to the landfill.

4. The concern about the old landfill is that it has too much unknown waste piled up. We don't know what types of waste and residue went into the landfill due to Hurricane Iniki. It should be shut down after it has been used to its original intentions. Proper vegetation should be planted there as part of a beautification project. It should be monitored for groundwater contamination for 30 years.

5. If the old Phase 1 is shut down then the county should start designing a new waste facility, hidden in the valleys, to replace it.

6. Is there a generator's list identifying all government and private industries who generate any type of hazardous waste?

7. It is surprising that preliminary environmental tests have not already been done. The landfills were there since 1953 and they haven't tested the land for alternative uses yet?

8. I don't agree with the 12 year permit. Kekaha could get stuck with more landfills. What if the plan doesn't work? What if something better comes along? The project should be taken in steps because something better could develop along the way.

9. The appointed committee should be made up of people with various backgrounds, a wide representation from various cross-sections of our government, and a balanced geographical distribution. The committee should be on a working "mission" to find the best solution to the solid waste problem on Kauai, to identify weak areas in the plan that can be improved, strong areas to be implemented immediately, determine which ones are do-able short-term solutions, long-term adaptable solutions, and an alternate sight for a future hi-tech, hi-output landfill facility.

10. There should always be a contingency plan to include emergencies. The project is too ambitious, overwhelming, and not enough time or people to work it out without having to pay them. Taking it in steps is a more realistic and tangible approach to getting work goals done.

11. A compensation for the Kekaha Landfill abuse can be a community beautification project for the citizens. Build a cultural or theme park which includes a swimming pool for all ages, young and old. A new community facility for all ages. Health and medical benefits for those whose health has been affected. That these ideas will employ the people who live there. Build them a nice recycling facility with a lower users fee.

12. How long does it take to build a cell? I agree that Cell 1 has to be the first to go. Because of the leachate problem it has to be cleaned and worked on first. Cell 3 should be capped permanently because it poses a threat to our health. **According to a groundwater monitoring done in March 1996, a significant increase in total arsenic in a well was detected. There was landfill gas migrating from the unlined closed Phase 1 landfill which may be impacting the groundwater in Phase II monitoring wells.** This was originally established as a debris recycling station. A Site Plan was never approved. Close Phase II when it has reached it's capacity. Cell 2 can be used.

13. Could it be that the county was already fined for contaminating groundwater wells Phase I, in 1996? Is the county going to be fined again for the contamination found in groundwater Phase II?

### **APPEAL**

1. Do not vertically expand the Phase I closed landfill.
2. Clean up the leachate lagoon and then expand vertically and horizontally
3. Use the valley area between Phase I and Phase II.
4. Do not give the 12 year permit expansion.
5. Do not give the County a Conservation District Use Application permit for Phase 1 since it has contaminated the groundwater well. The well should be reclaimed by the watershed council after the County relocates the groundwater.
6. Do not waive the SMAP since Phase I groundwater contamination may be affecting Phase II groundwater monitoring wells.
7. The County find a way to design a new Solid Waste facility away from Kekaha, under 12 years.

REFERENCES:

Chapter 7 – 7.8 SOLID WASTE.  
Kauai General Plan, Building Public Facilities and Services.

*c. County of Kauai Landfill Gas Analysis for the Kekaha Landfill*  
Summary of Federal Funds Obtained by DBEDT  
To Assist Renewable Energy and Cost-Effective Conservation

Executive Summary (DEA Kekaha Landfill Phase II Lateral Expansion, July 2007).  
Proposed Action and Alternatives.

Guide to the Environmental Review Process

Howstuffworks “How Landfills Work” by Craig C. Freudenrich, PhD.

Kauai General Plan, Building Public Facilities and Services

Kauai Notices, The Environmental Notice

\*Kekaha Landfill Expansion – Environmental Assessment  
Program Description; Administration – County of Kauai, Bringing Government  
to the People, Posted on the internet, August 10, 2007.

Resource Conservation and Recovery Act (RCRA), Hazardous and Solid Waste  
Amendments, 1984 (HSWA).

Special Council Meeting Notice and Agenda, Wednesday, May 23, 2007

The Garden Island – Kauai News, Archives, Opinion Forums

The Senate Twenty-Second Legislature, 2003. State of Hawaii. 18. S.B. NO.  
1099, A Bill For An Act.

Draft Environmental Assessment (DEA)  
Kekaha Landfill  
Phase II Lateral Extension  
Kekaha, Kauai, HI 96752  
July 2007

DISAPPROVE

1. Do not vertically expand the Phase I closed landfill.
2. Do not give the 12 years permit expansion.
3. Do not give the County a Conservation District Use Application permit for Phase I since it has contaminated the groundwater well.
4. Do not waive the SMP since Phase I groundwater contamination may be affecting the Phase II groundwater monitoring wells.

APPROVE

1. Clean up the leachate lagoon, use it as Cell 1, and expand it vertically and horizontally.
2. Use the valley area between Phase I and Phase II.
3. Kekaha Watershed should reclaim the groundwater well under the closed Phase I landfill after the county has decontaminated it and relocated it to a safer location.
4. The County locate a way to design a new Solid Waste Facility away from Kekaha, in under 12 years.

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Comment No.	Section No., Page No.	Comment
1	Public Involvement/ Outreach	<p>According to the DEA Environmental Notice, "The Public has 30 days to comment on the Draft DEA <u>from the date of the first notice.</u>"</p> <p>How is the public being encouraged to actively participate in the Environmental Review Process? What method is currently being used to efficiently notify citizens of their rights to attend public meetings? Does this method go beyond reach, when people "remotely" cannot be there?</p> <p>If the Kekaha people do not have computers, do not read the newspaper, and do not have transportation, what means of communication is made available to them about a deadline they have to meet regarding their environmental impacts? What is our local government doing to inform all the people? What is our local government doing to inform the Kekaha residents?</p>

Response: The Notice of Availability (NOA) was published in the *Garden Isle* on July 22, 2007 and the Office of Environmental Quality Control's (OEQC) *Environmental Notice* on July 23, 2007. This NOA announced the availability of the Draft Environmental Assessment (Draft EA) and the 30-day public comment period of July 23, 2007 through August 24, 2007. In addition, a public meeting was held on August 9, 2007. The meeting was announced in the *Garden Isle* on August 6, 2007.

2	Public Involvement/ Outreach	<p>In the Kauai Notices, dated July 23, 2007, on Kekaha Landfill Phase II Lateral Expansion (HRS 343 DEA), Public Comment Deadline: August 22, 2007. (Noted: GI Kauai News, August 7, 2007, all comments must be received postmarked by August 24, will be considered and responded to in the Final EA.)</p> <p>Why didn't the Kauai Notice go out sooner? Why wasn't the public alerted sooner? Why weren't the people notified as to the means to send comments. Written on a form vs going to the meeting and making verbal comments. If people did not attend the meeting we would not have known that the comments had to be written on a special form!</p>
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Response: Per OEQC guidelines, the appropriate measures were taken to get the notice published. Although not required, a notice was also placed in the *Garden Isle* to reach more of the residents of Kauai. There was no requirement for the comments to be received on the written comment sheet provided at the public meeting. The comment forms were provided to assist the public with providing the comments. Also, the contact person (Ms. Michelle Mason) was introduced and her mailing address and e-mail address also provided for the submittal of comments. Comment sheets, e-mails, and letters were all submitted during the public comment period and all comments received are being responded to.

3	Public Involvement	<p>The 51 pages of the Draft Environmental Assessment pertaining to the specific details of the proposed expansion was offered for viewing at the Lihue Public Library on July 28, 2007, and finally available On-line Friday, August 10, 2007.</p> <p>Why wasn't the DEA given to the Kekaha residents right away? Why wasn't a copy of the DEA given directly to the Waimea Library? Why weren't the Kekaha residents given ample notice of this DEA so that they could effectively meet the deadline for public comment? How is the 18 days deadline for public comment promoting justice to the Kekaha people? Why isn't the public being allowed 30 days to input their comments?</p>
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Response: Pursuant to Hawaii Administrative Rules (HAR) §11-200-9.1, "the period for public review and for submitting written comments for both agency actions and applicant actions shall begin as of the initial issue date that notice of availability of the draft environmental assessment was published in the periodic bulletin and shall continue for a period of thirty days." The NOA was published in the OEQC *Environmental Notice* on July 23, 2007, which started the 30-day public comment period of July 23, 2007 through August 24, 2007.

A copy of the Draft EA was submitted to the Waimea Library and was available for review at the beginning of the public comment period. A subsequent request was received that a copy also be sent to the Lihue Library and therefore a copy was sent. Copies of the Draft EA were also made available upon request from the beginning of the public comment period. All requests for copies of the Draft EA were responded to in a timely manner so that EA recipients could provide their comments prior to the public comment deadline. The County also placed an electronic version of the Draft EA on their website to facilitate public comment. In fact, the volume of comments received speaks to the effectiveness of the public notification.

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4	Public Involvement/ Outreach	<p>A long distance phone call was made to the County Council on August 3, 2007, at 11:16am asking for information about a meeting for the Kekaha Landfill. The person who answered said "there was no meeting scheduled in the near future". (GI August 7, 2007, Kauai News – Kekaha Landfill meeting Thursday.)</p> <p>Why was the "Kekaha" Landfill meeting held in "Waimea" on Thursday, August 7, 2007, and not in Kekaha? Why couldn't the officials who had an earlier discussion of the issues set a meeting at an earlier date?</p>
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Response: The Department of Public Works was the lead agency in setting up the Public Informational Meeting regarding the Proposed Lateral Expansion project for the Kekaha Landfill Phase II. Once the meeting time and place was confirmed, advance public notices of the meeting were issued. A meeting in the Kekaha area was first considered, but when it was determined that the Kekaha Neighborhood Center was not available. Therefore, the Waimea Neighborhood Center was identified as the next best location. The Department of Public Works selected the meeting date with the desire to allow the public some time prior to the meeting to review the Draft EA, which was published on July 23, 2007.

5	Public Involvement/ Outreach	<p>A long distance phone call was made on August 3, 2007 at 11:03am, to the Proposing Agency, the County of Kauai Department of Public Works, to Mr. Troy Tanigawa. A message was left for Mr. Tanigawa to return this call regarding the Kekaha Landfill Phase II Lateral Expansion (HRS 343 DEA) proposal.</p> <p>Why didn't a public figure, Mr. Tanigawa return the call to open communications with the caller?</p>
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Response: It is routine practice of the County of Kauai Department of Public Works personnel to return phone calls. We apologize that contact was not established.

6	Public Involvement/ Outreach	<p>A phone call was made to the Determination Agency Consultant, Earth Tech. Inc., at the number provided on the July 23, 2007 Kauai Notice. The number was changed.</p> <p>Why didn't the Determination Agency Consultant assessment firm make their purpose more available?</p>
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Response: It is unfortunate that your call did not go through. The information provided for the contact person on the July 23, 2007 OEQC notice was correct.

7	Previous Vertical Expansion	<p>According to Kauai Notices, March 8, 1997, there was a DEA, (1) Kekaha Landfill, Phase II Vertical Expansion, DEA First Notice, pending public comment. Deadline: April 7, 1997.</p> <p>Where is the copy of the DEA for the Kekaha Landfill, Phase II Vertical Expansion, April 7, 1997? Explain vertical expansion? Who took the action to approve of this expansion? What was the reasoning behind this action? Was an environmental impact study completed? Was the action taken without public address? What were the publics' inputs and comments to this expansion? Where are the records and minutes of the Council from that meeting? What permits were required, and what permits were obtained for this action? Was there any tax payers monies spent on this vertical expansion? How can we be certain that no illegal dumping was performed at this expansion?</p>
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Response: The Final EA for the Kekaha Landfill Phase II Vertical Expansion was released March 1998. The first vertical expansion increased the permitted height of the Phase II landfill from 37 feet above mean sea level to 60 feet above mean sea level. The County of Kauai Department of Public Works was the proposing and approving agency. The Draft EA was released for public comment for a period of 30 days as required under Hawaii Revised Statutes (HRS) Chapter 343. Comments received from the State Department of Health (DOH), OEQC, and the University of Hawaii at Manoa Environmental Center were responded to in the Final EA. Per the Final EA, the vertical expansion required a modification to the DOH Solid Waste Management landfill permit no. LF0073-93, approval from the County of Kauai Planning Department, and concurrence from the State Historic Preservation Division that the proposed expansion would have no effect on cultural and historical resources.

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8	Appropriation for LFG Analysis	<p>In March 2005, the County Solid Waste Division and the County of Kauai Landfill Gas Analysis for the Kekaha Landfill was funded \$10,000 from the USDOE (US Department of Energy) PRBEP (Pacific Regional Biomass Energy Program), to complete a landfill gas analysis at the County's only active landfill to determine suitability for power production. The analysis found that the Phase 2 is suitable for power production using internal combustion engines and microturbines.</p> <p>Was the appropriation of this sum acted upon at any County Council meeting? Are there any records authorizing the spending of this \$10,000? What will happen to this analysis? How will the results of this analysis be applied to the Kekaha Landfill? When will it be applied? Who will fund this project? Who will benefit from this analysis? How will the people benefit from this analysis?</p>
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Response: The Office of Economic Development, Energy Extension Service submitted a request (C2004-110) to the County Council for approval to apply for, receive, and expend \$10,000 in grant funds from the State Department of Business, Economic Development and Tourism's Energy, Resources and Technology Division (DBEDT). The source of funds was from U.S. Department of Energy. The grant was to pay for methane testing at the Kekaha Landfill, Phase 2. The \$10,000 grant request was approved by the County Council at its April 15, 2004 meeting. Subsequently, the Office of Economic Development signed a Letter of Agreement with DBEDT on April 21, 2004. On October 8, 2004, the County of Kauai, Department of Public Works, Solid Waste Division issued Informal Bid No. W00155 through the Division of Purchasing. The bid submission deadline was November 4, 2004. Purchase Order No. 129907 was issued for the work to Earth Tech, Inc. Earth Tech's final report was submitted on February 26, 2005.

The landfill gas quality analysis for Phase 2 was the first step to determine the gas quality for the entire landfill. In January 2005, the Office of Economic Development, Energy Extension Service requested Council approval to apply for, receive and expend \$80,975 in grant funds from DBEDT for a Pacific Missile Range Facility Combined Heat and Power Feasibility Study that was to examine all aspects of using methane from the Kekaha Landfill to run a combined heat and power production unit(s) for base operations. Part of this study also included a review of the testing done for Phase 2; landfill gas quality testing for Phase 1; and determining gas quantity over a 20 year period. In summary, the testing of gas quality for both Phase 1 and Phase 2 and the feasibility study concluded that the methane from Kekaha Landfill is relatively free of any corrosives harmful to boilers or electric generation equipment and that approximately 1.6 mW of power can be produced from the gas. SCS Energy was hired via competitive solicitation to conduct the feasibility study, which was completed in February 2007.

The County is currently in discussions with the Kauai Island Utility Cooperative and the Navy (Pacific Missile Range Facility) about their interests in developing the methane resource. The benefits of using the methane include the generation of about 12 million kWh of renewable energy per year over a 20 year period; reduced oil consumption of about 800,000 gallons per year; and the reduction of methane into the atmosphere, thus reducing greenhouse gas emissions. The entire report is available at [www.hawaii.gov/dbedt/info/energy/publications/chp-kauai2007.pdf](http://www.hawaii.gov/dbedt/info/energy/publications/chp-kauai2007.pdf)

9	Clarification on news archives	<p>In the GI news Archives, posted Tuesday, August 29, 2006, the Solid Waste Advisory Committee (SWAC), "announced plans to open a new landfill on the island, as well as complete a lateral extension of the current landfill", per the solid waste coordinator. "SWAC will submit a draft plan for approval in October, initiating a process that should take about six to eight months", Tanigawa said.</p> <p>"The County Council will review the plan and hold a public hearing before its vote." "The draft plan will address the new landfill and waste facilities,"....but it won't detail the new site."</p> <p>What is a lateral extension? Was a draft plan for a lateral extension actually submitted on time? When was the public notified of these plans? Where is the copy of the plans to open a new landfill? Where is the copy of the draft plan that was supposedly submitted for approval in October? What were the results of the review of the plan by the County Council? Was there a notice of this public hearing? What was the outcome at that public hearing before it was voted on? Was it voted on? Why wasn't a new site in the discussion plans? Why wasn't the new site part of the plans?</p>
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Response: The 'Draft Plan', as referred to in the news article, is the Integrated Solid Waste Management Plan (ISWMP). The Solid Waste Advisory Committee (SWAC), composed of citizens of various backgrounds, was appointed by the Mayor to serve as a sounding board and assist in guiding the development of the update to the ISWMP. The ISWMP is basically a policy document that governs the types of programs and systems that the County implements to manage solid waste on the island of Kauai. The County is in the process of updating the ISWMP, whereby the SWAC provides a public input component as updates to the ISWMP are developed. To further promote public awareness of progress on the Draft Plan, the various issue papers which would compose sections of the Draft Plan, (i.e. waste characterization, increased recycling and waste diversion programs, landfill & transfer station capacity, disposal facility siting, etc.) were posted on the County's website as they were developed. Once the Draft Plan is completely updated, which will occur very soon, it will undergo a series of agency reviews including the DOH, the County Council, and at least one Public Hearing where more public input is considered. This will occur over the next several months.

In accordance with the ISWMP, a Sanitary Landfill such as the Kekaha Landfill is an essential element of the County's solid waste management system. Planning for the lateral expansion of the Kekaha Landfill is part of an ongoing effort to ensure that Kauai has sufficient capacity to manage the solid waste that cannot be recycled/diverted from the landfill. Both the County Administration and Council have taken the necessary steps to appropriate funding to accomplish the lateral expansion. Much time and effort was expended to develop and produce the Draft EA, which was needed to properly describe the project to the Public. Public notice of the availability of the Draft EA was issued on July 23, 2007 with the public comment period ending on August 24, 2007. A public meeting to discuss the Draft EA with the community was scheduled for 7pm on August 9, 2007 at the Waimea Neighborhood Center. At this time, there is still ample time to complete and submit plans and permit applications for regulatory permits for the lateral expansion. However, there is very little room for delays in the schedule to accomplish planning, design, permit approval, and construction tasks necessary to make the additional capacity available.

Mayor Baptist is taking steps to site a new landfill. The project to site the new landfill will involve a community advisory group (CAG) composed of approximately 15 to 21 individuals. The County will utilize a consulting firm to facilitate and guide the process, which will include several meetings with the CAG to develop criteria and criteria weighting to be used for ranking candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008.

10	Clarification on news archives	<p>In the same article, GI Archives, posted Tuesday, August 29, 2006, it was said that "the old site closes once it reaches capacity", "The county will set up a facility to capture the methane released on the site," ....something similar to the anaerobic digestion proposal currently before the SWAC." "The next meeting is scheduled from 11 a.m. to 2p.m. on Sept. 26."</p> <p>Explain the capacity of a landfill site? What happens to that location of the landfill when it reaches capacity? What happens to all the trash that is buried under there? What is methane? Is it dangerous? What is done about it once you "capture" it. What is anaerobic digestion? Will the public be asked to input comments about anaerobic digestion? What does SWAC stand for? Where can we get a copy of the results from the Sept. 26, 2006 meeting of the SWAC who are representatives of Kauai Businesses, citizens, government, environmental organizations, and waste industry?</p>
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Response: Landfill capacity is created through a design and approved through a permit process under the DOH. As part of the initial planning and design phase, engineering tasks are performed to determine the layout of the facility including support infrastructure and the footprint and height of the landfill. Based on the footprint and height of the landfill, engineers design a final grading plan to ensure that the landfill mass (composed of waste and cover soil placed during operation) will remain stable. The unoccupied space between the current or beginning elevation of a landfill cell and the final elevation of the landfill cell, as specified on the final grading plan, is called 'airspace'. The landfill reaches 'capacity' once all airspace is filled with waste and cover soil.

The chemical changes in organic matter within a landfill is more accurately characterized as 'decomposition' rather than 'digestion'. Anaerobic decomposition occurs due to the absence of oxygen within the landfill mass, and is the type of reaction that creates methane. When methane is generated at an operating landfill, it quickly dissipates into the atmosphere once it reaches ground level. Methane is a flammable gas when it is within a specific concentration level with oxygen. The Kekaha Landfill carefully monitors methane to ensure the gas does not migrate off property or to areas on-site where it could become a cause for concern.

Once the landfill reaches capacity, the County has a limited time to complete closure of the landfill. Landfill closure will include capping the landfill and installation of improvements to control storm water drainage, minimize erosion, collect and utilize the landfill gas and protect the landfill cap. Once the landfill cap is installed, the landfill mass undergoes a slow process of stabilization, the amount of methane generated will peak and diminish over time. As part of the closure construction, a system will be installed to capture the methane and either destroy it onsite via a flare or utilize it to generate energy. Once closure construction is completed, the County is required by law to perform landfill post-closure monitoring and maintenance for a minimum period of 30 years.

11	Special Council	<p>A meeting of the Special Council was called to order, on Wednesday, May 23, 2007, in the County Council Chambers, regarding Communication (05/10/2007) from Mel Rapozo, Public Works Committee Chair, requesting agenda time at the May 23, 2007, Council meeting for the Administration to update the Council on the Integrated Solid Waste Management Plan.</p> <p>What is a "Special Council"? Are the people invited to attend these meetings? Are there any county council records of this meeting? Is there a copy of the minutes from this meeting? What is an "Integrated" Solid Waste Management Plan?</p>
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Response: The Special Council Meeting held on May 23, 2007 was open to the public. The agenda was posted at the County Clerk's Office and was also posted on the County website (<http://www.kauai.gov/>).

An ISWMP is the County's blueprint for long term management of municipal solid waste programs. The goal is to develop a financially feasible plan for residents and businesses of Kauai that maximizes waste diversion, is environmentally sustainable, and ensures access to adequate disposal capacity.

12	Kauai General Plan	<p>7.8.2 New Facilities Needed by 2020. Over the next two decades, the amount of solid waste generated by residents and visitors on Kauai is expected to increase by nearly 50 percent from approximately 67,590 tons in FY 1999 to a projected 100,480 tons in 2020. New facilities needed by 2020 to accommodate this increase and changes to existing facilities are highlighted below:</p> <p>Do the people know that there is a Kauai General Plan? How were the people notified of these new public facilities being needed? Was there a meeting identifying these needs? Did the people have input to these needs? Who is footing the bill for these new facilities? What is the responsibility of the visitors to Hawaii?</p>
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Response: Policies and procedures guiding adoption of the Kauai General Plan are outside the scope of this EA. Consistency of the Proposed Action with Section 7.8 of the Kauai General Plan pertaining to Solid Waste is addressed in Section 4.16 of the EA.

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13	Kauai General Plan	<p>7.8.2 New Facilities Needed by 2020. Additional Landfill Capacity. "A new landfill site should be identified in about one year [1995] and the cost of developing the facility is estimated at \$37 million. Factors that may limit expansion capacity is availability of feasible sites."</p> <p>Do the people know that they need an additional landfill? Do they realize why they need one more landfill? Is the public being made aware of the problems in the landfill. Do they know that they should consider a second location? Has any other properties been identified as potential landfill sites? If so, where and why is it not being utilized? The identification should have been made back in 1995, but we see no evidence of a site that has been identified at this time.</p>
<p>Response: The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory group (CAG) comprised of approximately 15 to 21 members of the public and local officials to assist in the ranking of candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008.</p>		
14	Kauai General Plan	<p>7.8.3 Status of Long-Range Plan. Para. 1., Lines 4-5. In 1994, the Kauai County Council approved the County of Kauai Integrated Solid Waste Management Plan (SWMP)...According to state law, the SWMP (Solid Waste Management Plan) must be updated and submitted to the State once every five years.</p> <p>Where is the copy of the minutes and approval of the 1994 SWMP? Was the public aware of this law? What did the County Council do to update this plan? Are there any discussions, minutes, or actions taken and recorded in accordance with this law? What did the county finally submit to the State?</p>
<p>Response: See response to Comment 9.</p>		
15	Kauai General Plan	<p>7.8.4 Policy. The following specific policies to guide solid waste programs should be provided in the long-range 1994 SWMP: Para. (a) (2) increases diversion of waste from the island's landfill(s); and (3) provides for the timely and orderly expansion of solid waste facilities.</p> <p>Explain item (a) (2), "increase diversion of waste"? Show how the time and order was provided to expand, in particular, the Kekaha Landfill Phase II, Vertical Expansion? Show how the time and order was provided to expand the Kekaha Landfill, Phase II Lateral Expansion? How are these long-range plans being reviewed and processed?</p>
<p>Response: County actions to increase diversion of waste from the Kekaha Landfill are described in the response to Comment 43. The 1998 and 2005 vertical expansions and the proposed lateral expansion (have provided/provide for) a "timely and orderly" expansion of solid waste facilities in that design, permitting, and construction for the expansion (has been/would be) accomplished prior to the existing landfill reaching capacity.</p>		
16	Kauai General Plan	<p>7.8.4 Policy. Para. (c), Line 3-4. Among other options, the County shall consider opportunities for utilizing the waste stream for energy generation.</p> <p>What is the "waste stream? What is "energy generation"? Why should this be an option? What does it have to do with "renewable energy? Could it involve internal combustion engines and microturbines? How fast can something like this be developed?</p>
<p>Response: Actions taken by the County to determine the feasibility of using methane from the Kekaha Landfill for renewable energy generation are summarized in the response to Comment 8.</p>		

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17	Kauai General Plan	<p>7.8.5 Implementing Actions, 1994. The County Government Shall:</p> <ul style="list-style-type: none"> <li>(a) Prepare a long-range Solid Waste Integrated Management Plan, to be adopted by the County Council and updated every five years. The SWMP shall set policies to guide solid waste programs, facility planning, capital improvements, operations, user fees, and financing.</li> <li>(b) Commit the necessary funding and staff resources to implement the County Integrated Solid Waste Management Plan.</li> <li>(d) Establish a set of measurable goals to evaluate County efforts to divert solid waste from the island's landfill.</li> <li>(e) Develop a proactive process for siting and designing sanitary landfills and other facilities that incorporates early and detailed consultations and negotiation among the utility, the County government, community stakeholders, and the general public.</li> </ul> <p>Was this Actions implemented in 1994? Is there a long-range Solid Waste Integrated Management Plan 1994? How did the County Council go about adopting the plan? Have these plans been updated since then, every five years?</p> <p>How can we get a copy of this plan? Were the people actively involved in the long-range planning? Where is the capital improvements and budget expenditure report for this 1994 plan? What measurable goals did the Committee come up with for the years between 1994 and 1999?</p>
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Response: See responses to comments 9, 13, and 43.

18	S.B. No. 1099	<p>E. Solid Waste Facilities \$216,000. (Design new Disposal Facility) Authorizes capital improvement projects (CIP) on the county of Kauai...Solid Waste Facilities. The director of finance is authorized to issue general obligations bonds in the sum of...(specifically in this case of \$216,000), appropriated for fiscal year 2003-2004, Solid Waste Facilities (Design New Disposal Facility).</p> <p>"This project is needed to identify and evaluate disposal alternatives, selection of preferred disposal method, site selection, environmental assessment, and permitting. The county is currently performing necessary planning and permitting tasks for a vertical expansion.... Future landfill capacity must be developed to meet the solid waste disposal needs...prior to the Kekaha Landfill phase II closure...."an island-wide siting study for a new MSW landfill, environmental impact statement"...."obtaining land use permits", "land acquisition", "design"...to have landfill capacity on-line when the Kekaha Landfill phase II reaches capacity"...receives public input"..."The county is near completion of the island-wide siting study for a new MSW landfill, having released the draft study for public comment." "The study was finalized in March 2001."</p> <p>Was there a draft study completed and finalized in March 2001? Where do we get a copy of this plan?</p>
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Response: An island-wide siting study for a municipal solid waste landfill was completed in 2001. A new siting study is currently underway. The project to site the new landfill will involve a community advisory group (CAG) composed of approximately 15 to 21 individuals. The County will utilize a consulting firm to facilitate and guide the process, which will include several meetings with the CAG to develop criteria and criteria weighting to be used for ranking candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008. It is the intent of the County to keep the public well informed as the siting study progresses.

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19	RCRA	<p>In 1984 amendments are referred to as the Hazardous and Solid Waste Amendments (HSWA) is divided into four distinct yet interrelated programs. Subtitle "C" (hazardous waste) and Subtitle "D" Commercial Solid Waste (solid, primarily nonhazardous, waste) the latter of which is the Kekaha Landfill.</p> <p>Can you explain interrelated programs? Is the Kauai HSWA an interrelated/inter-connected program? To where does the hazardous waste material from any facility on the island go?</p> <p>If "solid" waste is regulated garbage under RCRA – it can be solid, liquid or gas, - it's just called "solid waste". According to the EPA regulations, an RCRA "solid waste" means any garbage, or refuse, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semi-solid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities.</p> <p>Is there gaseous materials and sludge from a wastewater treatment plant in the Kekaha Landfill? We would like to see a complete log-in of what type of solid waste or remaining trash is discarded into the closed Phase I landfill? What are the tons of trash made up of mostly?</p>
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Response: The Kekaha Landfill does not accept hazardous waste and is not a facility that is regulated under Subtitle C. Only Subtitle D regulations are applicable.

The wastewater treatment plant sludges are disposed at the landfill. Sludges are processed and digested at the wastewater treatment plant to encourage maximum biological degradation prior to being collected and sent to the landfill for final disposal.

No waste is discarded into the closed Phase I landfill.

20	Executive Summary	<p>Page i., Para. 1., Lines 12-13. A second vertical expansion of Phase II was approved in 2005 allowing a height of 85 feet above msl. Where can we get a copy of the DEA second Vertical Expansion of Phase II, 2005?</p>
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Response: The 30-day public comment period for the Draft EA was July 23, 2004 to August 23, 2004. A copy of the Final EA for the second vertical expansion will be available for review at the Kekaha Landfill facility, the Waimea Library, and the County of Kauai.

21	Executive Summary	<p>Para. 2., Line 1: "prolong the life of KFL"...Phase II lateral expansion, would provide an additional landfill area for MSW filling operations for approximately 12 years."</p> <p>Is this proposal, "in addition to", the Phase II facility that is expected to reach capacity by January 2009? Does this mean that the permits for this proposed expansion will expire in 2021?</p>
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Response: The proposed lateral expansion would add approximately 12 years to the life of the existing Phase II landfill beyond January 2009. Permit expiration dates would anticipate to expire in approximately 2021, however will be determined by the administrative authority for applicable permits as specified in Table 1-1 of the EA.

22	Executive Summary	<p>Para. 2., Line 3: "provide an additional landfill area"...for approximately 12 years".</p> <p>Kauai Notices, July 23, 2007: "to include three additional cells. Cell 1 – leachate lagoon and adjacent area. Cell 2 – area into valley area between closed Phase I and Phase II. Cell 3 – area directly over the closed Phase I.</p> <p>Is this, <u>proposal to add three additional cells</u>, same as the proposal to "prolong", "expand", or "stretch" the Phase II lateral expansion? Why is Cell 3 going to sit directly on-top of the closed Phase I? Is this idea legal? How will this idea change or help the landfill solid waste problem? What hazards and long-term effects can this create for the people, land, and surrounding areas? Not to mention wild life and marine life?</p>
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Response: Yes, the proposal to add three additional cells for municipal solid waste to the existing Phase II landfill is the proposed "lateral expansion". Development of Cell 3 over the closed Phase I landfill would increase the landfill capacity for municipal solid waste disposal without expanding the facility footprint. The proposed expansion would be designed to comply with all state and federal regulations pertaining to municipal solid waste landfills, and would be legal upon receipt of all applicable permits and approvals as specified in Table 1-1 of the EA. Short- and long-term effects of the proposed expansion are described in Section 4 of the EA.

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23	Executive Summary	<p>Proposed Action. Para. 1, line 2. Cell 1 would expand the Phase II fill area into the existing leachate lagoon and adjacent acreage.</p> <p>“No system to exclude water from the landfill is perfect and water does get into the landfill.” Water percolates through the trash and it picks up contaminants. This water is called leachate. How will you guarantee that leachate will not contaminate ground water or the ocean? What would happen if animals, insects, and rodents land near the pond?</p>
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Response: Leachate generation is expected. To effectively manage the leachate, Cell 1 and the leachate evaporation pond would be constructed in accordance with all applicable laws, statutes, and regulations including Subtitle D of the Resource Conservation and Recovery Act. (RCRA) (40 CFR Part 258). Subtitle D regulations require that a base liner be incorporated into the landfill design. Use of a base liner and construction of a leachate collection system would prevent leachate from the Phase II expansion from entering the groundwater. Periodic groundwater monitoring during active filling and post-closure would provide a mechanism for early detection of any problems with the liner or leachate collection and management system that results in groundwater contamination.

24	Executive Summary	<p>Proposed Action. Para. 1, Lines 8-9. “The expansion would provide the County adequate time to site, design, and construct a new landfill facility for the Island of Kauai.</p> <p>How did you arrive at the 12 years of operations to adequately design a new Landfill facility? 12 years is a long time, the task is an ambitious one and may be too overwhelming, anything can happen, those involved in planning might not be around, change is constant, and too much time can delay actions. Do you have alternative plans for a practical/do-able short-term (3-5 years) solution? From year 2009 through year 2013?</p> <p>There have been passed claims as to actions being taken regarding                  Long Range 1994 SWMP; 7.8.5 Implementing Actions 1994; Kekaha Landfill, Phase II Vertical Expansion, March 8, 1997; S.B. NO. 1099,                  A Bill For An Act, 2003; March 2001 Finalized Study; and this Kekaha Landfill II Lateral Expansion; additional 3 cells, and renewable energy-suitability for power production, but to no avail.</p> <p>What did these 12 years gone by do to help improve the Kekaha Landfill? Is there a “discrepancy” list to go by to prevent mistakes from happening again? Have these actions been accepted?</p>
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Response: Siting a new landfill takes numerous steps and substantial time. An implementation schedule presenting the steps and time required to site, permit, and construct a new landfill is presented below. Please note that these are estimated durations and that the actual duration could vary.

IMPLEMENTATION SCHEDULE TO SITE, PERMIT, AND CONSTRUCT A NEW LANDFILL

Item	Duration
Complete MSW Landfill Siting Study	1 year
Prepare Initial Site Report and EIS	1 ½ years
Acquire Land	2 years
Prepare Feasibility Report	1 year
Prepare Operations Plan and Design	1 year
Permit Application to DOH	1 year
Construct MSW Landfill	1 year

With this implementation schedule, the County expects that a new landfill cannot reasonably be sited in less than 6 years. If there are significant regulatory, technical, or community issues to overcome, siting a new facility could take much longer (e.g. greater than 8 years). It is uncertain whether a new facility can be sited within the expected life for Cells 1 and 2, and disposal of MSW in Cell 3 may be necessary. Although, the County does not expect that 12 years will be required to site a new landfill, if Cell 3 is developed for any amount of MSW disposal, filling would continue until the Cell has reached capacity, which is expected to occur in 2021.

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25	Executive Summary	<p>No-Action Alternative. Under the no-action alternative, the KLF facility would be left <i>status quo</i>.</p> <p>So, where's the encouragement in this? The root of the problem is based at Federal, State, and County governments for not "looking out" for the future of the people. Status quo is because there was no "Zero Tolerance" for the lack of initiatives and prompt actions by our leaders. How can you promote "NO-ACTION" to be an alternative to the landfill crisis.</p>
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Response: The County of Kauai is not promoting the No-Action Alternative. However, it is standard practice to analyze the No-Action Alternative in environmental assessments prepared under HRS 343.

26	Executive Summary	<p>Proposed Action. The proposed action involves the implementation of an expansion at the KLF.</p> <p>Is this proposed action a nice reaction to the "the nothing that had been done" in regards to the 7.8.5 Implementing Actions, dated 1994? Why wasn't there any productivity done to prevent this short deadline? Does this involvement include people who can make sound decisions and who can correct their mistakes?</p>
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Response: The County's actions in support of the Implementing Actions specified in Section 7.8.5 of the Kauai General Plan are described in the responses to comments 9, 13, and 43.

27	Executive Summary	<p>Proposed Action. No significant long-term adverse impacts are expected. No significant adverse impacts are anticipated from operation of the Phase II Lateral Expansion.</p> <p>What about the noise, smell, pollution, mosquitoes, flies, rats, mice, other pests that spread disease, algae, chemicals used to control bugs, or breakdown matter, harmful chemicals in the landfill, threat to coral reefs, algae depleting substances, offshore deposits, flooding from the leachate field, lining to catch the run-off from reusing the first landfill, a mountain top eyesore seen from tourist boats out at sea, and how will this affect the future development in and around the vicinity and community? What about the mental, emotional, and spiritual stress on the lives of the people who live there? What about the races and cultures of people who have to live with the "burdens" of a landfill? What about the people who once lived there lives in harmony with the natural environment and lived off the land there? How did you arrive at this conclusion?</p>
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Response: The County's Proposed Action would comply with current State of Hawaii regulation governing the design, construction, operation, and maintenance of municipal solid waste landfills (HAR 11-58.1), which have been developed to:

- Prevent pollution of the drinking water supply or waters of the State;
- Prevent air pollution;
- Prevent the spread of disease and the creation of nuisances;
- Protect the public health and safety;
- Conserve natural resources; and
- Preserve and enhance the beauty and quality of the environment.

Please refer to relevant sections of Chapter 3 and Chapter 4 for discussion of specific measures that have been incorporated into landfill design and/or operating procedures for compliance with HAR 11-58.1.

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28	Executive Summary	<p>According to the Resource Conservation and Recovery Act (RCRA), enacted by Congress in 1976, primary goals to protect human health and the environment from the potential hazards of waste disposal, to conserve energy and natural resources, to reduce the amount of waste generated, and to ensure the wastes are managed in an environmentally sound manner.</p> <p>How is the county going to fulfill their duty to the Kekaha people for the injuries that was done to them in the past? How are they going to make sure that the primary goals enacted by Congress in 1976 was faithfully acted upon. How are the minds of the long time residents of Kekaha, those who lived there since 1976 and who lived with the landfill for 54 years are going to be protected from what already has been damaged? These people have carried the "burden" of the landfill too long not to be compensated for the loss of their dignity. They have been mistreated and taken advantage of. Too many people have died of cancer and suffered birth defects from the hazards of waste water seepage into the water tables of the communities in Kekaha Gardens. How will this be prevented from reoccurring in the future?</p>
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Response: The County acknowledges that the community of Kekaha has lived with the landfill for many years and is looking into host community compensation options and intends to request input from the public as well as County officials on development of options. However, it should be noted that groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply.

As clarification, the nine groundwater wells referenced on Figure 2-1 and the EA text are *groundwater monitoring wells*, not water supply wells. The groundwater monitoring wells were specifically located and constructed to provide earliest possible detection of a potential release from the facility. Groundwater beneath the Kekaha Landfill drains seaward and the Kekaha Landfill does not impact any public water supply wells. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site. Per the 2007 Water Quality Report prepared by the County of Kauai Department of Water, the public water supply for Kekaha-Waimea meets, or is better than, all state and federal drinking water standards.

29	1.0	<p>Phase II began operations in 1993...have allowed municipal solid waste (MSW) filling operations...due to all the debris from Hurricane Iniki...</p> <p>If Phase II was the only operating landfill on the island, and all the debris from Hurricane Iniki went there, does "all" mean debris from business, industry, state or federal government, including military, educational, and environmental agencies?</p>
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Response: The only debris accepted at Kekaha Landfill after Hurricane Iniki was municipal solid waste. No hazardous waste was accepted.

30	1.1	<p>The proposed action, identified as Phase II lateral expansion, would provide an additional landfill area...</p> <p>Does this include Cells I, II, and III? What used to be in place of the areas where the Cells I and II will be? What is the composition of the underlying soil and bedrock? What is the flow of surface water over the site? What is the impact of the proposed landfill on the local environment and wildlife? What is the historical and/or archaeological value of the proposed site?</p>
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Response: The proposed action includes Cells 1, 2, and 3. The land was used for the cultivation of sugar prior to the Phase I landfill being constructed. Since that time, the land has been used for the disposal of municipal solid waste. Currently, the land where Cell 1 would be constructed is a leachate lagoon and the area where Cell 2 would be constructed is a valley area between Phase I and Phase II. Please refer to Section 3.4 of the EA for a description of the geology and soils, Section 3.14 for surface water resources, Section 3.2 for biological resources, and Section 3.3 for cultural resources.

31	1.2	<p>What is HAR 11-58. 1-04, HAR 11-60. 1-82, HAR 15-150, HAR 13-5, HAR 13-275, HAR 11-55, Appendix C? What is HRS 342H, Chapter 6E-8, HRS 342D? What is 40 CFR Part 60, CWA (33 U.S.C. 1251 et seq.), and Ordinance No. 808? Have any of these permits been granted so far? Did the public have input to the Plans for Implementation? Can you provide dates of when these permits will be issued? What representation from the public supported these?</p>
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Response: These are the regulatory citations for the applicable permits. All applications for these permits have yet to be submitted and are therefore pending. As applicable, per permit requirements, public hearings will be conducted as part of the permit processing and approval process(es).

32	2.1	<p>Phase I ceased operations on October 8, 1993. The Phase I landfill has no liner system beneath the refuse.</p> <p>What guidelines were available to build the Phase I landfill? What health and environmental permits were granted to build the Phase I landfill? How much total monies were raised and utilized for this project? How many feet below the road surface does the landfill go down? How many parts, and what are the parts of this landfill made of? Was this landfill designed to address specific problems? Can you draw a cross-section drawing showing the structure of this solid waste landfill? Indicate the flow of the leachate in this drawing?</p> <p><u>Howstuffworks, "How Landfills Work", Bottom Liner System</u></p> <p>"A landfill's major purpose and one of the biggest challenges is to contain the trash so that the trash doesn't cause problems in the environment. A bottom liner system separates trash and subsequent leachate from groundwater. The bottom liner prevents the trash from coming in contact with the outside soil, particularly the groundwater.</p> <p>Is there any groundwater in the area? What plans are in place to remedy the situation of a missing liner?"</p>
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Response: The Phase I landfill was permitted by the DOH to accept municipal solid waste similar to other landfills in Hawaii at that time. The Phase I landfill does not have a liner, similar to many landfills in Hawaii that operated prior to the Subtitle D regulations. Once Subtitle D regulations became in effect, all new landfills were required to have double liners underneath them (Phase II was constructed this way).

The bottom of the Phase I landfill is at an elevation of approximately 3 feet above mean sea level. Groundwater depth underneath the site varies seasonally but is at approximately 3 feet above mean sea level. Groundwater flows directly toward the ocean.

An on-going groundwater monitoring program is being performed for the Phase I landfill to evaluate any impacts the landfill may have on groundwater. Also see response to Comment 28.

33	2.1	<p>The KLF Phase II is a permitted MSW landfill for the disposal of non-hazardous solid wastes.</p> <p>How can we find out if there wasn't any illegal dumping being done at the landfill, especially after Hurricane Iniki? It being the only dumpsite for the island at the time, how can we find out if there aren't any hazardous materials buried there? Can we get a 1993 reading of the condition of the landfill before the 1993 permit was issued? Can you provide a diagram of the 32 acres of land being sub-divided into 14 waste disposal cells?</p>
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Response: Only municipal solid waste is accepted at the Kekaha Landfill. Standard operating procedures currently in place at the landfill to prevent the disposal of unacceptable waste include customer notification, scale house monitoring and inspection, random inspections, and landfill working face inspections (see Section 3.5 of the EA).

Phase II began operations in 1993, the same year that the Special Permit for Phase II was issued. A site layout plan showing the 14 waste disposal cells for the original design of Phase II is presented as Figure 2-1 of the EA for the first vertical expansion (Belt Collins 1998), which is available for review at the Kekaha Landfill facility.

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34	2.1	<p>Background, Para. 2. KLF Phase II was initially permitted...However, to accommodate waste generated by Hurricane Iniki in 1992, a vertical expansion was required and...</p> <p><u>Howstuffworks, "How Landfills Work" , Cells (Old and New)</u></p> <p>Landscape is a precious commodity and overriding problem in a landfill air space. Trash is compacted into cells.</p> <p>Are you increasing the air space? How are cells arranged? How many days of trash fit into each cell? What is the amount of trash to be within each cell? What is the amount of trash that will be compressed? Once this cell is made, how is it covered? How is space being conserved? What happens to the other solid waste materials?</p> <p>Explain how the first and second vertical expansions are connected to Phase II? Can we get a copy of the Environmental Impact Study (EIS) for this Vertical Expansion? How can we guarantee that this vertical expansion dumpsite does not have hazardous waste materials buried there, since it was the only means of a place to dump "all" waste products?</p>
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Response: The lateral expansion provides the increased air space. The proposed expansion is subdivided into three specific new containment areas called cells. The resulting cells are numbered Cells 1, 2 and 3, in order of expected construction. Each cell is defined by its own unique geometry and location. Cell 1 is located immediately adjacent to the northwest side of Phase II. Cell 2 is located in the valley between existing Phase I and II. Cell 3 is located directly over the closed Phase I landfill.

The estimated additional landfill waste capacity for Cell 1 is 442,000 cubic yards, Cell 2 is an additional 384,000 cubic yards, and Cell 3 is an additional 692,000 cubic yards. Waste compactions of 1,400 pounds/ cubic yard are projected.

The final cover will be comprised of a 18-inch vegetative/protective soil layer; geocomposite drainage layer; 40-mil linear low density polyethylene (LDPE) liner; 6-inch minimum grading layer; and 12 inches of intermediate cover material over the top of the waste.

The previous vertical expansions have already been implemented and are not part of the Proposed Action. Copies of the environmental assessments prepared for those actions are available for review at the Kekaha Landfill facility. The Kekaha Landfill does not accept hazardous waste. Operating procedures in place to prevent the disposal of unacceptable waste, including hazardous waste, are described in Section 3.5 of the EA.

35	2.1	<p>Background, Para. 3. The Phase II landfill containment system consists of a liner, leachate collection system, and an evaporation lagoon. The base liner consists of geosynthetic clay layer (bentonite [clay with high shrink-well properties]) overlain by a geomembrane liner...</p> <p>What physical and chemical properties are found in bentonite? What is montmorillonite? Why was bentonite chosen over other materials? What are the long term effects? How much information can be relied on about widespread distribution of bentonite in nature? How much information can be relied on about exposure to bentonite dust mines, processing plants, and user industries? What are the reported values for dust and respirable dust? What are the effects on the lungs from the toxicity of quartz in the clay? What about fibrosis and pulmonary infection? What effects could it have on growth rates, the liver, bronchitis?</p> <p>Does the ability of the properties in bentonite affect the utilization and commercial value of the product?</p>
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Response: The U.S. Environmental Protection Agency approves geosynthetic clay liners (GCLs) constructed with bentonite powder as acceptable barrier systems in municipal solid waste landfill applications. GCLs with the bentonite powder offer some unique advantages over conventional bottom liners and covers. They have less hydraulic conductivity (i.e., low permeability), and have the ability to self-repair any rips and holes caused by the swelling properties of the bentonite from which they are made. The GCLs with bentonite are cost-effective in regions where clay is not readily available.

Bentonite is an extremely absorbent, granular clay that attracts positively charged water particles; thus, it rapidly hydrates when exposed to liquids, such as water or leachate. As the clay hydrates it swells, giving it the ability to “self-heal” holes in the GCL.

Bentonite is affixed to the geomembrane using an adhesive.

Manufacturers usually specify individual GCL installation procedures. Basic procedures, call for rolling out the large GCL sheets onto the site subgrade. Once the installer covers the GCL with soil, the GCL hydrates by drawing moisture from the soil.

36		<p><u>Howstuffworks, “How Landfills Work” , Storm Water Drainage</u></p> <p>It’s important to keep the landfill as dry as possible to reduce the amount of leachate.</p> <p>Are there any nearby rock and gravel layers that can tear or puncture the liner? How dry is the landfill? What is being done to keep the landfill dry? How do you prevent liquids from getting into the landfill? What if the solid waste materials contain liquids? How do you keep rainwater out of the landfill? Where is the rainwater diverted to? What sort of containment is built for rainwater? Is the rainwater tested for contaminants? What if animals, insects, and rodents should go to the water area? Can you provide pictures/photos of this system in place?</p>
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Response: The subbase is prepared prior to placement of the base liner system. The base liner system will be comprised of a prepared subbase grade: GCL: 60-mil HDPE geomembrane: nonwoven cushion geotextile; 12-inch granular drainage layer, nonwoven separator geotextile; and 24 inch operations layer.

Liquids do enter the landfill either via the solid waste or from precipitation. The amount of leachate generated at the landfill will vary over time based on the amount of open (active) landfilling area, the season of the year, waste properties, and the amount of precipitation. In order to estimate a leachate generation rate, a landfill water balance was completed using the HELP model that includes waste properties such as moisture retention and storage over time.

Stormwater is managed by controlled grading on the surface of the landfill and by maintaining an engineered system of drainage ditches, channels, pipes and infiltration ditches. Drainage is managed to:

- Prevent run-on of surface water to the active disposal face or uncovered refuse;
- Minimize erosion in all areas of the site;
- Maintain roads and other ancillary facilities in useable condition under all weather conditions; and
- Prevent excessive runoff or sedimentation impacts to neighboring properties.

The landfill top deck in the vicinity of active disposal areas is graded at a slope of at least 3% away from the active area. Earth berms are constructed upgradient of the active area if needed to prevent run-on from contacting the leachate, and divert drainage around any exposed waste. Similarly, berms are constructed downgradient of exposed waste to prevent the runoff of any precipitation that has contacted waste. Such water is retained with the waste, for collection and management as leachate.

A diversion berm is maintained at the top deck to direct surface water to plastic-lined downdrains. Grass-lined ditches on bench roads and along the perimeter road conduct runoff to the downdrains, which are channels to carry water down slopes. Downdrains cross the perimeter road at the base of the landfill, and discharge into infiltration ditches. The infiltration ditches are built around the south, east and west sides of the Phase II landfill.

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37		<p><u>Howstuffworks, "How Landfills Work" , Leachate Collection System</u></p> <p>As water percolates through the trash, it picks up contaminants organic and inorganic chemicals, metals, biological waste products of decomposition. This is leachate and it is typically acidic.</p> <p>What is leachate? How do you detect leachate? What tests are being done for the leachate problem? What do you look for in this kind of testing? What happens to the leachate after its been tested? What happens to the leachate in the pond? Can leachate be reused?</p>
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Response: Leachate is the liquid that has seeped through solid waste in a landfill and has extracted soluble dissolved or suspended materials in the process.

HDPE geomembranes have been extensively tested for compatibility with a wide variety of landfill leachate, most commonly using immersion tests such as EPA Method 9090. It has been demonstrated that HDPE is the most chemically resistant geomembrane material currently available.

Liquids enter the landfill either via the solid waste or from precipitation. The amount of leachate generated at the landfill will vary over time based on the amount of open (active) landfilling area, the season of the year, waste properties, and the amount of precipitation.

Water entering Kekaha Landfill and the proposed lateral expansion percolates through the waste and collects in the granular drainage layer overlying the liner system and is removed by leachate collection and transmission pipes. The leachate collection and transmission pipes are spaced at designed intervals and constructed with slopes to facilitate gravity flow towards leachate collection manholes which discharge into leachate transmission lines. The transmission lines lead to two leachate pump stations, which pump the leachate to the existing 2-acre leachate lagoon for evaporation. The lagoon is a composite-lined containment structure. It is equipped with two floating paddle-wheel aerators to promote evaporation and maintain aerobic conditions and minimize odor.

38		<p><u>Howstuffworks, "How Landfills Work" , Covering or Cap</u></p> <p>Soil can take up space. But soil can be used to cover the "man made" cap. Vegetation can be planted in the soil to prevent erosion by rainfall and wind. It can help the old landfill to look natural and beautiful.</p> <p>Has the fine-grained silty clay from the former Kekaha Sugar Company mill waste water settling basin been tested for hazardous and toxic waste chemicals? Can we see a report of the tests for contaminants and toxicity? What happens if you see leachate seeping through a week point in the covering? How is seepage and the flow of leachate controlled?</p>
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Response: The soil from the former settling basins used as daily cover has not been tested for chemical constituents.

Once the landfill receives no further waste, the landfill is closed. The landfill is graded to the final elevations and the final cover is installed. Thereafter, post-closure care begins. Post-closure care period will be 30 years. A qualified individual will inspect the closed landfill and surrounding areas on a routine, semi-annual basis throughout the 30-year post-closure care period. Because the landfill is completely covered with the final cap, any defects would be related to settlement, subsidence or erosion, not leachate leakage. Should any defects be found, repairs would be performed.

Water entering KLF percolates through the waste and collects in the granular drainage layer overlying the landfill's bottom liner system and is removed by leachate collection and transmission pipes. The leachate is pumped to the leachate lagoon for disposal

39		<p><u>Howstuffworks, "How Landfills Work" , Methane Collection System</u></p> <p>Bacteria in the landfill break down the trash in the absence of oxygen (anaerobic) because the landfill is airtight.</p> <p>Explain what happens when there is an absence of oxygen in the landfill? Can the result of anaerobics be a hazard. What can be done to prevent this hazard? What can the landfill give back in terms of resources?</p>
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Response: Organic matter within a landfill decomposes. Anaerobic decomposition occurs due to the absence of oxygen within the landfill mass, and is the type of reaction that creates methane. When methane is generated at an operating landfill, it quickly dissipates into the atmosphere once it reaches ground level. Methane is a flammable gas when it is within a specific concentration level with oxygen. The Kekaha Landfill carefully monitors methane to ensure the gas does not migrate off property or to areas on-site where it could become a cause for concern.

Once the landfill reaches capacity, the landfill is closed. Closure will include capping the landfill and installation of improvements to control storm water drainage, minimize erosion, collect and utilize the landfill gas and protect the landfill cap. Once the landfill cap is installed, the landfill mass undergoes a slow process of stabilization, the amount of methane generated will peak and diminish over time. As part of the closure construction, a system will be installed to capture the methane and either destroy it onsite via a flare or utilize it to generate energy.

40	2.1	<p>Compliance with HAR Title 11, Chapter 58.1 requires that groundwater and landfill gases be performed as part of the landfill operations.</p> <p>In the groundwater monitoring, how does decomposition of solid waste affect the groundwater? Explain how you might detect groundwater contamination. How do you determine if there are any landfill-related contaminants present in groundwater? What measures are used to determine if there is presence of leachate or seepage?</p>
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Response: There is an established groundwater monitoring network at Kekaha Landfill (refer to Figure 2-1 of the EA for locations of existing groundwater monitoring wells). Post-closure groundwater monitoring for the closed Phase I landfill is conducted on a semi-annual basis in accordance with the *Revised Groundwater Monitoring Plan* (Earth Tech 2004) for Phase I. The purpose of the monitoring is to collect the data required to assess whether chemicals typically found in landfill leachate occur in groundwater downgradient of the Phase I landfill at concentrations that would warrant continued groundwater monitoring or corrective action. The methods and procedures presented in the *Revised Groundwater Monitoring Plan* (Earth Tech 2004) follow the general statistical approach described in the *State of Hawaii Landfill Groundwater Monitoring Guidance Document* (DOH 2002).

41	2.2	<p>Proposed Action. The County proposes to expand the limits of the Phase II fill area to include three additional cells.</p> <p>How will you determine which cells should be built first? What order of priority will these cells take? What is the reason for the priority of building these cells? How will each cell be used up? What is the anticipated years for each one to be filled up?</p> <p>Cell 1: What will happen to the leachate that was in the lagoon? Will the leachate lagoon be tested for acceptable levels of various chemicals (biological and chemical oxygen demands, organic chemicals, pH, calcium, magnesium, iron, sulfate and chloride)? Will these be allowed to settle before the fill goes into it? Will the leachate lagoon be treated like any other sewage/wastewater? Will the leachate be recirculated? The location of the new leachate lagoon, next to the office and scale house does not work for humans. Something as hazardous as that should be kept out of sight and inhalation.</p> <p>Cell 3: Why do you keep piling trash on top of the closed Phase 1 landfill? Trash is just merely being buried there, it doesn't break down trash. The groundwater must be monitored and maintained for 30 years. What are the results of the groundwater testing in Phase 1? Have other alternatives such as bioreactors been considered to speed the breakdown of trash?</p>
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Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Kekaha Community Council  
 Date: August 20, 2007

Response: Construction and filling of cells will be sequenced as Cell 1, 2, and 3, in that order. Development of Cell 1 requires fewer permits and approvals than Cells 2 and 3 and can be completed prior to January of 2009 (when the existing Phase II landfill is expected to reach capacity). The timeline for development of Cells 2 and 3 is expected to extend beyond January 2009. Cell 1 is estimated to provide air space for an additional 3.4 years of municipal solid waste filling. Cells 2 and 3 would add an additional 3.2 and 5.4 years, respectively.

Cell 1: The leachate lagoon is designed so that the liquid leachate evaporates from the lagoon. The very small amount of remaining solids that accumulate above the lined pond bottom are periodically cleaned out as necessary. Prior to relocating the pond, the soil material in the lagoon bottom will be sampled and sent to a chemical laboratory to determine whether it can be disposed in the Phase II landfill as non-hazardous solid waste. The new leachate lagoon will not be visible to the public and will have a fence around it. The leachate from the lagoon is non-hazardous and will not pose a threat to humans or the environment.

Cell 3: Groundwater monitoring data for Phase I wells has been added to Section 3.14 of the Final EA.

42	General	Couldn't we be provided with better blueprints? The black and white is not effective. It's very small to read and understand what you are proposing.
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Response: Chapter 2 figures have been revised to add clarity in the Final EA.

43	General	<p>To have a landfill located on flat land with no trees, or mountains to hide it from view is a "sight for sore eyes". From the ground level, the highway, and the ocean, how will 85 feet of solid waste appeal to the minds of the people? How will the smell affect them? The idea of a "trash dump" is already a negative impact on the life of the people. How is this expansion going to protect the dignity of the people?</p> <p>Our priority should not be to expand a landfill so that we can fill it up. All peoples must take responsibility for the environment. We should cut back on waste and divert other waste products to different sites. Different sites should be built for types of disposal. Certain waste can be recycled or reused. Increase the waste products diversion from 21% to 50%. Launch a periodic strategic campaign and give incentives. Make contests between cities. The indication from the people at the public hearing is that they are ready to be proactive and reuse, and recycle all garbage before it goes to the landfill.</p>
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Response: The County is looking into host community compensation options and intends to solicit input from the public as well as County officials on development of options.

In addition, the County is committed to increased diversion. Over the past seven years since we hired our first Recycling Coordinator, there have been consistent improvements in the area of waste diversion. Notable program improvements over the past few years have included: the introduction of mixed paper and plastic recycling opportunities in the Kauai Recycles Program, a new Kauai Recycles location in Lawai, green waste collection at the Hanalei transfer station, distribution of free backyard home composting bins to residents, acceptance of appliances, tires, and propane tanks for recycling at multiple transfer stations, enforcement of the commercial corrugated cardboard ban, waste diversion assistance to the business sector, and the introduction of the Bottle Deposit Law with seven redemption centers on island. For a complete list of programs, log onto the recycling pages of the County's website at [www.kauai.gov](http://www.kauai.gov), or call the County Recycling Office at 241-6891.

The County has contracted a consultant to update our ISWMP. The plan is draft form at this time, and includes recommendations for further improvements to the County's waste diversion efforts. Some of these recommendations are being carried through at this time, including a doubling of the recycling staff assigned to implement and oversee waste diversion programs. It is everyone's responsibility to manage waste from cradle to grave, and more programs require increased funding and public commitment. We are doing our best to provide cost effective, convenient programs that maximize participation, and appreciate the public's support as we move forward. The ISWMP will be available for public review in early 2008.

44	General	The concern about the old landfill is that it has too much unknown waste piled up. We don't know what types of waste and residue went into the landfill due to Hurricane Iniki. It should be shut down after it has been used to its original intentions. Proper vegetation should be planted there as part of a beautification project. It should be monitored for groundwater contamination for 30 years.
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Response: The only debris accepted at Kekaha Landfill after Hurricane Iniki was municipal solid waste. No hazardous waste was accepted. Kekaha Landfill will be landscaped as part of closure/post-closure activities. In addition, long-term groundwater monitoring will be conducted for 30 years following closure of the facility.

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45	General	If the old Phase 1 is shut down then the county should start designing a new waste facility, hidden in the valleys, to replace it.
<p>Response: The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory committee comprised of members of the public and local officials to assist in the ranking of potential locations. The completion of the siting study is anticipated to be in the fall of 2008.</p>		
46	General	Is there a generator's list identifying all government and private industries who generate any type of hazardous waste?
<p>Response: The U.S. Environmental Protection Agency maintains an on-line database of hazardous waste generators which is available to the public at <a href="http://www.epa.gov">http://www.epa.gov</a>. No hazardous waste is accepted at the Kekaha Landfill.</p>		
47	General	<p>It is surprising that preliminary environmental tests have not already been done. The landfills were there since 1953 and they haven't tested the land for alternative uses yet?</p> <p>I don't agree with the 12 year permit. Kekaha could get stuck with more landfills. What if the plan doesn't work? What if something better comes along? The project should be taken in steps because something better could develop along the way.</p> <p>The appointed committee should be made up of people with various backgrounds, a wide representation from various cross-sections of our government, and a balanced geographical distribution. The committee should be on a working "mission" to find the best solution to the solid waste problem on Kauai, to identify weak areas in the plan that can be improved, strong areas to be implemented immediately, determine which ones are do-able short-term solutions, long-term adaptable solutions, and an alternate sight for a future hi-tech, hi-output landfill facility.</p> <p>There should always be a contingency plan to include emergencies. The project is too ambitious, overwhelming, and not enough time or people to work it out without having to pay them. Taking it in steps is a more realistic and tangible approach to getting work goals done.</p> <p>A compensation for the Kekaha Landfill abuse can be a community beautification project for the citizens. Build a cultural or theme park which includes a swimming pool for all ages, young and old. A new community facility for all ages. Health and medical benefits for those whose health has been affected. That these ideas will employ the people who live there. Build them a nice recycling facility with a lower users fee.</p>
<p>Response: The Kekaha Landfill Phase II Lateral Expansion is proposed to be implemented in three phases corresponding to Cells 1, 2, and 3. If siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed.</p>		
<p>See response to Comment 9 regarding the process underway to update the ISWMP.</p>		
<p>The County is looking into host community compensation options and intends to request input from the public as well as County officials on development of options.</p>		
48	General	<p>How long does it take to build a cell? I agree that Cell 1 has to be the first to go. Because of the leachate problem it has to be cleaned and worked on first. Cell 3 should be capped permanently because it poses a threat to our health. According to a groundwater monitoring done in March 1996, a significant increase in total arsenic in a well was detected. There was landfill gas migrating from the unlined closed Phase 1 landfill which may be impacting the groundwater in Phase II monitoring wells. This was originally established as a debris recycling station. A Site Plan was never approved. Close Phase II when it has reached it's capacity. Cell 2 can be used.</p>

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Response: A landfill cell can be constructed usually within 2 or 3 months, however, related construction (such as relocation of the leachate lagoon) can add more time to the construction period. Construction and filling of cells will be sequenced as Cell 1, 2, and 3, in that order. However, if siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed.

Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate. Although arsenic has been detected in the down-gradient wells, it has also been detected at similar concentrations in the up-gradient well (located between the landfill and the highway). The significance of this is that any contaminant present in the up-gradient well could not have come from the landfill since the groundwater beneath the site always flows makai, toward the ocean. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.

49	General	Could it be that the county was already fined for contaminating groundwater wells Phase I, in 1996? Is the county going to be fined again for the contamination found in groundwater Phase II?
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Response: There have been no fines associated with the groundwater "monitoring" wells at Kekaha Landfill. As clarification, the nine groundwater wells referenced on Figure 2-1 and the EA text are *groundwater monitoring wells*, not water supply wells. Groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply. Groundwater beneath the Kekaha Landfill drains seaward and the Kekaha Landfill does not impact any public water supply wells. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site. Per the 2007 Water Quality Report prepared by the County of Kauai Department of Water, the public water supply for Kekaha-Waimea meets, or is better than, all state and federal drinking water standards.

50	Appeal	<ol style="list-style-type: none"> <li>1. Do not vertically expand the Phase I closed landfill.</li> <li>2. Clean up the leachate lagoon and then expand vertically and horizontally</li> <li>3. Use the valley area between Phase I and Phase II.</li> <li>4. Do not give the 12 year permit expansion.</li> <li>5. Do not give the County a Conservation District Use Application permit for Phase 1 since it has contaminated the groundwater well. The well should be reclaimed by the watershed council after the County relocates the groundwater.</li> <li>6. Do not waive the SMAP since Phase I groundwater contamination may be affecting Phase II groundwater monitoring wells.</li> <li>7. The County find a way to design a new Solid Waste facility away from Kekaha, under 12 years.</li> </ol>
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Response: Comments noted.

51	General	<p><u>DISAPPROVE</u></p> <ol style="list-style-type: none"> <li>1. Do not vertically expand the Phase I closed landfill.</li> <li>2. Do not give the 12 years permit expansion.</li> <li>3. Do not give the County a Conservation District Use Application permit for Phase I since it has contaminated the groundwater well.</li> <li>4. Do not waive the SMP since Phase I groundwater contamination may be affecting the Phase II groundwater monitoring wells.</li> </ol> <p><u>APPROVE</u></p> <ol style="list-style-type: none"> <li>1. Clean up the leachate lagoon, use it as Cell 1, and expand it vertically and horizontally.</li> <li>2. Use the valley area between Phase I and Phase II.</li> <li>3. Kekaha Watershed should reclaim the groundwater well under the closed Phase I landfill after the county has decontaminated it and relocated it to a safer location.</li> <li>4. The County locate a way to design a new Solid Waste Facility away from Kekaha, in under 12 years.</li> </ol>
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Response: Comments noted.



**From:** Erik in Koke'e [mailto:erik@islandunderground.net]  
**Sent:** Friday, August 24, 2007 3:17 PM  
**To:** Mason, Michelle  
**Cc:** OEQC@doh.hawaii.gov; publicworks@kauai.gov  
**Subject:** Kekaha Landfill Public Comment

**Kauai Westside Watershed Council**

**P.O. Box 246**

**Kaunakani, HI 96747**

August 24, 2007

Re: Submittal of Responses, Concerns, and Questions in Regard to the Kekaha Landfill Expansion and Extension Plans

Aloha,

In conjunction with the Kekaha Community Council, the Kaua'i Westside Watershed Council supports the cumulative presentation of the responses, concerns, and questions that arose in the review of the assessments made regarding the Kekaha Landfill Expansion and Extension Plans with additional commentary. We have been privileged to present the findings of one of our associate members of KWWC who currently resides on Oahu. At the same time, however, she has retained her roots to her hometown, Kekaha, Kauai, HI as you will note by the narratives she has written on our behalf.

As it had been noted at the public hearing held at the Waimea Neighborhood Center on Thursday, August 9, 2007, residents of the community of Kekaha have been adversely impacted by the close proximity of Kauai's only licensed municipal landfill since 1953. Attending that meeting were Jose Bulatao, Jr., Patrick Pereira, and Evelyn Olores who are residents of Kekaha.

The Kauai Westside Watershed Council wishes to reiterate what was clearly expressed in the cover letter sent to you by Mary Jean Buza, Interim President of the Kekaha Community Council. Both organizations "now look forward to clarifications to conclusions that were reached regarding past, present and future processes and procedures in specific regard to hazardous waste materials." We are also anticipating appropriate documentations of studies made in regard to environmental impacts pertinent to the surrounding areas in specific regard to the natural and finite resources of the aina from mauka to makai. Your responses will provide assurances of safety and health considerations that can be substantiated.

We anticipate that the clarifications, documentations, and assurances may be provided to us in a timely manner (similar to the request that we present our questions and concerns)

and that the format will be in writing, as well. The standard requirement, we believe, is within 30 days."

Mahalo for your time and attention to this crucial matter. Please find the attached document submitted by the Kauai Westside Watershed Council for your consideration.

Sincerely,

*Erik Coopersmith*

Secretary-Treasurer, Kauai Westside Watershed Council

DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

KEKAHA LANDFILL  
PHASE II LATERAL EXPANSION  
Kekaha, Kauai, Hawaii

JULY 2007

Public Comments

## 2.0 PROJECT DESCRIPTION

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

To take no-action is action not taken. *For every action there is an equal and opposite reaction---Newton's Law.* The following are actions and reactions to the proposed project.

### 2.1 Project Location and Background

Location. Para. 1, lines 6-7. The Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. The Phase I landfill has no liner system beneath the refuse.

The purpose of a liner is to prevent leachate from seeping into the ground beneath the landfill. Between 1953 and 1993 is a lapse of 40 years. For 40 years there has been no liner system beneath the refuse. For 40 years trash has been consistently buried into this landfill. 40 years of trash produces leachate build up. Leachate is acidic. Leachate seeps into the ground and comes into contact with the groundwater. Isn't groundwater among the Nation's most important natural resources? Isn't there evidence that once pollutants enter a groundwater or aquifer, the environmental damage can be severe and long lasting? Doesn't flushing out pollutants in the aquifer take a very long time? When did the county have knowledge of Phase I not having a liner? At what year was the "no liner system" discovered? What was done in the past to stop the dumping? People and other living things could have been using this contaminated water. At what point did the contaminants infiltrate the water table? Did it flow towards the well of the stream? What measures were taken to protect the well from further contaminating other wells? Was the public informed of this matter?

### 2.1 Project Location and Background

Background. Para. 3, lines 10-13. The 1.9 acre lagoon...and it was designed to completely evaporate all leachate collected from the landfill during a normal precipitation/evaporation year.

What happens when the water is dried up? What is pre-cipitation? What is a normal precipitation/evaporation year? What is an abnormal precipitation/evaporation year? Was there ever an abnormal precipitation/evaporation year? What happens to leachate during an abnormal year?

### 2.1 Project Location and Background

Background. Para. 4, lines 7-9. A soil cover, consisting of fine-grained silty clay from the former Kekaha Sugar Company mill wastewater settling basin, is used when the design grade of a particular layer is reached.

Has this fine-grained silty clay from the former Kekaha Sugar Company mill wastewater settling basin been tested for harmful deposits, sediments, residues,

chemicals, pesticides, organic matter, phosphorous, nutrients, heavy metals, microbial contaminants, toxic organic compounds, salinization, silt, and suspended particles? Was this silty clay used in the Phase I landfill? What are the chances of this fine-grained silty clay being airborne and inhaled into the lungs and respiratory system? Did each of the 14 waste disposable cells in Phase II get covered with this silty clay? What is on top of the silty clay layer? How is it being kept from going airborne? What guarantee is there that living things didn't breathe, ingest, and absorb dangerous toxins into their bodies, from the airborne silt?

## 2.1 Project Location and Background

Background. Para 6. Lines 1-4. Compliance with HAR Title 11, Chapter 58.1 requires that groundwater and landfill gas monitoring be performed as part of the landfill operations. Groundwater from three Phase I and six Phase II groundwater monitoring wells (Figure 2-1) is sampled on a semi-annual basis to determine if there are any landfill-related contaminants present in the groundwater.

The Figure 2-1, Existing Site Conditions, is difficult to identify the nine (9) existing groundwater monitoring wells, and existing property line. Why does the Legend only address MW-1-3 as an existing groundwater monitoring well and not the other 8 wells? Why is there MW I's and MW II's? Why are these wells not addressed in the legend? The existing well, or probe to be abandoned is hidden from view. Which one is it? What is a probe? Why is this well, or probe going to be abandoned? If one well is going to be given up, who are you going to give it up too? Why are the 8 other wells not being removed and relocated from the landfill areas? Why are the 8 other wells being monitored? Aren't these nine wells connected under ground? If one well is infected won't the other wells be too? Where is the source of the groundwater located? What are these nine (9) wells being used for? Aren't groundwater aquifers critical sources of both drinking and irrigation water? What is HAR Title 11, Chapter 58.1? What is the reason for this compliance requirement? Why are there so many, nine (9) groundwater wells being monitored and sampled? When was the last time all 9 wells were sampled? From the last sampling, are there any landfill-related contaminants present in the groundwater? Was there any significant changes detected in precipitation, drought, and pumpage? Show the result of the last monitoring and samplings of these wells.

Figure 2.1 Existing Site Conditions, Notes: #1. ...portions are anticipated to be updated based on ground survey. What is meant by "anticipated to be updated"? What exactly is expected to change in this survey? Why would it change? When will it be expected to change? Under what conditions will it change?

Is the Department of Environmental Protection (DEP) relied upon to implement the laws relating to emergency response? Is there an Emergency Response Team in place? Is there an emergency response program committed to having management personnel standby to receive notifications of pollution incidents and

environmental emergencies? A type of response would involve public water supply shortages or contamination. Have there been any emergencies in the past that require this type of response?

## 2.2 Proposed Action

A base liner system would be installed on top of the existing Phase I cover system, which would allow for vertical expansion of the Phase I area to 85 feet above msl. A passive gas extraction system, currently in place for Phase I, would be rerouted during construction of the base liner system for the lateral expansion into Cells 2 and 3.

ELIMINATE THIS ACTION. This is an unsettling and disturbing condition. How is this going to restore the damage that was done to this landfill and the well? Why continue to use the Phase I landfill that is contaminating our water wells? How is that going to solve the contamination problem? The effects of toxins eventually show up in living things. Covering up Phase 1 is not going to make the fill "below", or fill "above" any safer. The contaminated wells aren't going to get better. Why cover it up before detoxifying and decontaminating? How will the nine (9) groundwater wells be cleaned, saved, reused, and reclaimed? Isn't this going to require a separate environmental assessment? Won't this action require a separate permit?

## 2.2 Proposed Action

Expansion into Cell 1 (the existing leachate lagoon area) would require development of a new leachate management system. The existing leachate lagoon would be demolished and relocated adjacent to the office and scale house along the northeastern property line of the facility (Figure 2-3).

Again, the Figure 2.2 Proposed Action Subbase Grading Plan, is distorted and difficult to read and understand. The cell development limit is hard to identify. If you're going to expand over an existing area, (in this case the existing leachate lagoon area), it's valid that the existing leachate lagoon has to be demolished and relocated. Correctly managing leachate for the new expansion Cell 1 would be to keep pace with changing environmental regulations. It would be ideal to design it to collect all leachate from the disposal cell. This would allow the Cell 1 to be built with a new leachate management system in place. The new Cell 1 would provide enough filling capacity up to 2011. The new Cell 1 would be able to support the vertical and lateral expansion of existing Phase II until 2011. This seems to be a workable short-term solution which would provide another 4 years of refuse.

RECOMMEND all 9 groundwater wells in the Kekaha Landfill be decontaminated, detoxified, redirected, moved, and reclaimed by, given back to the proper handling of the Watershed Management and thereby extend the public water system to serve the residents.

DO NOT consider the lateral expansion over the closed Phase 1 landfill to include overlay base liner system until the existing waste mass of the closed Phase 1 is removed.

REMOVE the existing waste mass of Phase 1. Apply a full range of land remediation to assess risks and opportunities and develop strategies. Chemically test for disposal treatment and cross contamination targeting previous uses and layouts.

COMPLY with federal regulations requiring post-closure care and maintenance of the landfill for at least 30 years after closure. Landfills are not exempt from Environmental Policies.

### 2.3 Project Schedule, Costs, and Source of Funding

The Proposed Phase II lateral expansion would be sequenced to allow for phased construction. Construction activities for expansion into Cell 1 would commence in approximately June 2008 and would be completed in November 2008. ....Construction costs for the Cell 1 expansion are estimated at \$9 million; construction costs for Cell 2.....

Plan what to do, if you can't fix all of it, fix what you can, do the best that you can, plan for the next stage, do what the plan said, fix what you can, do the best you can, repeat the cycle.

What is the level of contamination in Phase II wells from the arsenic detected in the closed Phase I? Does it require formal remediation? The Phase II landfill is operating until it reaches full capacity of a height of 85ft above msl by August 2009. The Phase II landfill to include the activities of a horizontal expansion into the leachate lagoon area ONLY. This would provide and accommodate landfill capacity for 4 years, ending in 2011. Construction activities for expansion into Cell 1 to include a full range of remediation services and compliance with environmental protection policies.

Of the estimated \$21 million for Cells 2 and 3, what is the construction cost for Cell 2? How would the Cell 2 phased construction be sequenced?

### 2.4.2 Alternatives Considered But Not Carried Forward

#### Excavation of Phase I to Construct a New Subtitle D Base Liner System

This alternative proposes to excavate and remove Phase I to construct a new Subtitle D base liner system in the Phase I area. Phase I refuse would be relocated into the newly constructed Subtitle D facility. This alternative has the highest cost and would only add an additional 1.8 years to the life of the facility.

PROTECT THE GROUNDWATER. Restore and protect watersheds through proper planning and management of water resources and their uses; reduce the impacts of nonpoint sources of pollution on water resources; form partnerships

and building local capacity to restore and protect water resources; including drinking water sources; and educating citizens about watersheds and watershed management. What's the long-term cost of not protecting the groundwater vs the short-term high cost of correcting the root of the problem—leaders who eliminate the process of correcting the contaminated water sources? If the leaders do nothing to clean-up the spill then they will be responsible for possible health threats and deaths. The health and well-being of people and all living things would be at stake. People's livelihood would be threatened. People and living things would die. If this negligent behavioral is not corrected, the people and other living things will suffer.

Determine the extent of the contamination to comply with local, state, and federal remediation requirements. At what level is the contamination? Does it require formal remediation? Will using the landfill as it is (without a liner) and layering it with a new liner, then dumping more trash, change the groundwater contamination? Can leachate seepage be corrected without excavating the site? Can leachate seepage be prevented from contaminating other wells? Can the other wells be saved? Can the groundwater be reclaimed?

Involve construction activities to include a full range of remediation services and compliance with environmental protection policies. Can minimization of quantity of materials for treatment or disposal be carried out? Can the chemical testing and selecting minimize waste (hazardous or non-hazardous) for disposal treatment? Can the contamination in the ground water be removed and treated? Is there a landfill tax exemption for developing best value remediation strategy and implementation plans?

Comply with post-closure care and maintenance. Protect and periodically monitor the ground water and surface water around the perimeter of the site.

What is the newly constructed Subtitle D facility?

### 3.0 DESCRIPTION OF THE AFFECTED ENVIRONMENT

The affected environment describes the natural and man-made environments, which includes...and water resources.

#### 3.2 Biological Resources

The irrigation ditches that were used by Kekaha Sugar Company provided a marginal wetland habitat in the project vicinity (Belt Collins 1998).

There was a lax in the regulation of sugar cane agriculture. The Sugar industry was and still is the "100 pound gorilla" of the phosphorous discharge. Sugar cane fields discharge pollutants. Sugar cane productivity used nitrogen, phosphorous, potassium, and herbicides. Agrochemical movement is 1. dissolved in run-off water 2. dissolved in deep percolation water 3. absorbed to eroded sediment. The water coming out of canals in cane fields is very dirty.

Ditches retain the water. Water carries nutrients which can't be seen. Herbicides move predominantly in solution (runoff). What about the contaminated run-off? Were the dwellers of the wetland habitat monitored for long-term side effects from the contaminated runoff in the irrigation ditches? Was there any biological effects found in the dwellers of the wetland? What about the white spot syndrome virus? Virus lives in the water. Ceatech has been draining its effluent for years into Kinikini Ditch, which runs into various streams and rivers before reaching the ocean. The draining was at an all time high. What about pesticides and herbicides used in the sugar cane fields. What about atrazine in Hawaii agriculture?

### 3.4 Geology and Soils

Geology. The thickness of the coastal...to more than 400 feet along the seaward edge of the plain. ...The thickness of sedimentary deposits underneath the KLF is anticipated to be over 400 feet.

What is the contamination level of the leachate seepage to the coral reefs and ocean water? The thickness of sedimentary deposits obviously didn't prevent the seepage of leachate in the closed Phase 1, and it didn't guarantee prevention of contamination into the groundwater wells. According to a groundwater monitoring done in March 1996, there was detection of a significant increase in total arsenic in a well. There was landfill gas migrating from the unlined close Phase 1 landfill which may be impacting the groundwater in Phase II monitoring wells.

#### Soils

Soils...are classified...as...fine sand that forms a well-drained calcareous soil. This soil is too permeable to allow for surface water ponding or runoff; as a result, the potential for vertical migration of water is great.....

Is this fine sand, well-drained, containing limestone, leaky, porous sand the foundation underneath the KLF? If this soil is too permeable, isn't the landfill sitting on fragile earth? It's like setting a hot stove on ice. What is the guarantee that the landfill isn't sinking into the ground? When was the last testing of the ground condition and earth movement done? What were the results? If this soil is too permeable, and it does not allow for surface water ponding or runoff, then the reason to move the landfill at a more solid ground location should be top priority. The potential for vertical migration of water is great. This means that leachate can runoff onto the beach harming beach goers, and then gradually into the ocean, polluting the ecosystem. This is landfill suicide.

### 3.5 HAZARDOUS MATERIALS AND HAZARDOUS WASTE

The KLF does not accept materials designated as hazardous under 40 CFR Part 261...wastes as defined in 40 CFR Part 761...radioactive materials, insecticides and poisons, untreated infectious waste, or improperly packaged asbestos waste. Operating procedures currently in-place to prevent the disposal of

unacceptable wastes are outlined in the *Operating Plan, Kekaha Landfill Phase II* (A-Mehr 2004).

What about the closed Phase I landfill? If Hurricane Iniki caused any illegal dumping, not to mention Haz-Mat materials from hospitals or military facilities, doesn't the proposed action to pursue no excavation on Phase I, be in contrary to your Operating Plan (A-Mehr 2004)? If part of the lateral expansion proposal is to pursue covering that poisoned landfill Phase I with a tarp layer just so it can be piled high with more garbage, isn't that like adding "salt to the wounds"—making a dreadful landfill terribly evil? Just because the Phase I landfill is closed and new laws come into practice it doesn't solve the contamination problem in the groundwater monitoring wells under the landfill.

Para. 2, Lines 7-11. If hazardous or unacceptable wastes are discovered during inspections...KLF will reject such wastes...and complete a load rejection form. The transporter...returning...to the generator for proper disposal.

Is there a generators list to identify all government and private groups who generate any type of hazardous waste? When the trucks enter the landfill yard it should raise a red flag.

Para 3, Lines 1-7. The KLF stores and uses petroleum products such as diesel fuel, lubricating oils, and waste oil. A 2,000 diesel above ground storage tank...is located in the maintenance/equipment fueling area. A service tanker truck...is parked...In addition, small containers are used to store lubricating oils and used oil at the facility. Typically, the drums are placed on spill control pallets or in secondary containment bins and are located inside maintenance shop.

The main sources of groundwater contamination are 1. storage tanks leaking- storage tanks can contaminate groundwater, 2. hazardous waste sites-barrels of hazardous waste laying around can leak into the ground water. Where is the maintenance/equipment fueling area located on the landfill property map? What kind of materials are the storage tanks, tanker truck, small containers, drums, and bins made of? What are the chances of these storage tanks leaking? What are the chances of the drums and bins spilling? How long are these containments stored at the fueling area and maintenance shop? What happens to these containments after they are filled to capacity? Is there a record log of the amount of containments filled to capacity since 1953? Does this log include the burial or permanent storage sites? What did an outstanding compliance issue outline, reference, or reveal five years ago?

### 3.6 Land Use Ownership

The KLF facility is...owned by the State of Hawaii and administered by the DLNR. The Phase I area...has a state and county land use designation of Conservation District and is also within a County of Kauai Special Management Area...The Phase II landfill...has a state and county land use designation of

Agricultural District...set aside the Phase I and Phase II areas for landfill purposes, to be under the control and management of the County of Kauai.

The Phase I area should not be included in the proposal for Kekaha Landfill Phase II Lateral Expansion until it has been excavated to construct a new subtitle base liner system. Hazardous materials may contaminate groundwater if the protective layer of a landfill is cracked. Because it is sitting on a Conservation District, its permitting process is subject to the provisions of Title 13 Chapter 5 of the Hawaii Administrative Rules pertaining to Conservation Districts (Figure 1-2). Just because the Phase I landfill footprint has been in existence for 54 years and the proposed future land use would not change this, doesn't validate or justify a waiver from the Conservation District Use Permit (CDUP) requirements. The proper authorities need take responsibility and should look into the groundwater contamination problem monitoring wells, and make a determination as to how detrimental it is in the long-run. The county should not abuse this power. To overlook that fact that the Phase I landfill has been unlined, dripping leachate, and in existence for 54 years, is criminal negligence. The county must take aggressive and appropriate actions to protect our environment and water sources.

The Conservation District protects existing natural resources, ensures compatibility with locality and surrounding areas, preserves existing natural beauty, and preserves existing physical and environmental resources. The Special Area Management Guidelines, 205A-26, HRS, ensures minimal adverse impact to natural resources, and minimizes impacts to water quality. Where is the integrity, moral and ethical characteristics of the ownership of these administrations if their powers are not being used to protect the people and the environment?

Para 2. The Phase II area of the landfill was approved for use by the State Land Use Commission through the issuance of a Special Permit on July 1, 1993. This Special Permit allows for land classified as State Agriculture District to be used for landfill purposes. The Special Permit requires that use of the land follow specific conditions as provided by the...State Land Use Commission. No time limit was set for this Special Permit.

What is a Special Permit? There is evidence that a piece of agricultural property [Hawaii Brownfield Assessment Program, Brownfields] Kekaha Ag-Industrial Area is contaminated with Petroleum, PCB's, and metals. There is possible contamination from former agricultural activities on the property. Did anyone on Kauai know that these agricultural lands were already contaminated? Was the only landfill on Kauai, the KLF, tested and treated for former agricultural contamination? Did anyone realize that adding a landfill to an already contaminated site would pose a deeper threat to the people and the environment? What are the specific conditions and requirements as provided by the County, and other approving agencies? Do these conditions and requirements give autonomy and sole permission to the County and to the

proposal at hand? If there was no time limit set for the Special Permit does it mean that the County can do whatever it desires? Does the Special Permit give the county flexibility and control over the implementation of this proposal? What is the definition and correlation between “expanding the limits” and “no time limit”? Landfills are not exempt from environmental policies. Is this another “use and abuse” of power?

How will this Special Permit be used to solve the contamination problem of the groundwater and nearby living spaces located next to the landfill site? From aerial view the Kekaha Gardens where people reside over an old dumping ground and New Houselots, and before solid waste management and environmental protection rules were enforced. What good is a “Special Permit” if it should be used in contrary to the good of the people and environment? What is their to gain by using this permit?

### 3.9 Safety and Health

Specific safety and health concerns related to landfill operations...

Its agonizing and oppressing that the groundwater contamination is not a major concern or not mentioned as a health risk. The safety of customers and employees includes all environments.

### 3.10 Socioeconomics

The population within the CDP is 43.6 percent Asian, 12.4 percent Pacific Islander, 0.2 percent Black or African American, 8.7 percent Hispanic or Latino, and 15.9 percent Caucasian.

The percentages of the low-income poor population in Kekaha are higher than the overall low-income poor population of the island of Kauai. The percentage of the low income characteristics of the “colored” people of Kekaha is either 50% or higher than other parts of the island. What percentage out of the 29.5 Caucasians live at the military base? What do the most recent statistics reveal in terms of low-income poor population in Kekaha? Is anyone finding out why landfills are being sited in poor communities and communities of color?

### 3.14 Water Resources

This section describes the availability and quality of water resources...and groundwater....Groundwater includes water present in aquifers (perched, unconfined, confined, or artesian). The ROI for water resources....and the underlying aquifer.

#### Groundwater

Underlying the Kekaha Mana coastal plain are two aquifers having distinctly different hydrologic properties. ....

Para 3, Lines 1-7. Groundwater monitoring is conducted...Groundwater monitoring in 2006 detected a statistically significant increase in total arsenic within downgradient well MWII-6. An alternative source demonstration...to investigate possible sources of the arsenic. Results of the evaluation suggest that landfill gas migrating from the unlined, closed Phase I landfill may be impacting the groundwater in Phase II monitoring wells (Earth Tech 2006a).

THIS DISCOVERY IS VERY REVEALING, ALARMING, AND IS AT THE THREAT LEVEL 5 OF 4 LEVELS! ITS STAGE IS IRREVERSIBLE? THE DOWNPLAY OF THE ARSENIC IN THE WATER IS PATHETIC! IF THIS WERE THE CASE SET IN AN AFFLUENT COMMUNITY, WHERE THE MAJORITY OF THE LOCAL, STATE, AND FEDERAL LEADERS WERE RESIDING, THE COUNTY WOULD BE AGGRESSIVELY PURSUING A DECONTAMINATION PROCESS. BOTTOM LINE IS THAT THE AFFLUENT NEIGHBORHOOD WOULD NOT TOLERATE THIS KILLING FIELDS!

RECOMMENDATION: ALL THE AUTHORITIES BE OBLIGATED AND MANDATED TO DO THE RIGHT THING--CLEAN IT UP!

#### 4.0 Environmental Consequences

This section analyzes the environmental consequences of full-build (e.g., analyzes the environmental consequences of expansion into Cells 1, 2, and 3).

##### 4.1 Air Quality

Emissions of methane, carbon dioxide, and NMOC from the decomposition of refuse would increase if the landfill capacity is expanded.

What is NMOC? Why couldn't the same LFG collection system scenario apply to the excavation of closed Phase I landfill? Why can't the daily trips to the landfill and the daily quantities of waste be reduced and decreased? Why isn't there a more aggressive way of diverting waste from the landfill?

##### 4.2 Biological Resources

Proposed Action. The U.S. Fish and Wildlife Service was consulted during the environmental impact analysis process for the KLF Phase II vertical expansion....For this consultation...determined that there would be no adverse impact to protected species as long as...there is no leachate discharged into ground surface waters (Earth Tech and Wil Chee 2004).

Contrary to popular belief, see Groundwater paragraph 3, lines 1-7 above. This recent discovery supersedes the 2004 U.S. Fish and Wildlife Service consultation.

##### 4.4 Geology and Soils

Proposed Action. Para 2, Lines 5-7. The stability analysis looked at two different failure scenarios based upon the geometry of the facility, foundation soils, and

waste mass. Based on the soil and waste mass properties, the proposed landfill expansion is expected to remain stable.

What are the chances of a flawed analysis? Explain the two different failure scenarios that was conducted? If the foundation soils is made of a well-drained calcareous permeable soil how can it be strong enough to carry the waste mass? How guaranteed is this type of soil foundation to remain stable? For how long? What about the groundwater? The condition of the soil under the landfill did not prevent contamination. Both short-term and long-term effects of sitting a landfill over earth's most important natural resources—water—has to take priority and precedence over filling up a space with garbage.

#### 4.9 Safety and Health

Proposed Action. The proposed action would have a long-term positive impact on public safety and health by allowing for proper disposal of MSW on the island of Kauai.

**CORRECTION:** The proposed action would have a long-term positive impact on public safety and health by “cleaning up” the contaminated groundwater and by excavating the closed leachate contaminated Phase I landfill. Sometimes you gotta take two steps back to get ten steps ahead. Allowing for proper disposal of MSW on the island of Kauai means to strategically plan, design, and find a new facility on the island.

Allowing for proper disposal of MSW on the island of Kauai does not mean to “hide the dirt” underneath the landfill. If you continue to pile garbage on top of Phase I landfill with only a liner in between this is not proper disposal. It's like you will be scraping your food plate at home into the garbage without emptying the old garbage. Who does that?

#### 4.10 Socioeconomics

Proposed Action. The proposed KLF Phase II lateral expansion would have no significant socioeconomic impacts. No significant adverse impact to...are anticipated from implementation of the proposed action.

Of course there is! The county process stepped over human boundaries. They choose “good weather” over how the landfill can have a long-term impact on the residents, as the reason to site the landfill. The people of Kekaha have to deal with the reality that democracy and social equality are not being extended to them. They are a subculture of the more affluent neighborhoods. The people of Kekaha are being looked upon as the group most likely to be identified with the only contaminated landfill, or the only landfill on the island. Definition of a landfill – garbage. Their place of living is being labeled as “where garbage ends up”. The dignity of the community went from plantation to ghetto. They've had to deal with smell, pollution, and noise. Bad business left parts of the town looking like a dumping ground, that no one is doing anything about.

#### 4.13 Visual Resources

Proposed Action. The proposed action would laterally expand the limits of the Phase II landfill to include...

**DO NOT INCLUDE PHASE 1 AND CELL 3 IN THIS PROPOSED EXPANSION UNTIL EXCAVATION AND REMEDIAL SERVICES HAVE BEEN IMPLEMENTED AND COMPLETED.**

#### 4.14 Water Resources

Proposed Action. Para. 2, lines 1-6. A base liner system and leachate collection system would be constructed for the Phase II lateral expansion. The base liner would extend over the closed Phase I fill area which is unlined. This could potentially reduce the amount of leachate generated from the unlined (closed) Phase I landfill. Existing groundwater monitoring wells located between the current Phase I and Phase II landfills would be properly abandoned and relocated. Groundwater monitoring for the Phase II lateral expansion would be conducted in accordance with the requirements of HAR Title 11, Chapter 58.

**CONSTRUCT the base liner and leachate collection system for Phase II, Cell 1 and Cell 2. CONSTRUCT a top covering for Phase I fill area. DO NOT extend the liner from Phase II over Phase I, and DO NOT construct a top covering for Phase I in order to create a new landfill Cell 3, until this Phase I has been “cleaned up” and decontaminated.**

**A base liner system extending over the closed Phase I fill area will not satisfy the contaminated groundwater that already exists, and it will not protect the unlined bottom of the Phase I landfill from further contaminating the water source. Covering the top and sides of the close Phase I landfill could potentially reduce the amount of leachate generated from this landfill.**

**DO NOT CREATE A COVER UP FOR THE PHASE I landfill until a full range remediation service has been implemented and complete. Only until then can a base liner and leachate collection system be in place at the “cleaned up” Phase I.**

#### 4.15 Water Resources

Proposed Action. Para. 3, lines 1-2. Because the proposed Phase II lateral expansion would include a base liner system and a leachate collection system, no significant adverse impacts to groundwater are anticipated,

**CORRECTION:** This is true only if the closed contaminated Phase I landfill is excavated and remediation is implemented. This is true only if the contaminated wells are removed. This is true only if the results of the evaluation suggesting that landfill gas migrating from the unlined, closed Phase I landfill may be impacting the groundwater in Phase II monitoring wells (Earth Tech 2006a) is changed.

#### 4.16 Compatibility of the Proposed Action with Objectives of Federal, State, and Local Land Use Plans and Policies

Para 1, lines 5-7. The KLF Phase II lateral expansion would support this objective as it would provide the means to maintain basic public health and sanitation standards relating to the disposal of MSW.

The lack of “the right behavior and attitude” of the county to clean-up the dirty spill is incompatible with the above policies. The lack of pursuit to clean-up the contaminated Phase I landfill is incompatible with the objectives, plans, and policies. The delay in notifying the public and giving them ample input into the process is incompatible with the policies. The failure of short-term plans evident in this review is incompatible to the long-range plans described in the County’s 20-year vision. The county had 40 years to clean-up but no action was taken or is considered. A 20-year vision is not going to “cover up and make right” the existing Phase 1 landfill leachate contamination. The county is not choosing to higher its standards.

#### 4.16 State Land Use Plans. Lines 3-6.

This Special Permit allows for land classified as a State Agricultural District...The KLF Phase I area is located within a Conservation District. Per HAR 13-5-22 (P-6), “land uses undertaken by the State of Hawaii or the counties to fulfill a mandated governmental function, activity, or service for public benefit” are permitted land uses within the State Conservation District provided...or an exception granted.

How is “broken trust” by the County going to satisfy and fulfill the functions, activities, and service for public benefit? How is “an exception granted” clause going to fulfill the State of Hawaii motto “bringing government to the people” without the peoples consent? The Special Permit is an obstruction to the Environmental Review Process and it destroys the proactive participation of the public, which essentially contradicts the governments “open door” policies. This Special Permit is the “smoking gun”.

#### 4.17 Relationship Between Short-term Uses of the Environment and Long-term Productivity

Lines 3-5. Lateral expansion of the Phase II landfill would provide long-term benefits for solid waste infrastructure on Kauai by extending the life of the landfill.

**CORRECTION:** The long-term benefits of the lateral expansion of the Phase II landfill does not meet the health and socioeconomic requirements of the environment and groundwater supply therefore there will be a negative harmful long-term effect on the people and on living things. Extending the life of the landfill does not mean creating more space to dump garbage on top of a failed infrastructure. Extending the life of a landfill means to restore the infrastructure and to put into action and service safest and unassailable solutions.

4.17 Lines 7-11.

See 4.14, 4.15 for discussion.

4.18 Irreversible and Irretrievable Commitment of Resources

....would not expand...area beyond the existing 98-acre...footprint, which has already been set aside for landfill purposes by executive orders 1558 and 2872.

Irreversible? Irretrievable?...hidden meanings, ambiguous words and evasive language to tongue-tie and confuse educated people, average citizens, and the poor, in order to justify reasons for not carrying out the plans as promised. In other words, there is no obligation on the County's part to do what they don't want to do? Bottom line, the County can do what they want to do?

5.1 Significant Criteria

Para 2, lines 1, 2, and 4. Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources....Phase II would not cause significant adverse impacts to...or water sources...does not involve an irrevocable commitment to, loss or destruction of any natural....resources.

Does this mean that if the Draft Assessment for the Kekaha Landfill Phase II lateral expansion is accepted as is, the contamination and socioeconomic impact will be deemed unfixed? Or, does this mean that irregardless of the public comments and inputs, the County has made up its mind to go ahead with the expansion plans and implement what they anticipated or determined?

Para 4, lines 9-13.

In accordance with HRS 344-5, this EA is made available for public review and comment for a period of thirty days. All comments received during the public comment period will be responded to in the Final EA. The proposed action is also consistent with executive orders 1558 and 2872 setting aside the KLF footprint for landfill purposes.

The public, much less the people of Kekaha, did not have the EA available to them in a timely manner. The public was not given 30 days review and comment period. What's the sense in have an Environmental Review Process if the Special Permit gives the County full power to influence the decision making process. The Special Permit sets aside the KLF "footprint" for landfill purposes. In other words, the proposal is already stamped for approval by the County.

Para 5. Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.

Refer to 4.10 Socioeconomics for discussion.

Para 6. Substantially affects public health.

Refer to 4.9 Safety and Health for discussion.

Para 8. Involves a substantial degradation of environmental quality.

Refer to Para 3, Lines 1-7, 4.10, 4.14, 4.17 for discussion.

Para 9. Is individually limited, but cumulatively has considerable effect on the environment or involves a commitment for larger actions.

The proposed action would not have significant cumulative impacts (Section 4.5) and does not involve a commitment for larger actions.

Refer to Para 3, Lines 1-7, 4.13, 4.14, 4.15 for discussion.

Para 11. Detrimentially affects air or water quality or ambient noise levels.

Sub-para 1, lines 1-4. A base liner and leachate collection system would be constructed for the Phase II.....and groundwater monitoring would...to ensure the groundwater underneath the KLF...is not being contaminated by landfill operations.

Refer to 3.5, Para 3, Lines 1-7, 4.14 for discussion.

## 5.2 DETERMINATION

Based on the above evaluation of the significance criteria and the discussion of impacts and mitigation measures contained in this document.....the proposed project would not have a significant adverse impact of the environment. Therefore a Finding of No Significant Impact has been determined.

SIGNIFICANT = major, noteworthy, important. Your Findings of No Significant Impact contradicts these discussions herein. The measuring tool for "impacts" should be "due process" and the "findings" should be in the "Rotten Truth" about Garbage. Garbage consists of "more than what we throw away" and dumping higher, wider, or longer layers of garbage does not get rid of it.

For this proposal to be a win-win situation there must be an honest, forgiving, and willingness of aggressive collaboration efforts between governments and communities to share in the burden, responsibility, development, and improvement of the solid waste management system.

## REFERENCES:

Blackfeet Solid Waste Program

Draft Environmental Assessment, Kekaha Landfill Phase II Lateral Expansion

EarthTrends: The Environmental Information Portal, Dirty Water: Pollution Problems Persist

Forkers Ltd. Civil & Ground Engineering, Land Remediation

Hawaii Groundwater Contamination Law, Hawaii Legal Help Center – Ground Water Contamination Lawyer

Montgomery County Maryland, Department of Public Works and Transportation, Solid Waste Services, Landfill Operations: The Oaks

Pennsylvania Department of Environmental Protection, Groundwater Protection, Welcome to the Bureau of Watershed Management

Pennsylvania Department of Environmental Protection, Report an Environmental Incident

Rotten Truth (About Garbage), web site, 1998, Association of Science-Technology Centers Incorporated and the Smithsonian Institution Traveling Exhibition Service

“Samuel Lemmo”, Special Management Area Guidelines, 205A-26, HRS

U.S. Geological Survey, Ground Water Studies

USGS Science for a Changing World, Water Science for Schools



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 Date: August 24, 2007

Comment No.	Section No., Page No.	Comment
1	2.0  2.1	<p>This section provides background information on the proposed project, and a description of the proposed action and the no-action alternative.</p> <p>To take no-action is action not taken. <i>For every action there is an equal and opposite reaction---Newton's Law.</i> The following are actions and reactions to the proposed project.</p> <p>Location. Para. 1, lines 6-7. The Phase I began operations in 1953 and continued until operations ceased on October 8, 1993. <u>The Phase I landfill has no liner system beneath the refuse.</u></p> <p>The purpose of a liner is to prevent leachate from seeping into the ground beneath the landfill. Between 1953 and 1993 is a lapse of 40 years. For 40 years there has been no liner system beneath the refuse. For 40 years trash has been consistently buried into this landfill. 40 years of trash produces leachate build up. Leachate is acidic. Leachate seeps into the ground and comes into contact with the groundwater. Isn't groundwater among the Nation's most important natural resources? Isn't there evidence that once pollutants enter a groundwater or aquifer, the environmental damage can be severe and long lasting? Doesn't flushing out pollutants in the aquifer take a very long time? When did the county have knowledge of Phase I not having a liner? At what year was the "no liner system" discovered? What was done in the past to stop the dumping? People and other living things could have been using this contaminated water. At what point did the contaminants infiltrate the water table? Did it flow towards the well of the stream? What measures were taken to protect the well from further contaminating other wells? Was the public informed of this matter?</p>

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Response: The current State of Hawaii regulation in effect for municipal solid waste landfills is Hawaii Administrative Rules (HAR), Title 11, Chapter 58.1. These rules contain many requirements for constructing, operating and maintaining landfills and include a requirement for composite (double) liners beneath all landfills. These rules became effective October 9, 1991 and do not apply to any landfills that stopped accepting waste before this date. The regulation also states that landfills that stop accepting waste before October 9, 1993 are exempt from all requirements except for installing a final cover system. The Kekaha Landfill Phase I fits into this category.

The Closure/Post-closure Plan in effect for the Phase I landfill was reviewed and approved by the State of Hawaii, Department of Health and requires that groundwater monitoring be performed semi-annually at the Phase I landfill. A groundwater monitoring plan was developed for the Phase I site and follows the guidelines from the State of Hawaii, Landfill Groundwater Monitoring Guidance Document dated September 2002. Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate. Although arsenic has been detected in the down-gradient wells, it has also been detected at similar concentrations in the up-gradient well (located between the landfill and the highway). The significance of this is that any contaminant present in the up-gradient well could not have come from the landfill since the groundwater beneath the site always flows makai, toward the ocean. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.

Installation of a composite liner system over the top and side slopes of the Phase I landfill for construction of Cell 3 will result in additional impermeable barriers that will help to prevent rainwater from entering the Phase I waste, thereby reducing leachate generation in Phase I. The new liner will be a "composite" liner consisting of a clay layer and an impermeable high density polyethylene (HDPE) plastic liner. These layers will extend over the top of Phase I that also has a HDPE geomembrane cover. Covering the closed Phase I landfill would require that the passive gas extraction system currently in place for Phase I be replaced with an active landfill gas collection system, as the passive vents for Phase I would no longer be operable once a liner is placed over the Phase I landfill. Construction of a landfill gas collection system to actively collect and burn landfill gas from Phase I would reduce landfill gas emissions from the Phase I landfill. This would have positive impacts on air quality and would also reduce the potential for landfill gas from Phase I to contaminate groundwater.

Groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply. As clarification, the nine groundwater wells referenced on Figure 2-1 and the EA text are *groundwater monitoring wells*, not water supply wells. Groundwater beneath the Kekaha Landfill drains seaward and the Kekaha Landfill does not impact any public water supply wells. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site. Per the 2007 Water Quality Report prepared by the County of Kauai Department of Water, the public water supply for Kekaha-Waimea meets, or is better than, all state and federal drinking water standards.

2	2.1	<p>Background. Para. 3, lines 10-13. The 1.9 acre lagoon...and it was designed to completely evaporate all leachate collected from the landfill during a normal precipitation/evaporation year.</p> <p>What happens when the water is dried up? What is pre-cipitation? What is a normal precipitation/evaporation year? What is an abnormal precipitation/evaporation year? Was there ever an abnormal precipitation/evaporation year? What happens to leachate during an abnormal year?</p>
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Response: Precipitation is the amount of rain that has fallen at a given place within a given period, usually expressed in inches of water.

Leachate is a solution from leaching, as of soluble constitutes from the landfill by downward percolating water.

Water entering KLF percolates through the waste and collects in the granular drainage layer overlying the landfill's bottom liner system and is removed by leachate collection and transmission pipes. The leachate is pumped to the leachate lagoon for disposal.

The current and preferred means of disposing of leachate is by evaporation. The leachate lagoon is sized to insure enough holding volume and surface area will be present to promote leachate evaporation. The leachate lagoon is sized using verified calculations, utilizing existing leachate quantities, estimated lateral expansion leachate quantities, rainfall, and evaporation rates.

The landfill design standards require analysis of conservatively wet conditions throughout the landfill's operating life. Similarly, the landfill must demonstrate compliance with these regulations as part of the Annual Report submitted by the facility.

The amount of leachate that will be generated at the landfill will vary over time pending on the amount of open (active) landfilling area, the season of the year, and the amount of precipitation.

The regulations require that the leachate generation estimate be based on a minimum 15 year climatic database that includes the precipitation from a 25-year, 24-hour storm event occurring during a wet period in the analysis. Run-on/run-off control systems and consolidation water expelled from the waste must be considered in the analysis. The regulations also require that the landfill be designed to control stormwater falling on the site during a storm of an intensity up to and including a 25-year, 24-hour storm. The design for this facility meets this standard.

3	2.1	<p>Background. Para. 4, lines 7-9. A soil cover, consisting of fine-grained silty clay from the former Kekaha Sugar Company mill wastewater settling basin, is used when the design grade of a particular layer is reached.</p> <p>Has this fine-grained silty clay from the former Kekaha Sugar Company mill wastewater settling basin been tested for harmful deposits, sediments, residues, chemicals, pesticides, organic matter, phosphorous, nutrients, heavy metals, microbial contaminants, toxic organic compounds, salinization, silt, and suspended particles? Was this silty clay used in the Phase I landfill? What are the chances of this fine-grained silty clay being airborne and inhaled into the lungs and respiratory system? Did each of the 14 waste disposable cells in Phase II get covered with this silty clay? What is on top of the silty clay layer? How is it being kept from going airborne? What guarantee is there that living things didn't breathe, ingest, and absorb dangerous toxins into their bodies, from the airborne silt?</p>
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Response: The soil imported from the former settling basins have not been tested for chemical constituents. The soil is currently used to cover the refuse in Phase II as explained in the Draft EA. Mud and dust are specific maintenance items that site operations personnel manage on a daily basis. The Site Operating Plan (A. Mehr, November 2004) section 6.3 specifically outlines procedures that are followed at the site to address mud and dust. The current DOH Solid Waste Permit in effect for the site (Special Conditions IV, Section 12) addressed mud and dust for the site and recommends procedures to assure mud and dust do not leave the site. Current operating procedures for control of fugitive dust have been added to Section 3.1 of the Final EA.

When final design grades are reached, an engineered final cover system will be placed over the waste and interim cover soil. Because of the final cover and the fact that mud and dust are managed at the site, the risk to humans from inhaling dust particles is considered to be minimal.

The soils used to construct the final cover for the Phase I landfill originated from multiple sources including the Kekaha Sugar settling basins. The final cover slopes have drainage controls in place and were planted with grass to provide erosion control.

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4	2.1	<p>Background. Para 6. Lines 1-4. Compliance with HAR Title 11, Chapter 58.1 requires that groundwater and landfill gas monitoring be performed as part of the landfill operations. Groundwater from three Phase I and six Phase II groundwater monitoring wells (Figure 2-1) is sampled on a semi-annual basis to determine if there are any landfill-related contaminants present in the groundwater.</p> <p>The Figure 2-1, Existing Site Conditions, is difficult to identify the nine (9) existing groundwater monitoring wells, and existing property line. Why does the Legend only address MW-1-3 as an existing groundwater monitoring well and not the other 8 wells? Why is there MW I's and MW II's? Why are these wells not addressed in the legend? The existing well, or probe to be abandoned is hidden from view. Which one is it? What is a probe? Why is this well, or probe going to be abandoned? If one well is going to be given up, who are you going to give it up too? Why are the 8 other wells not being removed and relocated from the landfill areas? Why are the 8 other wells being monitored? Aren't these nine wells connected under ground? If one well is infected won't the other wells be too? Where is the source of the groundwater located? What are these nine (9) wells being used for? Aren't groundwater aquifers critical sources of both drinking and irrigation water? What is HAR Title 11, Chapter 58.1? What is the reason for this compliance requirement? Why are there so many, nine (9) groundwater wells being monitored and sampled? When was the last time all 9 wells were sampled? From the last sampling, are there any landfill-related contaminants present in the groundwater? Was there any significant changes detected in precipitation, drought, and pumpage? Show the result of the last monitoring and samplings of these wells.</p> <p>Figure 2.1 Existing Site Conditions, Notes: #1. ...portions are anticipated to be updated based on ground survey. What is meant by "anticipated to be updated"? What exactly is expected to change in this survey? Why would it change? When will it be expected to change? Under what conditions will it change?</p>
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Response: Chapter 2 figures have been revised to improve clarity. Refer to the third paragraph of Section 2.2 for a summary of the rationale for relocation of three groundwater monitoring wells and one gas monitoring probe.

"MW-I" and "MW-II" on Figure 2-1 refer to Phase I and Phase II groundwater monitoring wells, respectively. This has been added to the figure legend. Three groundwater monitoring wells are used to monitor groundwater quality down-gradient (e.g. seaward) of the Phase I landfill. Five groundwater monitoring wells monitor groundwater down-gradient of the existing Phase II landfill. One groundwater monitoring well (MW-II-5) is located upgradient of both Phase I and Phase II, which serves to establish background levels of select analytes that are naturally occurring in groundwater. Groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.

5	2.1	<p>Is the Department of Environmental Protection (DEP) relied upon to implement the laws relating to emergency response? Is there an Emergency Response Team in place? Is there an emergency response program committed to having management personnel standby to receive notifications of pollution incidents and environmental emergencies? A type of response would involve public water supply shortages or contamination. Have there been any emergencies in the past that require this type of response?</p>
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Response: The Kekaha Landfill maintains a detailed Emergency Management Plan that provides detailed procedures to be followed by site personnel in the event of an emergency. Specific procedures are established for different types of emergencies, including medical emergencies, fires on and off site, spills, bomb threats, natural disasters, and general emergencies. The emergency plan outlines chains of command and communication, preparatory activities, response procedures, personnel evacuation procedures, and recovery activities. Emergency response procedures related to landfill fires are discussed in Section 3.9 of the EA. Emergency response procedures related to hazardous material spills and natural disasters have been added as mitigation measures to Sections 4.5 and 4.7 of the Final EA.

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6	2.2	<p>A base liner system would be installed on top of the existing Phase I cover system, which would allow for vertical expansion of the Phase I area to 85 feet above msl. A passive gas extraction system, currently in place for Phase I, would be rerouted during construction of the base liner system for the lateral expansion into Cells 2 and 3.</p> <p>ELIMINATE THIS ACTION. This is an unsettling and disturbing condition. How is this going to restore the damage that was done to this landfill and the well? Why continue to use the Phase I landfill that is contaminating our water wells? How is that going to solve the contamination problem? The effects of toxins eventually show up in living things. Covering up Phase 1 is not going to make the fill “below”, or fill “above” any safer. The contaminated wells aren’t going to get better. Why cover it up before detoxifying and decontaminating? How will the nine (9) groundwater wells be cleaned, saved, reused, and reclaimed? Isn’t this going to require a separate environmental assessment? Won’t this action require a separate permit?</p>
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Response: See response to Comment 1. Permit requirements for well abandonment have been added to Table 1-1 of the Final EA.

7	2.2	<p>Expansion into Cell 1 (the existing leachate lagoon area) would require development of a new leachate management system. The existing leachate lagoon would be demolished and relocated adjacent to the office and scale house along the northeastern property line of the facility (Figure 2-3).</p> <p>Again, the Figure 2.2 Proposed Action Subbase Grading Plan, is distorted and difficult to read and understand. The cell development limit is hard to identify.</p> <p>If you’re going to expand over an existing area, (in this case the existing leachate lagoon area), it’s valid that the existing leachate lagoon has to be demolished and relocated. Correctly managing leachate for the new expansion Cell 1 would be to keep pace with changing environmental regulations. It would be ideal to design it to collect all leachate from the disposal cell. This would allow the Cell 1 to be built with a new leachate management system in place. The new Cell 1 would provide enough filling capacity up to 2011. The new Cell 1 would be able to support the vertical and lateral expansion of existing Phase II until 2011. This seems to be a workable short-term solution which would provide another 4 years of refuse.</p> <p>RECOMMEND all 9 groundwater wells in the Kekaha Landfill be decontaminated, detoxified, redirected, moved, and reclaimed by, given back to the proper handling of the Watershed Management and thereby extend the public water system to serve the residents.</p> <p>DO NOT consider the lateral expansion over the closed Phase 1 landfill to include overlay base liner system until the existing waste mass of the closed Phase 1 is removed.</p> <p>REMOVE the existing waste mass of Phase 1. Apply a full range of land remediation to assess risks and opportunities and develop strategies. Chemically test for disposal treatment and cross contamination targeting previous uses and layouts.</p> <p>COMPLY with federal regulations requiring post-closure care and maintenance of the landfill for at least 30 years after closure. Landfills are not exempt from Environmental Policies.</p>
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Response: Figure 2-2 has been revised to add clarity. A leachate collection system would be incorporated into the design of Cell 1, as well as Cells 2 and 3. The nine groundwater monitoring wells are not part of the public water system (see responses to comments 1 and 4). The County will comply with all state and federal regulatory requirements pertaining to construction, operation, and closure of municipal solid waste landfills, including post-closure monitoring requirements. There is no regulatory requirement to excavate the existing waste in Phase I prior to construction of Cells 2 and 3, and this is not proposed as part of the Proposed Action.

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8	2.3	<p>The Proposed Phase II lateral expansion would be sequenced to allow for phased construction. Construction activities for expansion into Cell 1 would commence in approximately June 2008 and would be completed in November 2008. ....Construction costs for the Cell 1 expansion are estimated at \$9 million; construction costs for Cell 2.....</p> <p>Plan what to do, if you can't fix all of it, fix what you can, do the best that you can, plan for the next stage, do what the plan said, fix what you can, do the best you can, repeat the cycle.</p> <p>What is the level of contamination in Phase II wells from the arsenic detected in the closed Phase I? Does it require formal remediation? The Phase II landfill is operating until it reaches full capacity of a height of 85ft above msl by August 2009. The Phase II landfill to include the activities of a horizontal expansion into the leachate lagoon area ONLY. This would provide and accommodate landfill capacity for 4 years, ending in 2011. Construction activities for expansion into Cell 1 to include a full range of remediation services and compliance with environmental protection policies.</p> <p>Of the estimated \$21 million for Cells 2 and 3, what is the construction cost for Cell 2?                  How would the Cell 2 phased construction be sequenced?</p>
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Response: Current sampling results from the groundwater monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate (see response to Comment 1) and no formal remediation is required. A new landfill cannot reasonably be sited in less than 6 years and could possibly take longer (e.g. greater than 8 years). Lateral expansion into Cell 1 (e.g. the leachate lagoon area) only is not viable as this alternative would only accommodate an additional 3.4 years of municipal solid waste filling. This alternative would leave the County of Kauai without a municipal solid waste facility in approximately 2012. The County has considered the public opposition to expansion into Cell 3 and in response has stated that if siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed. This has been added to Section 2.2 of the Final EA. Section 2.3 of the Final EA has been revised to represent three phases of construction corresponding to Cells 1, 2, and 3 with separate cost and schedule information provided for each Cell.

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9	2.4.2	<p><u>Excavation of Phase I to Construct a New Subtitle D Base Liner System</u></p> <p>This alternative proposes to excavate and remove Phase I to construct a new Subtitle D base liner system in the Phase I area. Phase I refuse would be relocated into the newly constructed Subtitle D facility. This alternative has the highest cost and would only add an additional 1.8 years to the life of the facility.</p> <p>PROTECT THE GROUNDWATER. Restore and protect watersheds through proper planning and management of water resources and their uses; reduce the impacts of nonpoint sources of pollution on water resources; form partnerships and building local capacity to restore and protect water resources; including drinking water sources; and educating citizens about watersheds and watershed management. What's the long-term cost of not protecting the groundwater vs the short-term high cost of correcting the root of the problem—leaders who eliminate the process of correcting the contaminated water sources? If the leaders do nothing to clean-up the spill then they will be responsible for possible health threats and deaths. The health and well-being of people and all living things would be at stake. People's livelihood would be threatened. People and living things would die. If this negligent behavioral is not corrected, the people and other living things will suffer.</p> <p>Determine the extent of the contamination to comply with local, state, and federal remediation requirements. At what level is the contamination? Does it require formal remediation? Will using the landfill as it is (without a liner) and layering it with a new liner, then dumping more trash, change the groundwater contamination? Can leachate seepage be corrected without excavating the site? Can leachate seepage be prevented from contaminating other wells? Can the other wells be saved? Can the groundwater be reclaimed?</p> <p>Involve construction activities to include a full range of remediation services and compliance with environmental protection policies. Can minimization of quantity of materials for treatment or disposal be carried out? Can the chemical testing and selecting minimize waste (hazardous or non-hazardous) for disposal treatment? Can the contamination in the ground water be removed and treated? Is there a landfill tax exemption for developing best value remediation strategy and implementation plans?</p> <p>Comply with post-closure care and maintenance. Protect and periodically monitor the ground water and surface water around the perimeter of the site.</p> <p>What is the newly constructed Subtitle D facility?</p>
<p>Response: Current sampling results from the groundwater monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate (see response to Comment 1) and no formal remediation is required. The County will comply with all state and federal regulatory requirements pertaining to construction, operation, and closure of municipal solid waste landfills, including post-closure monitoring requirements.</p>		
10	3.2	<p>The irrigation ditches that were used by Kekaha Sugar Company provided a marginal wetland habitat in the project vicinity (Belt Collins 1998).</p> <p>There was a lax in the regulation of sugar cane agriculture. The Sugar industry was and still is the "100 pound gorilla" of the phosphorous discharge. Sugar cane fields discharge pollutants. Sugar cane productivity used nitrogen, phosphorous, potassium, and herbicides. Agrochemical movement is 1. dissolved in run-off water 2. dissolved in deep percolation water 3. absorbed to eroded sediment. The water coming out of canals in cane fields is very dirty. Ditches retain the water. Water carries nutrients which can't be seen. Herbicides move predominantly in solution (runoff). What about the contaminated run-off? Were the dwellers of the wetland habitat monitored for long-term side effects from the contaminated runoff in the irrigation ditches? Was there any biological effects found in the dwellers of the wetland? What about the white spot syndrome virus? Virus lives in the water. Ceatech has been draining its effluent for years into Kinikini Ditch, which runs into various streams and rivers before reaching the ocean. The draining was at an all time high. What about pesticides and herbicides used in the sugar cane fields. What about atrazine in Hawaii agriculture?</p>

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Response: Irrigation ditches are referred to in Section 3.2 within the context of their habitat value for native avifauna that could occur in the project vicinity. There is no physical connectivity between the Kekaha Landfill infiltration ditches and irrigation ditches in the surrounding area. Therefore, discussion of the impacts of agricultural practices to water contained in irrigation ditches is outside the scope of this EA.

11	3.4	<p>Geology. The thickness of the coastal...to more than 400 feet along the seaward edge of the plain. ...The thickness of sedimentary deposits underneath the KLF is anticipated to be over 400 feet.</p> <p>What is the contamination level of the leachate seepage to the coral reefs and ocean water? The thickness of sedimentary deposits obviously didn't prevent the seepage of leachate in the closed Phase 1, and it didn't guarantee prevention of contamination into the groundwater wells. According to a groundwater monitoring done in March 1996, there was detection of a significant increase in total arsenic in a well. There was landfill gas migrating from the unlined close Phase 1 landfill which may be impacting the groundwater in Phase II monitoring wells.</p> <p><u>Soils.</u> Soils...are classified...as...fine sand that forms a well-drained calcareous soil. This soil is too permeable to allow for surface water ponding or runoff; as a result, the potential for vertical migration of water is great.....</p> <p>Is this fine sand, well-drained, containing limestone, leaky, porous sand the foundation underneath the KLF? If this soil is too permeable, isn't the landfill sitting on fragile earth? It's like setting a hot stove on ice. What is the guarantee that the landfill isn't sinking into the ground? When was the last testing of the ground condition and earth movement done? What were the results? If this soil is too permeable, and it does not allow for surface water ponding or runoff, then the reason to move the landfill at a more solid ground location should be top priority. The potential for vertical migration of water is great. This means that leachate can runoff onto the beach harming beach goers, and then gradually into the ocean, polluting the ecosystem. This is landfill suicide.</p>
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Response: A groundwater monitoring plan was developed for the Phase I site and follows the guidelines from the State of Hawaii, Landfill Groundwater Monitoring Guidance Document dated September 2002. The groundwater monitoring wells were specifically located and constructed to provide earliest possible detection of a potential release from the facility. Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate. Although arsenic has been detected in the down-gradient wells, it has also been detected at similar concentrations in the up-gradient well (located between the landfill and the highway). The significance of this is that any contaminant present in the up-gradient well could not have come from the landfill since the groundwater beneath the site always flows makai, toward the ocean. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.

Beneath the landfill is a cohesionless medium-dense sand layer. Increased pore pressures during the design earthquake might cause this layer to have decreased shear strength, causing liquefaction. Liquefaction may cause ground failures such as settlement or lateral spreading.

Liquefaction settlement was estimated using a relationship between the cyclic stress ratio, corrected penetration resistance, and volumetric strain for saturated, clean sands. The estimated settlement of the medium-dense sand layer during the design earthquake is approximately 1 inch. Based on the computed factor of safety, there should be no lateral spreading during the design earthquake.

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<p>12</p>	<p>3.5</p>	<p>The KLF does not accept materials designated as hazardous under 40 CFR Part 261...wastes as defined in 40 CFR Part 761...radioactive materials, insecticides and poisons, untreated infectious waste, or improperly packaged asbestos waste. Operating procedures currently in-place to prevent the disposal of unacceptable wastes are outlined in the <i>Operating Plan, Kekaha Landfill Phase II</i> (A-Mehr 2004).</p> <p>What about the closed Phase I landfill? If Hurricane Iniki caused any illegal dumping, not to mention Haz-Mat materials from hospitals or military facilities, doesn't the proposed action to pursue no excavation on Phase I, be in contrary to your Operating Plan (A-Mehr 2004)? If part of the lateral expansion proposal is to pursue covering that poisoned landfill Phase I with a tarp layer just so it can be piled high with more garbage, isn't that like adding "salt to the wounds"—making a dreadful landfill terribly evil? Just because the Phase I landfill is closed and new laws come into practice it doesn't solve the contamination problem in the groundwater monitoring wells under the landfill.</p> <p>Para. 2, Lines 7-11. If hazardous or unacceptable wastes are discovered during inspections...KLF will reject such wastes...and complete a load rejection form. The transporter...returning...to the generator for proper disposal.</p> <p>Is there a generators list to identify all government and private groups who generate any type of hazardous waste? When the trucks enter the landfill yard it should raise a red flag.</p> <p>Para 3, Lines 1-7. The KLF stores and uses petroleum products such as diesel fuel, lubricating oils, and waste oil. A 2,000 diesel above ground storage tank...is located in the maintenance/equipment fueling area. A service tanker truck...is parked...In addition, small containers are used to store lubricating oils and used oil at the facility. Typically, the drums are placed on spill control pallets or in secondary containment bins and are located inside maintenance shop.</p> <p>The main sources of groundwater contamination are 1. storage tanks leaking-storage tanks can contaminate groundwater, 2. hazardous waste sites-barrels of hazardous waste laying around can leak into the ground water. Where is the maintenance/equipment fueling area located on the landfill property map? What kind of materials are the storage tanks, tanker truck, small containers, drums, and bins made of? What are the chances of these storage tanks leaking? What are the chances of the drums and bins spilling? How long are these containments stored at the fueling area and maintenance shop? What happens to these containments after they are filled to capacity? Is there a record log of the amount of containments filled to capacity since 1953? Does this log include the burial or permanent storage sites? What did an outstanding compliance issue outline, reference, or reveal five years ago?</p>
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Response: The Kekaha Landfill operates an active program to prevent the disposal of hazardous or unacceptable wastes. Procedures to exclude these materials from the site include the following:

- Customer Notification – by means of published information and the sign at the landfill entry.
- Radioactive waste survey – With the assistance of Kauai County health officials, a survey of potential radioactive waste generation on Kauai. Any industrial or commercial establishment using licensed radioactive materials will be contacted and informed that the Kekaha Landfill does not accept radioactive wastes.
- Scalehouse monitoring and inspection – scalehouse attendants question each incoming customer as to the source and content of the load. If any suspicious wastes or unusual loads are observed, the gate attendant will reject such wastes and/or loads.
- Random inspections- random load checks are performed daily.
- Landfill working face inspections – equipment operators and spotters at the landfill working face will visually observe the refuse for prohibited wastes as it is being dumped and compacted.

If hazardous or unacceptable wastes are discovered, the transporter is responsible for returning the rejected waste to the generator for disposal.

In the event a regulated hazardous waste is discovered during a random load check or at the working face, a written report will be sent to the Hawaii Department of Health. Records generated relative to this waste exclusion program will be filed in the Landfill's Operating Record and kept for a minimum of 3 years. Records will be available for inspection by regulatory agencies.

There is a DOH approved site specific Spill Prevention, Containment, and Countermeasure (SPCC) Plan for the facility. The purpose of the SPCC Plan is to develop and implement procedures and methods that prevent the discharge of oil from a facility into the navigable waters or adjoining shorelines of the U.S. A key part of the plan is a requirement that your facility have either adequate secondary containment, such as berm and dikes, or diversionary structures around oil storage tanks. The 2000 gallon storage tank at the facility is located in the southeast corner of the site facilities area. The tank is double-walled encased within a reinforced concrete secondary containment structure that can contain 110 percent of the tank's rated capacity and call fully support the loaded fuel tank and pumping system. In addition to this concrete structure, there is a tertiary containment system that consists of a low concrete wall built around the perimeter of the tank; this containment system is capable of holding 1,480 gallons. The entire fueling area is protected from accidental traffic collisions by yellow traffic posts, spaced at approximately 6-foot intervals.

Miscellaneous 55-gallon drums of lubricants, greases, and antifreeze are stored in the maintenance building on pallets capable of holding a minimum of 110 percent of the contents of the 55-gallon drums. The maintenance building has an impervious concrete floor. The Kekaha Landfill maintains spill kits, sorbent materials, and drain blockers for the drums located with the maintenance facility, and for fueling vehicles that enter and exit the site.

Daily visual inspections consist of complete walk through of the facility property to check for valve, appurtenances, and tank damage or leakage, including liquids within the secondary containment structures. Tanks are also inspected for corrosion or deterioration of secondary containment system foundations. Written inspection procedures and monthly inspections are signed by the inspector and maintained at the facility for three years. Additional information on current operating procedures related to spill prevention and containment (as stated above) has been added to Section 3.5 of the Final EA.

Emergency response procedures defined in the SPCC Plan are followed should there be a spill. Spills are responded to immediately. All spill material and debris will be managed in a manner that fully complies with applicable local, state, and federal laws regarding recycling or disposal of wastes.

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<p>13</p>	<p>3.6</p>	<p>The KLF facility is...owned by the State of Hawaii and administered by the DLNR. The Phase I area...has a state and county land use designation of Conservation District and is also within a County of Kauai Special Management Area...The Phase II landfill...has a state and county land use designation of Agricultural District...set aside the Phase I and Phase II areas for landfill purposes, to be under the control and management of the County of Kauai.</p> <p>The Phase I area should not be included in the proposal for Kekaha Landfill Phase II Lateral Expansion until it has been excavated to construct a new subtitle base liner system. Hazardous materials may contaminate groundwater if the protective layer of a landfill is cracked. Because it is sitting on a Conservation District, it's permitting process is subject to the provisions of Title 13 Chapter 5 of the Hawaii Administrative Rules pertaining to Conservation Districts (Figure 1-2). Just because the Phase I landfill footprint has been in existence for 54 years and the proposed future land use would not change this, doesn't validate or justify a waiver from the Conservation District Use Permit (CDUP) requirements. The proper authorities need take responsibility and should look into the groundwater contamination problem monitoring wells, and make a determination as to how detrimental it is in the long-run. The county should not abuse this power. To over look that fact that the Phase I landfill has been unlined, dripping leachate, and in existence for 54 years, is criminal negligence. The county must take aggressive and appropriate actions to protect our environment and water sources.</p> <p>The Conservation District protects existing natural resources, ensures compatibility with locality and surrounding areas, preserves existing natural beauty, and preserves existing physical and environmental resources.</p> <p>The Special Area Management Guidelines, 205A-26, HRS, ensures minimal adverse impact to natural resources, and minimizes impacts to water quality. Where is the integrity, moral and ethical characteristics of the ownership of these administrations if their powers are not being used to protect the people and the environment?</p> <p>Para 2. The Phase II area of the landfill was approved for use by the State Land Use Commission through the issuance of a Special Permit on July 1, 1993. This Special Permit allows for land classified as State Agriculture District to be used for landfill purposes. The Special Permit requires that use of the land follow specific conditions as provided by the...State Land Use Commission. No time limit was set for this Special Permit.</p> <p>What is a Special Permit? There is evidence that a piece of agricultural property [Hawaii Brownfield Assessment Program, Brownfields] Kekaha Ag-Industrial Area is contaminated with Petroleum, PCB's, and metals. There is possible contamination from former agricultural activities on the property. Did anyone on Kauai know that these agricultural lands were already contaminated? Was the only landfill on Kauai, the KLF, tested and treated for former agricultural contamination? Did anyone realize that adding a landfill to an already contaminated site would pose a deeper threat to the people and the environment? What are the specific conditions and requirements as provided by the County, and other approving agencies? Do these conditions and requirements give autonomy and sole permission to the County and to the proposal at hand? If there was no time limit set for the Special Permit does it mean that the County can do whatever it desires? Does the Special Permit give the county flexibility and control over the implementation of this proposal? What is the definition and correlation between "expanding the limits" and "no time limit"? Landfills are not exempt from environmental policies. Is this another "use and abuse" of power?</p> <p>How will this Special Permit be used to solve the contamination problem of the groundwater and nearby living spaces located next to the landfill site? From aerial view the Kekaha Gardens where people reside over an old dumping ground and New Houselots, and before solid waste management and environmental protection rules were enforced. What good is a "Special Permit" if it should be used in contrary to the good of the people and environment? What is their to gain by using this permit?</p>
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Response: The Special Permit does not exempt the County from compliance with applicable environmental policies and regulations. The County intends to submit applications for all applicable permits identified in Table 1-1 of the EA, including the Conservation District Use Permit and a Special Management Area Permit for development of Cells 2 and 3, and will go through the established permitting processes to obtain these permits. The Kekaha Landfill site is not part of the Hawaii Brownfield Assessment Program and discussion of brownfields is therefore outside the scope of this EA.

14	3.9	<p>Specific safety and health concerns related to landfill operations...</p> <p>It's agonizing and oppressing that the groundwater contamination is not a major concern or not mentioned as a health risk. The safety of customers and employees includes all environments.</p>
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Response: Current sampling results from the groundwater monitoring wells located down-gradient of the Phase I landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate (see response to comment 1 and Section 3.14 of the Final EA). Groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply. Because the groundwater has not been significantly impacted by leachate from the Phase I landfill and is not used as a water supply, the groundwater beneath the Kekaha Landfill does not present a risk to public health.

15	3.10	<p>The population within the CDP is 43.6 percent Asian, 12.4 percent Pacific Islander, 0.2 percent Black or African American, 8.7 percent Hispanic or Latino, and 15.9 percent Caucasian.</p> <p>The percentages of the low-income poor population in Kekaha are higher than the overall low-income poor population of the island of Kauai. The percentage of the low income characteristics of the "colored" people of Kekaha is either 50% or higher than other parts of the island. What percentage out of the 29.5 Caucasians live at the military base? What do the most recent statistics reveal in terms of low-income poor population in Kekaha? Is anyone finding out why landfills are being sited in poor communities and communities of color?</p>
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Response: Demographics of the Kekaha CDP are not significantly different from the County of Kauai as a whole.

16	3.14	<p>This section describes the availability and quality of water resources...and groundwater....Groundwater includes water present in aquifers (perched, unconfined, confined, or artesian). The ROI for water resources....and the underlying aquifer.</p> <p><u>Groundwater.</u> Underlying the Kekaha Mana coastal plain are two aquifers having distinctly different hydrologic properties. ....</p> <p>Para 3, Lines 1-7. Groundwater monitoring is conducted...Groundwater monitoring in 2006 detected a statistically significant increase in total arsenic within downgradient well MWII-6. An alternative source demonstration...to investigate possible sources of the arsenic. Results of the evaluation suggest that landfill gas migrating from the unlined, closed Phase I landfill may be impacting the groundwater in Phase II monitoring wells (Earth Tech 2006a).</p> <p><b>THIS DISCOVERY IS VERY REVEALING, ALARMING, AND IS AT THE THREAT LEVEL 5 OF 4 LEVELS! ITS STAGE IS IRREVERSIBLE? THE DOWNPLAY OF THE ARSENIC IN THE WATER IS PATHETIC! IF THIS WERE THE CASE SET IN AN AFFLUENT COMMUNITY, WHERE THE MAJORITY OF THE LOCAL, STATE, AND FEDERAL LEADERS WERE RESIDING, THE COUNTY WOULD BE AGGRESSIVELY PURSUING A DECONTAMINATION PROCESS. BOTTOM LINE IS THAT THE AFFLUENT NEIGHBORHOOD WOULD NOT TOLERATE THIS KILLING FIELDS!</b></p> <p><b>RECOMMENDATION: ALL THE AUTHORITIES BE OBLIGATED AND MANDATED TO DO THE RIGHT THING--CLEAN IT UP!</b></p>
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Response: Although arsenic has been detected in the down-gradient wells, it has also been detected at similar concentrations in the up-gradient well (located between landfill and the highway). The significance of this is that any contaminant present in the up-gradient well could not have come from the landfill since the groundwater beneath the site always flows makai, toward the ocean. These results suggest that there are likely both on-site (landfill) and off-site contributions to arsenic levels detected in groundwater monitoring wells. A more thorough discussion of groundwater monitoring data for the Kekaha Landfill has been added to Section 3.14 of the Final EA. The groundwater beneath the Kekaha Landfill is not used as a public water supply and does not present a risk to public health.

17	4.1	Emissions of methane, carbon dioxide, and NMOC from the decomposition of refuse would increase if the landfill capacity is expanded.  What is NMOC? Why couldn't the same LFG collection system scenario apply to the excavation of closed Phase I landfill? Why can't the daily trips to the landfill and the daily quantities of waste be reduced and decreased? Why isn't there a more aggressive way of diverting waste from the landfill?
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Response: NMOC is listed as an acronym for "non-methane organic compounds" on page v of the EA. The landfill gas collection system to be incorporated into the design for Cell 3 must also necessarily collect landfill gas from the closed Phase I landfill, as the passive vents for Phase I would no longer be operable once a liner is placed on top of the Phase I landfill. This has been clarified in Section 4.1 of the Final EA. County actions to increase diversion of waste from the Kekaha Landfill are described in the response to Comment 43 of the Kekaha Community Council response to comment table.

18	4.2	Proposed Action. The U.S. Fish and Wildlife Service was consulted during the environmental impact analysis process for the KLF Phase II vertical expansion....For this consultation...determined that there would be no adverse impact to protected species as long as...there is no leachate discharged into ground surface waters (Earth Tech and Wil Chee 2004).  Contrary to popular belief, see Groundwater paragraph 3, lines 1-7 above. This recent discovery supersedes the 2004 U.S. Fish and Wildlife Service consultation.
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Response: No discharge of leachate to groundwater or surface water would result from the proposed expansion, as proposed expansion cells would be constructed with a double liner and would include a leachate collection system. The unlined and closed Phase I landfill is an existing condition; discharge of leachate from the existing Phase I is not an environmental impact of implementing the Proposed Action. The referenced consultation with the USFWS was actually conducted for the previous vertical expansion. Because there is no federal funding, permits, or licenses to be obtained for implementation of the proposed action, consultation with the USFWS is not required for the proposed lateral expansion. Therefore, reference to the previous USFWS consultation has been removed from Section 4.2, and replaced with review comments on the Draft EA for the lateral expansion by the state equivalent (e.g., the DLNR Division of Forestry and Wildlife).

19	4.4	Proposed Action. Para 2, Lines 5-7. The stability analysis looked at two different failure scenarios based upon the geometry of the facility, foundation soils, and waste mass. Based on the soil and waste mass properties, the proposed landfill expansion is expected to remain stable.  What are the chances of a flawed analysis? Explain the two different failure scenarios that was conducted? If the foundation soils is made of a well-drained calcareous permeable soil how can it be strong enough to carry the waste mass? How guaranteed is this type of soil foundation to remain stable? For how long? What about the groundwater? The condition of the soil under the landfill did not prevent contamination. Both short-term and long-term effects of sitting a landfill over earth's most important natural resources—water—has to take priority and precedence over filling up a space with garbage.
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Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
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 Date: August 24, 2007

Response: A factor of safety was calculated using approved slope stability software and compared to the minimum factor of safety of 1.50 for each of the scenarios. The scenarios were evaluated in the 'worst-case' cross-section. The calculated factors of safety were all greater than the minimum factor of safety.

The first failure scenario analyzes the stability of the landfill against a block type failure along the base liner critical interface. The second failure scenario involves circular type failures that reside completely within the waste mass.

Because the foundation soils at the site are sandy (HLA 1993, PGE 2007), total settlement is comprised only of elastic settlement for design evaluation.

20	4.9	<p>Proposed Action. The proposed action would have a long-term positive impact on public safety and health by allowing for proper disposal of MSW on the island of Kauai.</p> <p>CORRECTION: The proposed action would have a long-term positive impact on public safety and health by "cleaning up" the contaminated groundwater and by excavating the closed leachate contaminated Phase I landfill. Sometimes you gotta take two steps back to get ten steps ahead. Allowing for proper disposal of MSW on the island of Kauai means to strategically plan, design, and find a new facility on the island.</p> <p>Allowing for proper disposal of MSW on the island of Kauai does not mean to "hide the dirt" underneath the landfill. If you continue to pile garbage on top of Phase I landfill with only a liner in between this is not proper disposal. It's like you will be scraping your food plate at home into the garbage without emptying the old garbage. Who does that?</p>
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Response: The proposed expansion would comply with all state and federal regulatory requirements pertaining to construction, operation, and closure of municipal solid waste landfills. Current sampling results from the groundwater monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate (see response to Comment 1) and excavation of waste from the Phase I landfill is not recommended.

21	4.10	<p>Proposed Action. The proposed KLF Phase II lateral expansion would have no significant socioeconomic impacts. No significant adverse impact to...are anticipated from implementation of the proposed action.</p> <p>Of course there is! The county process stepped over human boundaries. They choose "good weather" over how the landfill can have a long-term impact on the residents, as the reason to site the landfill. The people of Kekaha have to deal with the reality that democracy and social equality are not being extended to them. They are a subculture of the more affluent neighborhoods. The people of Kekaha are being looked upon as the group most likely to be identified with the only contaminated landfill, or the only landfill on the island. Definition of a landfill – garbage. Their place of living is being labeled as "where garbage ends up". The dignity of the community went from plantation to ghetto. They've had to deal with smell, pollution, and noise. Bad business left parts of the town looking like a dumping ground, that no one is doing anything about.</p>
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Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
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Response: The weather in the Kekaha area was only one of the reasons why the landfill was sited in Kekaha. Other reasons include:

- Groundwater underneath the Kekaha Landfill is a non-drinking water aquifer (brackish) and is therefore not suitable for use as irrigation water or as a potable water supply;
- The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site;
- There are three additional municipal wells within 1 mile of the site; all up-gradient;
- There are no known endangered species or ecological areas within 1,000 feet of the site (Juvik and Juvik 1986);
- There is no known archaeological significance within 1,000 feet of the site; aerial photographs indicate the area has been highly disturbed by agriculture use;
- The site is greater than 2,000 feet from the nearest residence; and
- The site is downwind of the nearest population center.

The County recognizes that the people of Kekaha have had to deal with the landfill for some years but it is not because they have a desire to stay away from what you call “affluent neighborhoods” which they are not considered a “subculture” of. The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory group (CAG) comprised of approximately 15 to 21 members of the public and local officials to assist in the ranking of candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008.

Siting a new landfill takes numerous steps and substantial time. An implementation schedule presenting the steps and time required to site, permit, and construct a new landfill is presented below. Please note that these are estimated durations and that the actual duration could vary.

IMPLEMENTATION SCHEDULE TO SITE, PERMIT, AND CONSTRUCT A NEW LANDFILL

Item	Duration
Complete MSW Landfill Siting Study	1 year
Prepare Initial Site Report and EIS	1 ½ years
Acquire Land	2 years
Prepare Feasibility Report	1 year
Prepare Operations Plan and Design	1 year
Permit Application to DOH	1 year
Construct MSW Landfill	1 year

It should be noted also be noted that there is no evidence that the landfill is contaminated. In addition, in no way is the County of Kauai of the opinion that the community of Kekaha is “garbage” or a “ghetto”. There are operating procedures in place to reduce odors, windblown litter, and noise. Additional mitigation measures will be implemented to further assist in these areas. It is unfortunate that some individuals irresponsibly leave trash and garbage at their own personal residences or litter in the community but the County has a program in place to mitigate this.

22	4.13	Proposed Action. The proposed action would laterally expand the limits of the Phase II landfill to include...  DO NOT INCLUDE PHASE 1 AND CELL 3 IN THIS PROPOSED EXPANSION UNTIL EXCAVATION AND REMEDIAL SERVICES HAVE BEEN IMPLEMENTED AND COMPLETED.
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Response: The County will comply with all state and federal regulatory requirements pertaining to construction, operation, and closure of municipal solid waste landfills. There is no regulatory requirement to excavate the existing waste in Phase I prior to construction of Cells 2 and 3, and this is not proposed as part of the Proposed Action. Also see response to Comment 23.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
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23	4.14	<p>Proposed Action. Para. 2, lines 1-6. A base liner system and leachate collection system would be constructed for the Phase II lateral expansion. The base liner would extend over the closed Phase I fill area which is unlined. This could potentially reduce the amount of leachate generated from the unlined (closed) Phase I landfill. Existing groundwater monitoring wells located between the current Phase I and Phase II landfills would be properly abandoned and relocated. Groundwater monitoring for the Phase II lateral expansion would be conducted in accordance with the requirements of HAR Title 11, Chapter 58.</p> <p>CONSTRUCT the base liner and leachate collection system for Phase II, Cell 1 and Cell 2. CONSTRUCT a top covering for Phase I fill area. DO NOT extend the liner from Phase II over Phase I, and DO NOT construct a top covering for Phase I in order to create a new landfill Cell 3, until this Phase I has been "cleaned up" and decontaminated.</p> <p>A base liner system extending over the closed Phase I fill area will not satisfy the contaminated groundwater that already exists, and it will not protect the unlined bottom of the Phase I landfill from further contaminating the water source. Covering the top and sides of the close Phase I landfill could potentially reduce the amount of leachate generated from this landfill.</p> <p>DO NOT CREATE A COVER UP FOR THE PHASE I landfill until a full range remediation service has been implemented and complete. Only until then can a base liner and leachate collection system be in place at the "cleaned up" Phase I.</p>
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Response: Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate and no remediation is required. Covering the top and side slopes of Phase I with a base liner would reduce leachate generated within Phase I and would also reduce landfill gas emissions (see response to Comment 1). These positive impacts can be realized without excavating waste from the Phase I landfill. Also see response to Comment 22.

24	4.15	<p>Proposed Action. Para. 3, lines 1-2. Because the proposed Phase II lateral expansion would include a base liner system and a leachate collection system, no significant adverse impacts to groundwater are anticipated,</p> <p>CORRECTION: This is true only if the closed contaminated Phase I landfill is excavated and remediation is implemented. This is true only if the contaminated wells are removed. This is true only if the results of the evaluation suggesting that landfill gas migrating from the unlined, closed Phase I landfill may be impacting the groundwater in Phase II monitoring wells (Earth Tech 2006a) is changed.</p>
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Response: See response to Comments 22 and 23.

25	4.16	<p>Para 1, lines 5-7. The KLF Phase II lateral expansion would support this objective as it would provide the means to maintain basic public health and sanitation standards relating to the disposal of MSW.</p> <p>The lack of "the right behavior and attitude" of the county to clean-up the dirty spill is incompatible with the above policies. The lack of pursuit to clean-up the contaminated Phase I landfill is incompatible with the objectives, plans, and policies. The delay in notifying the public and giving them ample input into the process is incompatible with the policies. The failure of short-term plans evident in this review is incompatible to the long-range plans described in the County's 20-year vision. The county had 40 years to clean-up but no action was taken or is considered. A 20-year vision is not going to "cover up and make right" the existing Phase 1 landfill leachate contamination. The county is not choosing to higher its standards.</p>
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Response: The County provided for the required 30-day public comment period and is putting in significant effort to address and respond to all comments received. All comments received along with the County's responses will be included in the Final EA.

Also, see response to Comment 21.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
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26	4.16	<p>State Land Use Plans. Lines 3-6. This Special Permit allows for land classified as a State Agricultural District...The KLF Phase I area is located within a Conservation District. Per HAR 13-5-22</p> <p>(P-6), "land uses undertaken by the State of Hawaii or the counties to fulfill a mandated governmental function, activity, or service for public benefit" are permitted land uses within the State Conservation District provided...or an exception granted.</p> <p>How is "broken trust" by the County going to satisfy and fulfill the functions, activities, and service for public benefit? How is "an exception granted" clause going to fulfill the State of Hawaii motto "bringing government to the people" without the peoples consent? The Special Permit is an obstruction to the Environmental Review Process and it destroys the proactive participation of the public, which essentially contradicts the governments "open door" policies. This Special Permit is the "smoking gun".</p>
<p>Response: The County intends to submit applications for all applicable permits identified in Table 1-1 of the EA, including the Conservation District Use Permit for development of Cells 2 and 3, and will go through the established permitting processes to obtain these permits. The Special Permit has not obstructed the environmental review process, as evidenced by the preparation of this EA under the authority of HRS 343.</p>		
27	4.17	<p>Lines 3-5. Lateral expansion of the Phase II landfill would provide long-term benefits for solid waste infrastructure on Kauai by extending the life of the landfill.</p> <p>CORRECTION: The long-term benefits of the lateral expansion of the Phase II landfill does not meet the health and socioeconomic requirements of the environment and groundwater supply therefore there will be a negative harmful long-term effect on the people and on living things. Extending the life of the landfill does not mean creating more space to dump garbage on top of a failed infrastructure. Extending the life of a landfill means to restore the infrastructure and to put into action and service safest and unassailable solutions.</p>
<p>Response: See response to Comments 1, 8, and 33.</p>		
28	4.17	<p>Lines 7-11. See 4.14, 4.15 for discussion.</p>
<p>Response: See response to Comments 23 and 24.</p>		
29	4.18	<p>...would not expand...area beyond the existing 98-acre...footprint, which has already been set aside for landfill purposes by executive orders 1558 and 2872.</p> <p>Irreversible? Irretrievable?...hidden meanings, ambiguous words and evasive language to tongue-tie and confuse educated people, average citizens, and the poor, in order to justify reasons for not carrying out the plans as promised. In other words, there is no obligation on the County's part to do what they don't want to do? Bottom line, the County can do what they want to do?</p>
<p>Response: We recognize that the technical issues and supporting documentation discussed in relation to the proposed landfill expansion is technically complex. In addition, there is statutory language, regarding significance criteria for example, that must be addressed in the impacts section of the EA. To the extent possible, we have attempted to translate technical issues and terms into plain language.</p>		
30	5.1	<p>Para 2, lines 1, 2, and 4. Involves an irrevocable commitment to, loss or destruction of any natural or cultural resources....Phase II would not cause significant adverse impacts to...or water sources...does not involve an irrevocable commitment to, loss or destruction of any natural....resources.</p> <p>Does this mean that if the Draft Assessment for the Kekaha Landfill Phase II lateral expansion is accepted as is, the contamination and socioeconomic impact will be deemed unfixed? Or, does this mean that irregardless of the public comments and inputs, the County has made up its mind to go ahead with the expansion plans and implement what they anticipated or determined?</p>

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Kauai Westside Watershed Council  
 Date: August 24, 2007

Response: The County is responsible for ensuring that there is adequate landfill capacity to accommodate continued municipal solid waste disposal. There is no viable alternative to expansion into Cells 1 and 2 given the short timeline for the existing Phase II facility to reach capacity. A new landfill cannot reasonably be sited in less than 6 years and could possibly take longer (e.g. greater than 8 years). The County has considered public comment received on the Draft EA and has incorporated responses to comments into the Final EA as noted in the response to comment tables. The County has considered the public opposition to expansion into Cell 3 and in response has stated that if siting of a new landfill can be accomplished within the life of Cells 1 and 2, development of Cell 3 would not necessarily proceed.

31	5.1	<p>Para 4, lines 9-13. In accordance with HRS 344-5, this EA is made available for public review and comment for a period of thirty days. All comments received during the public comment period will be responded to in the Final EA. The proposed action is also consistent with executive orders 1558 and 2872 setting aside the KLF footprint for landfill purposes.</p> <p>The public, much less the people of Kekaha, did not have the EA available to them in a timely manner. The public was not given 30 days review and comment period. What's the sense in have an Environmental Review Process if the Special Permit gives the County full power to influence the decision making process. The Special Permit sets aside the KLF "footprint" for landfill purposes. In other words, the proposal is already stamped for approval by the County.</p>
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Response: Pursuant to Hawaii Administrative Rules (HAR) §11-200-9.1, "the period for public review and for submitting written comments for both agency actions and applicant actions shall begin as of the initial issue date that notice of availability of the draft environmental assessment was published in the periodic bulletin and shall continue for a period of thirty days." The NOA was published in the OEQC *Environmental Notice* on July 23, 2007, which started the 30-day public comment period of July 23, 2007 through August 24, 2007.

A copy of the Draft EA was submitted to the Waimea Library and was available for review at the beginning of the public comment period. A subsequent request was received that a copy also be sent to the Lihue Library and therefore a copy was sent. Copies of the Draft EA were also made available upon request from the beginning of the public comment period. All requests for copies of the Draft EA were responded to in a timely manner so that EA recipients could provide their comments prior to the public comment deadline. The County also placed an electronic version of the Draft EA on their website to facilitate public comment. In fact, the volume of comments received speaks to the effectiveness of the public notification.

The Special Permit allows for land classified as a State Agricultural District to be used for landfill purposes, however, the Special Permit does not exempt the County from environmental policies and regulations. The County intends to satisfy all environmental review requirements under HRS 343 as well as under the various permitting authorities identified in Table 1-1 of the EA. The County is the approving authority under HRS 343, however, independent state agencies must also grant their approval(s) through approval of permits required to implement the proposed action.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Kauai Westside Watershed Council  
 Date: August 24, 2007

32	5.1	<p>Para 5. <u>Substantially affects the economic welfare, social welfare, and cultural practices of the community or State.</u>                  Refer to 4.10 Socioeconomics for discussion.</p> <p>Para 6. <u>Substantially affects public health.</u>                  Refer to 4.9 Safety and Health for discussion.</p> <p>Para 8. Involves a substantial degradation of environmental quality.                  Refer to Para 3, Lines 1-7, 4.10, 4.14, 4.17 for discussion.</p> <p>Para 9. <u>Is individually limited, but cumulatively has considerable effect on the environment or involves a commitment for larger actions.</u>                  The proposed action would not have significant cumulative impacts (Section 4.5) and does not involve a commitment for larger actions.                  Refer to Para 3, Lines 1-7, 4.13, 4.14, 4.15 for discussion.</p> <p>Para 11. <u>Detrimentially affects air or water quality or ambient noise levels.</u>                  Sub-para 1, lines 1-4. A base liner and leachate collection system would be constructed for the Phase II....and groundwater monitoring would...to ensure the groundwater underneath the KLF...is not being contaminated by landfill operations.                  Refer to 3.5, Para 3, Lines 1-7, 4.14 for discussion.</p>
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Response: See responses to comments 20-24 and 27.

33	5.2	<p>Based on the above evaluation of the significance criteria and the discussion of impacts and mitigation measures contained in this document.....the proposed project would not have a significant adverse impact of the environment. Therefore a Finding of No Significant Impact has been determined.</p> <p>SIGNIFICANT = major, noteworthy, important. Your Findings of No Significant Impact contradicts these discussions herein. The measuring tool for "impacts" should be "due process" and the "findings" should be in the "Rotten Truth" about Garbage. Garbage consists of "more than what we throw away" and dumping higher, wider, or longer layers of garbage does not get rid of it.</p>
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Response: The proposed lateral expansion would comply with current State of Hawaii regulation governing the design, construction, operation, and maintenance of municipal solid waste landfills (HAR 11-58.1), which have been developed to:

- Prevent pollution of the drinking water supply or waters of the State;
- Prevent air pollution;
- Prevent the spread of disease and the creation of nuisances;
- Protect the public health and safety;
- Conserve natural resources; and
- Preserve and enhance the beauty and quality of the environment.

Implementation of mitigation measures incorporated into landfill design and/or operating procedures for compliance with HAR 11-58.1 would ensure that no significant adverse impacts would result from the proposed lateral expansion.

34	General	<p>For this proposal to be a win-win situation there must be an honest, forgiving, and willingness of aggressive collaboration efforts between governments and communities to share in the burden, responsibility, development, and improvement of the solid waste management system.</p>
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Response: Comment noted.



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**From:** glabedzmd@aol.com [mailto: [REDACTED]]  
**Sent:** Thursday, August 16, 2007 3:58 PM  
**To:** Mason, Michelle  
**Subject:** Re: Kekaha, Kaua'i landfill expansion/from the Surfrider Foundation

Thank you for sending us the environmental assessment of the Kekaha Landfill expansion. The Surfrider Foundation is a coastal environmental group and as such, we are very concerned that the original landfill is unlined and that the groundwater and coastal ocean continue to be contaminated. We understand that this is not in the scope of this project, but it is an ongoing environmental problem that is not being addressed.

We understand that the landfill needs to be expanded, however, the need could be greatly mitigated if the County instituted curbside recycling and focused on source reduction. A zero waste program should be instituted immediately. The County should build a recycled materials facility as well as a green waste facility to take pressure off the landfill.

We realize that this is not in the scope of the project, but the administration does need to do some "big picture" future planning or the landfill will have to be expanded again soon. It is very disappointing to see such lack of future planning.

The only comment we have about the project is that there needs to be landscaping to hide the ugliness of the project, from both the mauka and makai sides.

Gordon LaBedz  
Surfrider Foundation, Kaua'i

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Gordon La Bedz, Surfrider Foundation, Kauai  
 Date: August 16, 2007

Comment No.	Comment
1	Thank you for sending us the environmental assessment of the Kekaha Landfill expansion. The Surfrider Foundation is a coastal environmental group and as such, we are very concerned that the original landfill is unlined and that the groundwater and coastal ocean continue to be contaminated. We understand that this is not in the scope of this project, but it is an ongoing environmental problem that is not being addressed.

Response: Comment noted. However, current sampling results from the groundwater monitoring wells located downgradient of the landfill indicate that the Phase I landfill has not significantly impacted groundwater quality and is therefore also not a source of contamination for coastal waters downgradient of the landfill. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA. See Kauai Westside Watershed Council response to Comment 1 for additional information.

2	We understand that the landfill needs to be expanded, however, the need could be greatly mitigated if the County instituted curbside recycling and focused on source reduction. A zero waste program should be instituted immediately. The County should build a recycled materials facility as well as a green waste facility to take pressure off the landfill.
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Response: Comment noted. The County is committed to increased waste diversion. Over the past seven years since we hired our first Recycling Coordinator, there have been consistent improvements to in the area of waste diversion. Notable program improvements over the past few years have included: the introduction of mixed paper and plastic recycling opportunities in the Kauai Recycles Program, a new Kauai Recycles location in Lawai, green waste collection at the Hanalei transfer station, distribution of free backyard home composting bins to residents, acceptance of appliances, tires, and propane tanks for recycling at multiple transfer stations, enforcement of the commercial corrugated cardboard ban, waste diversion assistance to the business sector, and the introduction of the Bottle Deposit Law with seven redemption centers on island. For a complete list of programs, log onto the recycling pages of the County's website at [www.kauai.gov](http://www.kauai.gov), or call the County Recycling Office at 241-6891.

The County has contracted a consultant to update our Integrated Solid Waste Management Plan. The plan is draft form at this time, and includes recommendations for further improvements to the County's waste diversion efforts. Some of these recommendations are being carried through at this time, including a doubling of the recycling staff assigned to implement and oversee waste diversion programs. It is everyone's responsibility to manage waste from cradle to grave, and more programs require increased funding and public commitment. We are doing our best to provide cost effective, convenient programs that maximize participation, and appreciate the public's support as we move forward.

3	We realize that this is not in the scope of the project, but the administration does need to do some "big picture" future planning or the landfill will have to expanded again soon. It is very disappointing to see such lack of future planning.
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Response: See response to Comment 2 for a summary of waste diversion initiatives that have been implemented by the County. It is the intent of the County of Kauai to site a new landfill facility on Kauai. An island-wide siting study for a municipal solid waste landfill was completed in 2001 and a new siting study is currently underway. The project to site the new landfill will involve a community advisory group (CAG) composed of approximately 15 to 21 individuals. The County will utilize a consulting firm to facilitate and guide the process, which will include several meetings with the CAG to develop criteria and criteria weighting to be used for ranking candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008. It is the intent of the County to keep the public well informed as the siting study progresses.

4	The only comment we have about the project is that there needs to be landscaping to hide the ugliness of the project, from both the mauka and makai sides.
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Response: Mitigation measures for visual impacts, including landscaping, have been added to Section 4.13 of the Final EA.



# Written Comment Sheet

## Public Meeting Attendance Record

### Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kauai, Hawaii

Thank you for providing your comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion. Comments may be submitted at this meeting or via U.S. Postal Service to the address below postmarked no later than August 24, 2007.

Environmental justice is a movement promoting fair treatment of people of all races, income and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative impacts such as having the land fill nearby the community of Kekaha and therefore impacting the constituency (every man, woman and child) of that community.

As such, if the imposition of maintaining the solid waste land fill where it is for an extended period of time and (over)

Name: Jose Bulatao, Jr.

Address (Street/City/Zip):

\* Phone number & e-mail (optional):

Mail Comments to:

Earth Tech

c/o Michelle Mason

841 Bishop Street, Suite 500

Honolulu, HI 96813

or

Michelle.Mason@earthtech.com

creating a cumulative negative impact on the community, appropriate compensation should be made to the community for having that burden imposed upon them.

The community can come up with a number of proposals which can be submitted to the appropriate officials.

There are several ways to handle this situation. One way is to have a community meeting where everyone can voice their concerns and ideas. Another way is to have a representative from the community meet with the officials to discuss the situation. A third way is to have a community survey to see what the majority of the community thinks. A fourth way is to have a community action plan that outlines the steps that will be taken to address the situation. A fifth way is to have a community fund that can be used to pay for the compensation. A sixth way is to have a community council that can make decisions on behalf of the community. A seventh way is to have a community watchdog that can monitor the situation and report back to the community. A eighth way is to have a community liaison who can act as a bridge between the community and the officials. A ninth way is to have a community advisory board that can provide input to the officials. A tenth way is to have a community ombudsman who can investigate complaints and make recommendations.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: Jose Bulatao, Jr.

Comment No.	Comment
1	<p>Environmental justice is a movement promoting fair treatment of people of all races, income and cultures with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fair treatment implies that no person or group of people should shoulder a disproportionate share of negative impacts such as having the landfill nearby the community of Kekaha and therefore impacting the constituency (every man, woman and child) of the community.</p> <p>As such, if the imposition of maintaining the solid waste landfill where it is for an extended period of time and creating a cumulative negative impact on the community, appropriate compensation should be made to the community for having that burden imposed on them.</p> <p>The community can come up with a number of proposals which can be submitted to the appropriate officials.</p>

Response: Comment noted. The County is looking into host community compensation options and intends to request input from the public as well as County officials on development of options.



# Written Comment Sheet

## Public Meeting Attendance Record

Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kauai, Hawaii

Thank you for providing your comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion.

Comments may be submitted at this meeting or via U.S. Postal Service to the address below postmarked no later than August 24,

2007.

I feel upset and saddened by the fact the Mayor and Council seem uninterested in to what the residents of the West side have to say. I feel there are several ways to lessen the amount of rubbish being dumped into the existing landfill. The recycling program here on this island needs to be improved. Old bins are always at capacity and therefore recyclables go to board (glass cans etc) are being thrown into the landfill. Curbside recycling should be implemented with the complaint it's too expensive. At what expense will it take to expand the dump? If we are tired of not being heard, and will urge my friends to speak out. We are not going to sit back quietly and not fight back.

Name: Debra A Cast

Address (Street/City/Zip): [Redacted]

\* Phone number & e-mail (optional):

Mail Comments to:

Earth Tech

c/o Michelle Mason

841 Bishop Street, Suite 500

Honolulu, HI 96813

or

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Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Debra Carr

Comment No.	Comment
1	I feel sad and upset by the fact the Mayor and Council seem uninterested in to what the residents of the west side have to say. I feel there are several ways to lessen the amount of rubbish being dumped into the existing landfill. The recycling program on this island needs to be improved. The "bins" are always at capacity and therefore recyclables (cardboard, glass, cans, etc.) are being thrown into the landfill. Curbside recycling should be implemented with the complaint "it's too expensive". At what expense will it take to expand the dump? I for one am tired of not being heard, and will urge my friends to speak out. We are not going to sit back quietly and not fight back!

Response: The County is committed to increased waste diversion. Over the past seven years since we hired our first Recycling Coordinator, there have been consistent improvements in the area of waste diversion. Notable program improvements over the past few years have included: the introduction of mixed paper and plastic recycling opportunities in the Kauai Recycles Program, a new Kauai Recycles location in Lawai, green waste collection at the Hanalei transfer station, distribution of free backyard home composting bins to residents, acceptance of appliances, tires, and propane tanks for recycling at multiple transfer stations, enforcement of the commercial corrugated cardboard ban, waste diversion assistance to the business sector, and the introduction of the Bottle Deposit Law with seven redemption centers on island. For a complete list of programs, log onto the recycling pages of the County's website at [www.kauai.gov](http://www.kauai.gov), or call the County Recycling Office at 241-6891.

The County has contracted a consultant to update our Integrated Solid Waste Management Plan (ISWMP). The plan is draft form at this time, and includes recommendations for further improvements to the County's waste diversion efforts. Some of these recommendations are being carried through at this time, including a doubling of the recycling staff assigned to implement and oversee waste diversion programs. It is everyone's responsibility to manage waste from cradle to grave, and more programs require increased funding and public commitment. We are doing our best to provide cost effective, convenient programs that maximize participation, and appreciate the public's support as we move forward. The ISWMP will be available for public review in early 2008.



# Written Comment Sheet

## Public Meeting Attendance Record

### Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kauai, Hawaii

Thank you for providing your comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion. Comments may be submitted at this meeting or via U.S. Postal Service to the address below postmarked no later than August 24, 2007.

Aloha, The current landfill is too close to the ocean to be an environmentally safe situation now and to increase in the future. I go for walks early in the mornings on the beach in front of the dump and the off shore smell is so foul you can actually taste it in your mouth. The four boats must get wind of it in the mornings on north winded days and on Kona's. Would dmore interior landfill or water table on the island be better for filtering the decay before entering the ocean? If a hurricane were to hit, we could end up with the dump throwing up all over the ~~four~~ Kekaha, Barking Sands + Waimea residents.

Name: Bark Childers

Address (Street/City/Zip): 

\* Phone number & e-mail (optional): \_\_\_\_\_

Mail Comments to:

Earth Tech

c/o Michelle Mason

841 Bishop Street, Suite 500

Honolulu, HI 96813

or

Michelle.Mason@earthtech.com



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: Barb Childers

Comment No.	Comment
1	Aloha, The current landfill is too close to the ocean to be an environmentally safe situation now and to increase it in the future. I go for walks early in the morning on the beach in front of the dump and the offshore smell is so foul you can actually taste it in your mouth. The tour boats must get wind of it in the mornings, on north winds days and on konas.
<p>Response: The landfill facility is operated in accordance with its approved Operating Plan and Solid Waste Permit which addresses odor issues. If an odiferous load comes in, the standard practice is to excavate a trench or pit twice the size to contain the load and bury it, cover it with solid waste and clean cover, and compact it firmly. In addition, a minimum of 6 inches of cover material is placed daily on all waste fill and compacted. Regular maintenance and inspection of the landfill cover soil is conducted to further eliminate odors. Operating procedures for odor control have been added to Section 3.1 of the Final EA.</p>	
2	Would a more interior landfill on the island be better for filtering the decay before entering the ocean or water table?
<p>Response: The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory committee comprised of members of the public and local officials to assist in the ranking of potential locations. The completion of the siting study is anticipated to be in the fall of 2008.</p>	
3	If a hurricane were to hit, we could end up with the dump throwing up all over Kekaha, Barking Sands, and Waimea residents.
<p>Response: Historically the site has been subject to hurricanes and it did not sustain any significant damage or undermining of landfill material. Mitigation measures to protect against excessive erosion, flooding, and wind damage before and during severe storms have been added to Section 4.7 of the Final EA. Prior to a forecast storm, site personnel inspect all drainage structures on the site and verify they are in working order. Excessive silt in ditches and basins is removed; and the condition of pipes and discharge structures from basins are verified. Diversion berms are constructed around the current disposal area as needed to prevent run-off from upgradient areas from entering the waste fill, and to prevent run-off from the waste fill area to downgradient areas of the site. Interim cover is placed over exposed waste at the end of the working day prior to the forecast beginning of a severe storm.</p>	
<p>At the discretion of the site manager, the site may be closed for business during storm periods. In this event, the working face would be closed and covered with interim cover, graded to discharge runoff to the site surface water drainage system. Temporary diversion berms would be constructed as necessary to divert surface water run-off away from areas of exposed waste.</p>	
<p>Facility personnel periodically inspect site drainage systems during any prolonged storm involving extensive rain, and correct or repair as needed any conditions with potential to cause damage to on-site or off-site facilities.</p>	



**From:** Hyla, Sharon [mailto:████████████████████]

**Sent:** Friday, August 24, 2007 4:52 PM

**To:** Mason, Michelle

**Subject:** Kekaha Dump

The dump is located less than 900 feet from the ocean shoreline and the Kekaha shoreline is affected by hurricanes. It is only a matter of time the next hurricane or potential tsunami will wash over the dump site and the contents of the dump will be in the ocean along with all contaminants. Continued use of the dump in this capacity, without separating degradable and non-degradable materials does affect the land and sea. The Summary statement stating there is no significant impact is preposterous. Advise your advisors to investigate all the contaminants and the conditions of cancers in the area and the ocean in the area of the dump. Study the area of Love Canal in New York and the condition of the water in Niagara River and all the cancer that is in that small area of the world. All trash from neighboring states and parts of Canada are dumped at the Niagara Falls dumpsite and the area around it leaches into the water table as well as the very observable mound/mountain of trash in the city dump that stinks and glows.

Continued use of a dump located on the ocean is detrimental to all land and sea inhabitants of Kauai. Kekaha is not and should not continue to be the only dump site on Kauai. Environmental justice of continuing this dumpsite is impacting the west-side residents with noise, trash on the roadsides, speeding trucks 7 days a week, stench from the dump and an eyesore that towers in a flat plain. Consideration is not even being given to take only degradable contents which would be beneficial to the land as compost. Accepting only compostable matter would allow continuation past 2008 in the Kekaha dump. However, evaluate the location of such matter "dumped" nearer the mountains into the agricultural lands for compostable nutrient capabilities.

Integrate NOW plans to separate degradable from non-degradable materials. Integrate NOW pick up of all recyclable items as well as trash on same day or another day in the week. County Council cannot continue to state that the only solution before 2008 is to increase the size of the Kekaha dump—this dump has already been expanded and has been accepting trash longer than what was originally agreed upon. This dump has now been open for more than 50 years and should have been closed off years ago. All trash from Hurricane Iniki was rounded and up and dumped at Kekaha. The mentality that people will allow continuation of being impacted on the west side while million dollar homes and resorts are built in other locations impacts all that have lived on Kauai longer than since Hurricane Iniki. The mentality that chemicals and waste will continue unabated on this island is hazardous to the lifestyle of an island. This island is not big enough to continue such disrespect for the land or the people living on the west side.

Sharon Hyla



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion

Review Comments: Sharon Hyla

Date: August 24, 2007

Comment No.	Comment
1	The dump is located less than 900 feet from the ocean shoreline and the Kekaha shoreline is affected by hurricanes. It is only a matter of time the next hurricane or potential tsunami will wash over the dump site and the contents of the dump will be in the ocean along with all contaminants. Continued use of the dump in this capacity, without separating degradable and non-degradable materials does affect the land and sea.
<p>Response: Historically the site has been subject to hurricanes and it did not sustain any significant damage or undermining of landfill material. Historic tsunami run-up data for Kekaha has been added to Section 3.7 of the Final EA. To date, the KLF facility has not sustained any tsunami-related damage.</p> <p>Mitigation measures to protect against excessive erosion, flooding, and wind damage before and during severe storms have been added to Section 4.7 of the Final EA. Prior to a forecast storm, site personnel inspect all drainage structures on the site and verify they are in working order. Excessive silt in ditches and basins are removed; and the condition of pipes and discharge structures from basins are verified. Diversion berms are constructed around the current disposal area as needed to prevent run-off from upgradient areas from entering the waste fill, and to prevent run-off from the waste fill area to downgradient areas of the site. Interim cover is placed over exposed waste at the end of the working day prior to the forecast beginning of a severe storm.</p> <p>At the discretion of the site manager, the site may be closed for business during storm periods. In this event, the working face would be closed and covered with interim cover, graded to discharge runoff to the site surface water drainage system. Temporary diversion berms would be constructed as necessary to divert surface water run-off away from areas of exposed waste.</p> <p>Facility personnel periodically inspect site drainage systems during any prolonged storm involving extensive rain, and correct or repair as needed any conditions with potential to cause damage to on-site or off-site facilities</p>	
2	The Summary statement stating there is no significant impact is preposterous. Advise your advisors to investigate all the contaminants and the conditions of cancers in the area and the ocean in the area of the dump. Study the area of Love Canal in New York and the condition of the water in Niagara River and all the cancer that is in that small area of the world. All trash from neighboring states and parts of Canada are dumped at the Niagara Falls dumpsite and the area around it leaches into the water table as well as the very observable mound/mountain of trash in the city dump that stinks and glows.
<p>Response: Comment noted. The well-publicized human health effects to residents of Love Canal from exposure to toxic waste contributed to the passage of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) and was instrumental in changing the way that toxic waste is disposed of. It is noted however, that the Kekaha Landfill does not accept toxic waste and is in no way analogous to Love Canal.</p>	
3	Continued use of a dump located on the ocean is detrimental to all land and sea inhabitants of Kauai. Kekaha is not and should not continue to be the only dump site on Kauai. Environmental justice of continuing this dumpsite is impacting the west-side residents with noise, trash on the roadsides, speeding trucks 7 days a week, stench from the dump and an eyesore that towers in a flat plain.
<p>Response: Comment noted. However, current sampling results from the groundwater monitoring wells located down-gradient of the landfill indicate that the Phase I landfill has not significantly impacted groundwater quality and is therefore also not a source of contamination for coastal waters downgradient of the landfill. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.</p> <p>The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory group (CAG) comprised of approximately 15 to 21 members of the public and local officials to assist in the ranking of candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008.</p>	
4	Consideration is not even being given to take only degradable contents which would be beneficial to the land as compost. Accepting only compostable matter would allow continuation past 2008 in the Kekaha dump. However, evaluate the location of such matter "dumped" nearer the mountains into the agricultural lands for compostable nutrient capabilities.

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Sharon Hyla  
 Date: August 24, 2007

Response: Comment noted. The County is committed to increased waste diversion. Over the past seven years since we hired our first Recycling Coordinator, there have been consistent improvements in the area of waste diversion. Notable program improvements over the past few years have included: the introduction of mixed paper and plastic recycling opportunities in the Kauai Recycles Program, a new Kauai Recycles location in Lawai, green waste collection at the Hanalei transfer station, distribution of free backyard home composting bins to residents, acceptance of appliances, tires, and propane tanks for recycling at multiple transfer stations, enforcement of the commercial corrugated cardboard ban, waste diversion assistance to the business sector, and the introduction of the Bottle Deposit Law with seven redemption centers on island. For a complete list of programs, log onto the recycling pages of the County's website at [www.kauai.gov](http://www.kauai.gov), or call the County Recycling Office at 241-6891.

The County has contracted a consultant to update our Integrated Solid Waste Management Plan (ISWMP). The plan is draft form at this time, and includes recommendations for further improvements to the County's waste diversion efforts. Some of these recommendations are being carried through at this time, including a doubling of the recycling staff assigned to implement and oversee waste diversion programs. It is everyone's responsibility to manage waste from cradle to grave, and more programs require increased funding and public commitment. We are doing our best to provide cost effective, convenient programs that maximize participation, and appreciate the public's support as we move forward. The ISWMP will be available for public review in early 2008.

5	Integrate NOW plans to separate degradable from non-degradable materials. Integrate NOW pick up of all recyclable items as well as trash on same day or another day in the week. County Council cannot continue to state that the only solution before 2008 is to increase the size of the Kekaha dump—this dump has already been expanded and has been accepting trash longer than what was originally agreed upon. This dump has now been open for more than 50 years and should have been closed off years ago. All trash from Hurricane Iniki was rounded and up and dumped at Kekaha.
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Response: Comment noted. See response to comment 4.

6	The mentality that people will allow continuation of being impacted on the west side while million dollar homes and resorts are built in other locations impacts all that have lived on Kauai longer than since Hurricane Iniki. The mentality that chemicals and waste will continue unabated on this island is hazardous to the lifestyle of an island. This island is not big enough to continue such disrespect for the land or the people living on the west side.
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Response: Comment noted. The proposed lateral expansion would comply with current State of Hawaii regulation governing the design, construction, operation, and maintenance of municipal solid waste landfills (HAR 11-58.1), which have been developed to:

- Prevent pollution of the drinking water supply or waters of the State;
- Prevent air pollution;
- Prevent the spread of disease and the creation of nuisances;
- Protect the public health and safety;
- Conserve natural resources; and
- Preserve and enhance the beauty and quality of the environment.

Implementation of mitigation measures incorporated into landfill design and/or operating procedures for compliance with HAR 11-58.1 would ensure that no significant adverse impacts would result from the proposed lateral expansion.

## Kekaha Landfill Phase II Lateral Expansion Comments on the Draft Environmental Assessment

The following is submitted in response to the Draft Environmental Assessment for the Kekaha Landfill, Phase II Lateral Expansion.

1) The Landfill was permitted to reach a height of 37 feet in 1993. Then capacity was allowed to increase to the current limits with the maximum capacity projected to be reached in 2009. Now the County of Kauai is requesting further increases in capacity to allow operations until approximately 2021 citing a necessity to "allow time" to come up with a plan.

COMMENTS: The County has had nearly 14 years since Phase II began operations to have a long-term plan in place and implement that plan. However, the County appears to be intent on keeping the Landfill in Kekaha as long as possible by incremental expansions and incremental extensions.

Only a "Proposed Action" and a "No-Action Alternative" are provided for the public to comment on since the County has not made timely plans for alternatives to the Kekaha Landfill. This indicates the County's apparent determination to maintain the current Landfill and not to consider another plan.

2) The Summary of Environmental Impacts in the Draft Environmental Assessment (DEA) fails to make assurances that there will not be long-term and short-term adverse impacts.

COMMENTS: In reference to the long-term, the Summary only states that "no *significant* long-term adverse impacts are *expected*" [italics added]. As for the multiple short-term impacts, the Summary states that appropriate mitigation measures would reduce those short-term impacts to a level of "non-significance." The statement does not say there *must* be mitigation measures or that there *will* be mitigation measures, only that those measures "would" reduce the impact. There are no assurance that anything will really be done. Also, stating that mitigation "would" reduce impacts to a level of non-significance is simply unsubstantiated statement that tends to cast doubt on the validity of the rest of the DEA.

3) The DEA states that the Landfill handles approximately 35 commercial trucks per weekday and about 30 commercial trucks per day on the weekends. The DEA then goes on to state "It is assumed that filling rates would not change significantly. . ." over the life of this proposed expansion. It goes on to allege that there would not be any significant change to Landfill-related traffic on Kaunualii Highway.

COMMENTS: To believe these assumptions requires some great leap of faith in the DEA given the rate of population growth for the County of Kauai. New residences translate to more waste to be disposed of. New single-family homes, hotels, condominiums, and timeshare units all contribute to the Island's waste as do restaurants and other businesses. Also, no mention was made in the DEA of the non-commercial vehicles that travel through Kekaha throughout each day laden with trash for the Landfill.

The truck traffic carrying waste through Kekaha has a major negative impact on the community. Some of the factors that should be considered are the noise created by the trucks, the sometimes-excessive speed of the trucks, and the smell from the rotten liquid from restaurants that drips from trucks. Plans to continue operations at the Kekaha Landfill should include options to mitigate Landfill-related traffic; e.g., routing trucks through the cane haul road mauka of Kekaha.

4) The DEA states that it will take 5 to 6 years to site, design, and construct a new landfill facility. Yet, this very complex expansion to the existing landfill into Cell 1 can be accomplished in only six months with another expansion later for Cells 2 and 3 taking only another six months. The costs for these expansions are projected to be \$30 million.

COMMENTS: Provide an explanation of why the County needs six years to get a new landfill running. Additionally, what would be today's costs to open a new landfill? This information is necessary to understand the County's rationale in wanting to continue operations at Kekaha indefinitely.

Glenn Molander

[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Glenn Molander  
 Date: August 24, 2007

Comment No.	Comment
1	<p>The Landfill was permitted to reach a height of 37 feet in 1993. Then capacity was allowed to increase to the current limits with the maximum capacity projected to be reached in 2009. Now the County of Kauai is requesting further increases in capacity to allow operations until approximately 2021 citing a necessity to “allow time” to come up with a plan.</p> <p>COMMENTS: The County has had nearly 14 years since Phase II began operations to have a long-term plan in place and implement that plan. However, the County appears to be intent on keeping the Landfill in Kekaha as long as possible by incremental expansions and incremental extensions.</p> <p>Only a “Proposed Action” and a “No-Action Alternative” are provided for the public to comment on since the County has not made timely plans for alternatives to the Kekaha Landfill. This indicates the County’s apparent determination to maintain the current Landfill and not to consider another plan.</p>
<p>Response: The County completed a landfill siting study in 2001 but was unable to reach agreement with stakeholders on a recommended site. A new siting study is currently underway. The project to site the new landfill will involve a community advisory group (CAG) composed of approximately 15 to 21 individuals. The County will utilize a consulting firm to facilitate and guide the process, which will include several meetings with the CAG to develop criteria and criteria weighting to be used for ranking candidate sites identified under prior island-wide studies. The outcome of the project will be a recommended site for the new landfill by the fall of 2008. It is the intent of the County to keep the public well informed as the siting study progresses.</p>	
2	<p>The Summary of Environmental Impacts in the Draft Environmental Assessment (DEA) fails to make assurances that there will not be long-term and short-term adverse impacts.</p> <p>COMMENTS: In reference to the long-term, the Summary only states that “no <i>significant</i> long-term adverse impacts are <i>expected</i>” [italics added]. As for the multiple short-term impacts, the Summary states that appropriate mitigation measures would reduce those short-term impacts to a level of “non-significance.” The statement does not say there <i>must</i> be mitigation measures or that there <i>will</i> be mitigation measures, only that those measures “would” reduce the impact. There are no assurance that anything will really be done. Also, stating that mitigation “would” reduce impacts to a level of non-significance is simply unsubstantiated statement that tends to cast doubt on the validity of the rest of the DEA.</p>
<p>Response: The short-term impacts would be construction-related and would be mitigated to a level of non-significance. The County, per laws and regulations, are required to reduce the short-term construction-related impacts as well as long-term operations-related impacts.</p>	

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
 Review Comments: Glenn Molander  
 Date: August 24, 2007

3	<p>The DEA states that the Landfill handles approximately 35 commercial trucks per weekday and about 30 commercial trucks per day on the weekends. The DEA then goes on to state "It is assumed that filling rates would not change significantly. . ." over the life of this proposed expansion. It goes on to allege that there would not be any significant change to Landfill-related traffic on Kaunualii Highway.</p> <p>COMMENTS: To believe these assumptions requires some great leap of faith in the DEA given the rate of population growth for the County of Kauai. New residences translate to more waste to be disposed of. New single-family homes, hotels, condominiums, and timeshare units all contribute to the Island's waste as do restaurants and other businesses. Also, no mention was made in the DEA of the non-commercial vehicles that travel through Kekaha throughout each day laden with trash for the Landfill.</p> <p>The truck traffic carrying waste through Kekaha has a major negative impact on the community. Some of the factors that should be considered are the noise created by the trucks, the sometimes-excessive speed of the trucks, and the smell from the rotten liquid from restaurants that drips from trucks. Plans to continue operations at the Kekaha Landfill should include options to mitigate Landfill-related traffic; e.g., routing trucks through the cane haul road mauka of Kekaha.</p>
<p>Response: Estimates that filling rates would remain approximately the same over the life of the proposed expansion are based on the fact that the County continues to take actions to improve waste diversion. It is believed that improved waste diversion in the future would off-set the expected increase in population, such that filling rates would remain relatively constant. Actions taken by the County to improve waste diversion on Kauai are discussed in the Kekaha Community Council response to Comment 43.</p> <p>Section 3.11 of the Final EA has been revised to reflect the most current information available on numbers of commercial and non-commercial daily loads to the KLF as well as average annual daily traffic data obtained for the State Department of Transportation.</p> <p>Routing trucks through cane haul roads is not feasible because cane haul routes: 1) are too narrow for two-way traffic, and 2) are located on DLNR property (e.g., are not public roads).</p>	
4	<p>The DEA states that it will take 5 to 6 years to site, design, and construct a new landfill facility. Yet, this very complex expansion to the existing landfill into Cell 1 can be accomplished in only six months with another expansion later for Cells 2 and 3 taking only another six months. The costs for these expansions are projected to be \$30 million.</p> <p>COMMENTS: Provide an explanation of why the County needs six years to get a new landfill running. Additionally, what would be today's costs to open a new landfill? This information is necessary to understand the County's rationale in wanting to continue operations at Kekaha indefinitely.</p>

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 Review Comments: Glenn Molander  
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Response: Siting a new landfill takes numerous steps and substantial time. An implementation schedule presenting the steps and time required to site, permit, and construct a new landfill is presented below. Please note that these are estimated durations and that the actual duration could vary.

IMPLEMENTATION SCHEDULE TO SITE, PERMIT, AND CONSTRUCT A NEW LANDFILL

Item	Duration
Complete MSW Landfill Siting Study	1 year
Prepare Initial Site Report and EIS	1 ½ years
Acquire Land	2 years
Prepare Feasibility Report	1 year
Prepare Operations Plan and Design	1 year
Permit Application to DOH	1 year
Construct MSW Landfill	1 year

With this implementation schedule, the County expects that a new landfill cannot reasonably be sited in less than 6 years. If there are significant regulatory, technical, or community issues to overcome, siting a new facility could take much longer (e.g. greater than 8 years). It is uncertain whether a new facility can be sited within the expected life for Cells 1 and 2, and disposal of MSW in Cell 3 may be necessary. Although, the County does not expect that 12 years will be required to site a new landfill, if Cell 3 is developed for any amount of MSW disposal, filling would continue until the Cell has reached capacity, which is expected to occur in 2021. Cost estimates for developing a new landfill are site-specific and will be developed as part of the siting study currently underway.



**Mason, Michelle**

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**From:** Bruce Pleas [REDACTED]  
**Sent:** Monday, August 20, 2007 4:17 PM  
**To:** Mason, Michelle  
**Subject:** DEA comments from Bruce Pleas 8/20/07

From  
Bruce Pleas, [REDACTED]  
[REDACTED]

Comments on DEA for Kekaha Landfill Expansion, Kekaha, Kauai, Hawaii

**Section 2.1**

"The KLF Phase II is a permitted MSW landfill for the disposal of **non-hazardous solid wastes.**" In section 3.5 it states "The ROI for the **hazardous materials and hazardous wastes is the KLF facility.**"

**Questions:**

Where is the disposal site for hazardous waste on Kauai, KLF or where? Section 2.1 is really unclear as to where the hazardous waste is disposed of as it states that it is not at KLF in one part then states it is at KLF in another part.

How did arsenic (a hazardous waste) show up in the groundwater? See Section 3.14, page 3-17, which indicates that it came from the **unlined Phase 1 landfill.**

**Comment and request:** From the above information there needs to be information and facts on Phase 1 landfill and it's effect on the groundwater. Information needs to be presented in the EA on the contents of Phase 1 and the potential hazards to the environment from Phase 1.

**Section 2.2**

**Proposed Action**

**Comment and concern:** To cap Phase 1 with a base liner system may seem feasible with the right ventilation of the landfill gas from Phase 1 but to me it seems like a plausible scenario for a ticking time bomb of landfill gas. Presently at the KLF there is no smoking allowed due to the constant small of flammable landfill gas on the property. With the capping of Phase 1, the addition of additional tonnage of waste material, rerouted gas and water systems there needs to be a more precise and informative information on the expansion of Cell 3 over Phase 1.

**Section 2.4.2**

**Excavation of Phase 1 to construct new subtitle D base liner system**

This alternative was eliminated due to adverse environmental effects related to excessive odor and gas, landfill fires, and short-term health and safety concerns.

**Concern:** Phase 1 is an unlined landfill that has in one (1) instance already polluting the groundwater with arsenic, from my observations of using the Phase 1 landfill from 1972-1993 there is a greater risk to the environment and public health if Phase 1 is not excavated and moved to a lined landfill.

**Section 3.1**

**Air Quality**

What is presented in the DEA on wind patterns for the KLF is very vague and pretty much completely wrong. The KLF is located on the Mana Plain which does not have predominate Tradewinds during the summer and has very complex wind patterns that need to be identified so that there is a complete understanding of where any contamination will end up or concentrate. On the general summer Tradewind day the winds at the KLF in the early morning will be under 10 knots out of 30-80 degrees (mountain drainage winds), pick up to 10-20 knots out of 70-110 degrees as the Tradewinds fill in thru the morning, die out to 5-15 knots as the direction turns from 70-110 degrees to 180-270 degrees as the land heats up in the late morning/early afternoon, become 10-15+ knot winds from 200-290 degrees thru the afternoon, return to 10-20 knot winds out of 70-100 degrees in the late afternoon if the Tradewinds are strong enough then back down to under 10 knot winds out of 10-80 degrees as the evening mountain winds fill in. This is only one (1) scenario of many that the winds perform on a regular basis at this area. **Concern and request:** There needs to be a full model of the wind patterns around the KLF for all wind scenarios.

8/23/2007

## Section 3.2

**Biological Resources**

Again what is presented in the DEA is lacking as it only covers flora and fauna that are on the endangered list. Concern and request: What needs to be covered in biological resources are the migratory and resident local birds that frequent the KLF that could possibly either carry any biological material out of the KLF on their bodies or have accumulations of hazardous material in their bodies that could be transferred to the local population of humans. The birds that I have observed at the KLF are Egrets, Mynah birds, Pueo and Pigeons. There are Herons when there is water present at KLF and these Herons are present daily adjacent to the KLF. We do have an increasing Nene population on the Westside on Kauai and these are endangered birds which could make brief stops at KLF. Also there are endangered Hawaiian Coots that are present in the ditches around KLF. There needs to be biological testing of these bird species to find out if these birds have any concentrations of hazardous material building up in their bodies from their contact with the KLF and the adjacent groundwater's. There is no mention of any testing being done on the aquatic species that are in the groundwater ditches adjacent to KLF and in the ocean. This is a big gap in the DEA and needs to be addressed as these aquatic species are being consumed by the resident human population on a fairly regular basis. Some of the species that need to be identified and biologically checked for contaminants are Hawaiian shrimp and Tilapia from the adjacent ditches. Ocean fishes such as Papio, all varieties of Tuna, Ono and Moi that are caught in the ocean fronting the KLF. On the biological testing this needs to be done at least every six (6) months, preferably every 3-4 months, and should also include the local indicator species that will concentrate any contaminants that could be coming from the KLF. To rely only on two (2) water tests per year on contaminants is very inadequate at best to find any contaminants coming from the KLF.

## Section 3.7

**Natural Hazards****Floods**

"...the KLF facility is within a FIRM Zone X, an area determined to be outside the 500-year flood plain."

Observation and request: Over the last 35 years I have seen the main road impassable to motor traffic at least once (around 1980) and have seen the present Phase 2 location under water at least 5 times before the landfill was constructed, at which times you could not access Phase 1 due to an impassable dirt/gravel road leading to the Phase 1 site. Almost every year the fields adjacent to the KLF are flooded with the crops basically destroyed by sitting in water for any where from a day to a week in the lowest areas. The records from the seed companies should provide data on this as they do lose crops during these floods. I agree that the KLF mounds are out of the 500-year flood but to say that this area does not flood is completely wrong. Also there needs to be some investigation as to what the groundwater flow is during these flood events as they may bring the groundwater level above the height of the plastic liner of the Phase 2 landfill.

**Tsunami**

Request: There needs to be a study on what will happen in Tsunami scenarios that range from a minimal Tsunami (historic size that happened around the 1940-1950 era), a moderate Tsunami that is the same magnitude as the Indonesian Tsunami a few years back and a major Tsunami that is generated locally (probably from the Big Island). This study should address the ability of KLF to sustain all levels of Tsunami inundation, what are the probable consequences and what will need to be done after the Tsunami to contain the hazardous materials that could be released if the KLF is damaged or destroyed. From what I understand the 1940-50 Tsunamis reached the base of the Pali in some areas, a Tsunami the size of the Indonesian Tsunami reached the 100' above mean sea level in some areas and a Tsunami from the Big Island could completely wipe out the KLF along with all coastal areas of Kauai.

## Section 3.11

**Transportation**

"Traffic along Kaunaulii Highway is usually light and use is most commonly associated with Polihale State Park and federal reserve lands."

Comment and request: The above statement is very misleading and seems to indicate that minimal traffic is present on Kaunaulii Highway. Polihale State Park is visited by a large amount of visitors and residents (figures are available from the State Highways and Tourist Departments), PMRF is one of the largest employers on Kauai and has in excess of six (600) vehicles entering and exiting per day. These figures and the affect of all traffic on the towns of Kekaha and Waimea need to be included in the EA. From the public testimony at the DEA meeting at Waimea on August 9, 2007 there was great concern on the speed of the trucks thru Kekaha and the amount of trash being blown out of the trucks using the KLF with these concerns also needing to be addressed.

## Section 3.13

### Visual Resources

Comment and request: KLF is visible from the ocean from as far away as Kaunakani to the east and PMRF to the west which is around 3-7 miles. This needs to be addressed as the ocean adjacent to KLF is the main route of tour boats to the Na Pali coast.

The Kauai General Plan has designated Kaunaulii Highway as a "Scenic Roadway Corridor" which is addressed in Sections 3.2 and 5.5 in the Kauai General Plan. Since the KLF is partially visible at this point and will become more visible as it grows and expands there needs to be a plan to bring the KLF into compliance with the Kauai General Plan.

#### Section 3.14

### Water Resources

#### Surface Water

"Runoff from the top of the closed Phase 1 of the KLF landfill flows radially off the landfill ..... discharge to an infiltration ditch...."

Comments and request: Phase 1 deeply concerns me as the top of Phase 1 is used as a storage area, with any runoff from the top of Phase 1 potentially containing contaminants from the "white goods" stockpiled there on dirt. Is the infiltration ditch around Phase 1 lined or is it just allowed to percolate into the groundwater? An in depth study needs to be done on Phase 1 runoff that includes all scenarios and levels of runoff from various sources like rainfall from normal weather, exceptionally wet periods (2006) or Hurricanes. The surface water data is lacking in any map/chart that defines the direction, amount and quality of the groundwater that surrounds the KLF and what happens to the groundwater during the wet/flooding episodes.

#### Groundwater

Comments and request: The groundwater data is very vague ("estimated or from a single monitoring report") and there needs to be a complete study on the groundwater flows during all scenarios. This would include the amount of groundwater that flows into the ocean at all areas adjacent to the KLF and the possibility of any groundwater reaching Kekaha. Since Phase 1 is an unlined landfill there needs to be specific attention given to Phase 1, especially since Phase 1 is the closest to the ocean and areas used by residents (beach and drag strip).

#### Section 4.1

### Air Quality

"Once collected, the gasses are burned in a flare where...."

Comment and request: No mention of burning the landfill gas for energy and no mention of the affect of landfill gas (23x CO2) on the earth's environment. Both of these need to be addressed along with the complete identification of the wind patterns for the KLF and Mana Plain area.

#### Section 4.2

### Biological Resources

Comment and request: This section is a complete flop and needs to be redone. Where is the consultation from the USFWS? Should it not have been included in the DEA?

Following is a copy of what I proposed in Section 3.2. What needs to be covered in biological resources are the migratory and resident local birds that frequent the KLF that could possibly either carry any biological material out of the KLF on their bodies or have accumulations of hazardous material in their bodies that could be transferred to the local population of humans. The birds that I have observed at the KLF are Egrets; Mynah birds, Pueo and Pigeons. There are Herons when there is water present at KLF and they are present daily adjacent to the KLF. We do have an increasing Nene population on the Westside on Kauai and these are endangered birds which could make brief stops at KLF. Also there are endangered Hawaiian Coots that are present in the ditches around KLF. There needs to be biological testing of these bird species to find out if these birds have any concentrations of hazardous material building up in their bodies from their contact with the KLF and the adjacent groundwater's.

There is no mention of any testing being done on the aquatic species that are in the ditches adjacent to KLF and in the ocean. This is a big gap in the DEA and needs to be addressed as these aquatic species are being consumed by the resident human population on a fairly regular basis. Some of the species that need to be identified and biologically checked for contaminants are Hawaiian shrimp and Tilapia from the adjacent ditches, Papio, a variety of Tuna, Ono and Moi that are caught in the ocean fronting the KLF.

On the biological testing this needs to be done at least every six (6) months and should also include the local indicator species that will concentrate any contaminants that could be coming from the KLF. To rely only on two (2) water tests per year on contaminants is very inadequate at best to find any contaminants coming from the KLF.

#### Section 4.7

### Natural Hazards

Comment and request: The "Proposed Action" paragraph is inadequate to address any of the Natural Disaster scenarios. The storm surge from a Hurricane should not reach the KLF but the area adjacent to the KLF will flood, the storm surge and the increase in the surface/groundwater level could affect the integrity of the Phase 2 plastic barrier and since Phase 1 is unlined it just goes wherever it wants with the storm waters. As for the coastal dunes (all under 12' above MSL) dampening the affect of a Tsunami it may well happen that way with a minimal Tsunami, but with a moderate to severe Tsunami the coastal dunes will be of little protection and again Phase 1 just sits there close to the ocean with no liner. Also there is no mention of Global Warming and the possible rise of sea levels which would affect the KLF since it is only a few feet above sea level. This section needs to be updated and have solid information on the affects of any and all natural disasters that could affect the KLF.

#### Section 4.13

##### **Visual Resources**

Comments and requests: Presently the KLF is visible at around sixty (60+) feet above MSL and with the doubling of the KLF area and a final height of eighty-five (85) feet it will be very visible from the ocean and mauka areas, visible from the adjacent coastal areas. Also there is no way in ##### that you can make the KLF blend in with the dunes as they are only ten (10) to twelve (12) feet high and are made out of white to tan sand while the landfill is brown dirt. Even to plant it with vegetation is questionable due to the amount of landfill gas that will be present in the area. This landfill will have a permanent affect on the quality of the visual life on the Westside of Kauai.

#### Section 4.14

##### **Water Resources**

Comments and request: To put a liner over Phase 1 and then say that it will reduce the affect of Phase 1 on the water resources may be true to some extent but the overall effect of increasing the area and height of the KLF has the potential to greatly affect the water resources of west Kauai and the ocean. Presently and in the proposed expansion of the KLF there is only water testing being done on a semi-annual basis in an area that the groundwater is found from 2.5 to 5 feet above MSL (From Section 3.1, page 3-17) and from this figure of where the groundwater is in relation to the general height of the land above MSL (mostly under 12' above MSL) there is the need for a more comprehensive study and information on where and in what volume the groundwater moves during all scenarios. Also in the DEA it is not clear as to the current acreage volume and the proposed acreage and volume of the "leacheate and infiltration pond" areas. With the doubling of the KLF there needs to be complete information on the current and proposed "leacheate and infiltration pond" areas.

#### Section 5.1

##### **Significance Criteria**

I have listed the "Bullets" in numerical order with my comments on each bullet (refer to previous testimony as needed):

- 1) The expansion could have adverse impacts on biological resources, cultural resources and water resources due to the fact that the water studies are incomplete and do not cover all aspects of natural disasters and have not performed biological studies of the local bird and fish population.
- 2) The KLF facility will not be expanded but it is still questionable as to whether this parcel of land will be able to hold this increased amount of solid waste without a degradation of the local environment, especially after a natural disaster.
- 3) Why a landfill was first located within an SMA, a Conservation area, a Tsunami zone, in a plain that has the groundwater so close to the surface and so close to the Pacific Ocean is a mystery to me. Now to pile more waste on a small area it is questionable to me that this sandy area can hold the tonnage of waste that is being proposed. This site has conflicted with the State policies since the beginning and will continue to conflict with the State policies as long as it exists.
- 4) This area was the "Garden of Kekaha" before the landfill was located there with many residents obtaining "Lei material" and "Cultural materials" from this area along with fishing and hunting in the entire area. The KLF has affected the economic, social and cultural practices of the community from the beginning of the operation and will continue to affect these practices for as long as it exists.
- 5) To say that the KLF will have long term positive affects on Kauai is true, but it will continue to have negative short and long term affects on the Kekaha community in the form of potential air, water and resource pollution from a continuing operation and the proposed expansion. The amount of cancer on the Westside of Kauai is high and this is from a combination of unregulated agriculture operation (Industrial agriculture--Genetic and Herbicide research), old landfills (under Kekaha Gardens Subdivision) along with the contamination of the groundwater from 1,000+ septic systems sitting in the groundwater. KLF is just another small portion of the contamination of the Westside groundwater table that could be a major portion in the advent of a natural disaster or the failure of the protective membrane.
- 6) The secondary impacts such a population change will be minimal and the effect on public facilities will also be

minimal. It could be a positive effect on public facilities with the proposal of a landfill energy production facility, but that is not mentioned in the DEA so that rules out a positive impact at this point from the KLF.

7) Do we have to go over this again? Just a short comment, the quality of the environmental study in the DEA is very lacking and to state "Per the analysis in this EA, the proposed Phase II lateral expansion would not cause any impacts that would degrade environmental quality." is unsubstantiated in my view with out any quantitative figures on biological testing, health of the local human population and water flows. There also needs to be a solid definition of the phrase "substantial".

8) To say that a population center (Kekaha) less than 2 miles from a landfill area that sits in the same groundwater, is susuptible to a number of different natural disasters and structural failures with no contingency plans in place for these possible scenarios will not have a cumulative effect on the environment is not true.

9) There are minimal to no endangered species within the footprint of the KLF but there are endangered species adjacent to the KLF that will and are being affected by the KLF. There is an impact happening now and it will increase with the bigger KLF.

10) The air quality has not addressed the amount of landfill gas being released into the atmosphere, the carbon footprint and cost to the State in carbon emissions and the possibility of an energy producing facility that would decrease the amount of landfill gas being released into the atmosphere.

The water quality issue has not been addressed fully in the DEA and to state that "Therefore, detrimental affects to water quality are not anticipated." is meaning less.

11) The KLF is located in all of the environmentally sensitive areas listed such as a flood plain (Mana plain was and still could be water from Waimea to Polihale), it is in a Tsunami zone, the beach is presently 1,400 feet away and with global warming and the ocean rising who knows where the beach will be in 2010 (information will be available from the County Erosion Study in the near future), erosion-prone area geologically hazardous land and estuary it is not at this point, it is lying in a freshwater area with just ditches and pumps keeping it dry presently and is adjacent to coastal waters with an undetermined amount of groundwater flowing into the ocean daily.

12) It does affect the scenic view from the mountains and ocean, will affect the scenic view from the Mana plain when it is finished and marginally affects the view from the "Scenic Corridor" presently.

13) The KLF should be an energy producing facility.

## Section 5.2

### **Determination**

The finding of a FONSI is not accurate from my point of view as the DEA has insufficiently addressed many important aspects required in an EA.

Mahalo,  
Bruce Pleas  
8/20/07



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion

Review Comments: Bruce Pleas

Date: August 20, 2007

Comment No.	Section No., Page No.	Comment
1	2.1	<p>"The KLF Phase II is a permitted MSW landfill for the disposal of non-hazardous solid wastes." In section 3.5 it states "The ROI for the hazardous materials and hazardous wastes is the KLF facility."</p> <p>Questions:</p> <p>Where is the disposal site for hazardous waste on Kauai, KLF or where? Section 2.1 is really unclear as to where the hazardous waste is disposed of as it states that it is not at KLF in one part then states it is at KLF in another part.</p> <p>How did arsenic (a hazardous waste) show up in the groundwater? See Section 3.14, page 3-17, which indicates that it came from the unlined Phase 1 landfill.</p> <p>Comment and request: From the above information there needs to be information and facts on Phase 1 landfill and it's effect on the groundwater. Information needs to be presented in the EA on the contents of Phase 1 and the potential hazards to the environment from Phase 1.</p>

Response: There is no hazardous waste disposal site on Kauai; Kekaha Landfill does not accept any hazardous waste. There is discussion in the EA regarding the hazardous materials that are stored on-site for site operations, such as the 2,000-gallon diesel above ground storage tank.

Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate. Although arsenic has been detected in the down-gradient wells, it has also been detected at similar concentrations in the up-gradient well (located between landfill and the highway). The significance of this is that any contaminant present in the up-gradient well could not have come from the landfill since the groundwater beneath the site always flows makai, toward the ocean. A summary of Phase I groundwater monitoring results have been added to Section 3.14 of the Final EA.

Groundwater underneath the Kekaha Landfill is brackish and is therefore not suitable for use as irrigation water or as a potable water supply. As clarification, the nine groundwater wells referenced on Figure 2-1 and the EA text are *groundwater monitoring wells*, not water supply wells. Groundwater beneath the Kekaha Landfill drains seaward and the Kekaha Landfill does not impact any public water supply wells. The nearest potable well is approximately 3,400 feet northwest and side-gradient of the site. Per the 2007 Water Quality Report prepared by the County of Kauai Department of Water, the public water supply for Kekaha-Waimea meets, or is better than, all state and federal drinking water standards.

2	2.2	<p><b>Proposed Action.</b> Comment and concern: To cap Phase 1 with a base liner system may seem feasible with the right ventilation of the landfill gas from Phase 1 but to me it seems like a plausible scenario for a ticking time bomb of landfill gas. Presently at the KLF there is no smoking allowed due to the constant small of flammable landfill gas on the property. With the capping of Phase 1, the addition of additional tonnage of waste material, rerouted gas and water systems there needs to be a more precise and informative information on the expansion of Cell 3 over Phase 1.</p>
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Response: The landfill gas collection system to be constructed for the proposed lateral expansion would also collect landfill gas from the closed Phase I landfill, as the passive vents for Phase I would no longer be operable once a liner is placed on top of the Phase I landfill. This has been clarified in Section 4.1 of the Final EA. A Subtitle D base liner system would be constructed over the in-place Phase I soil final cover system and a leachate collection system would be constructed to collect leachate from Cell 3. The leachate collection system would not collect leachate from the closed Phase I landfill, however, capping the side slopes of Phase I with a base liner would reduce the amount of leachate generated within Phase I. A detailed surface water analysis was conducted during preparation of the engineering report for the proposed lateral expansion to assist in the design of storm water conveyance structures and the infiltration pond. The basis of design is summarized in Section 4.14 of the Final EA.

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3	2.4.2	<p><b>Excavation of Phase 1 to construct new subtitle D base liner system.</b> This alternative was eliminated due to adverse environmental effects related to excessive odor and gas, landfill fires, and short-term health and safety concerns.</p> <p>Concern: Phase 1 is an unlined landfill that has in one (1) instance already polluting the groundwater with arsenic, from my observations of using the Phase 1 landfill from 1972-1993 there is a greater risk to the environment and public health if Phase 1 is not excavated and moved to a lined landfill.</p>
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Response: Current sampling results from the monitoring wells located down-gradient of the landfill indicate that groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate and groundwater beneath the landfill is not a municipal water source (see response to Comment 1). There is no evidence that the existing Phase I landfill will pose a risk to public health or the environment if left in its current condition. However, the County reserves the right to excavate and line the closed Phase I landfill in the future, if warranted. Section 2.4.2 of the Final EA has been revised to reflect that if future groundwater monitoring data indicate significant adverse impacts to groundwater are resulting from the Phase I landfill being unlined, the County may reconsider this alternative.

4	3.1	<p><b>Air Quality.</b> What is presented in the DEA on wind patterns for the KLF is very vague and pretty much completely wrong. The KLF is located on the Mana Plain which does not have predominate Tradewinds during the summer and has very complex wind patterns that need to be identified so that there is a complete understanding of where any contamination will end up or concentrate. On the general summer Tradewind day the winds at the KLF in the early morning will be under 10 knots out of 30-80 degrees (mountain drainage winds), pick up to 10-20 knots out of 70-110 degrees as the Tradewinds fill in thru the morning, die out to 5-15 knots as the direction turns from 70-110 degrees to 180-270 degrees as the land heats up in the late morning/early afternoon, become 10-15+ knot winds from 200-290 degrees thru the afternoon, return to 10-20 knot winds out of 70-100 degrees in the late afternoon if the Tradewinds are strong enough then back down to under 10 knot winds out of 10-80 degrees as the evening mountain winds fill in. This is only one (1) scenario of many that the winds perform on a regular basis at this area.</p> <p>Concern and request: There needs to be a full model of the wind patterns around the KLF for all wind scenarios.</p>
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Response: Comment noted. The data presented in the Draft EA is a general description of the wind patterns in the area. Because a landfill gas collection system would be incorporated into the design of the proposed action, no long-term adverse impacts to air quality are expected.

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5	3.2	<p><b>Biological Resources.</b> Again what is presented in the DEA is lacking as it only covers flora and fauna that are on the endangered list.</p> <p>Concern and request: What needs to be covered in biological resources are the migratory and resident local birds that frequent the KLF that could possibly either carry any biological material out of the KLF on their bodies or have accumulations of hazardous material in their bodies that could be transferred to the local population of humans. The birds that I have observed at the KLF are Egrets, Mynah birds, Pueo and Pigeons. There are Herons when there is water present at KLF and these Herons are present daily adjacent to the KLF. We do have an increasing Nene population on the Westside on Kauai and these are endangered birds which could make brief stops at KLF. Also there are endangered Hawaiian Coots that are present in the ditches around KLF. There needs to be biological testing of these bird species to find out if these birds have any concentrations of hazardous material building up in there bodies from their contact with the KLF and the adjacent groundwater's.</p> <p>There is no mention of any testing being done on the aquatic species that are in the groundwater ditches adjacent to KLF and in the ocean. This is a big gap in the DEA and needs to be addressed as these aquatic species are being consumed by the resident human population on a fairly regular basis. Some of the species that need to be identified and biologically checked for contaminates are Hawaiian shrimp and Tilapia from the adjacent ditches. Ocean fishes such as Papio, all varieties of Tuna, Ono and Moi that are caught in the ocean fronting the KLF.</p> <p>On the biological testing this needs to be done at least every six (6) months, preferably every 3-4 months, and should also include the local indicator species that will concentrate any contaminates that could be coming from the KLF. To rely only on two (2) water tests per year on contaminates is very inadequate at best to find any contaminates coming from the KLF.</p>
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Response: Site personnel are trained to observe and identify vectors, including rodents, insects and birds. The daily cover operation for MSW disposal areas normally prevent vectors from actively using the site. Should vectors become a problem, cover programs are enhanced. No hazardous waste or hazardous materials are accepted at Kekaha Landfill; only municipal solid waste, therefore the possibility of any birds accumulating hazardous materials is extremely remote. Irrigation ditches, which are not groundwater ditches, are referred to in Section 3.2 within the context of their habitat value for native avifauna that could occur in the project vicinity. There is no physical connectivity between the Kekaha Landfill infiltration ditches and the irrigation ditches in the surrounding area. In addition, groundwater monitoring data does not demonstrate a potential for contaminating the ocean (see response to Comment 1). There is no requirement for biological monitoring under HAR 11-58.1 or the Department of Health Solid Waste Permit and biological monitoring of avifauna and/or aquatic species is determined to be outside the scope of this EA.

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6	3.7	<p><b>Floods.</b> "...the KLF facility is within a FIRM Zone X, an area determined to be outside the 500-year flood plain."</p> <p>Observation and request: Over the last 35 years I have seen the main road impassable to motor traffic at least once (around 1980) and have seen the present Phase 2 location under water at least 5 times before the landfill was constructed, at which times you could not access Phase 1 due to an impassable dirt/gravel road leading to the Phase 1 site. Almost every year the fields adjacent to the KLF are flooded with the crops basically destroyed by sitting in water for any where from a day to a week in the lowest areas. The records from the seed companies should provide data on this as they do lose crops during these floods. I agree that the KLF mounds are out of the 500-year flood but to say that this area does not flood is completely wrong. Also there needs to be some investigation as to what the groundwater flow is during these flood events as they may bring the groundwater level above the height of the plastic liner of the Phase 2 landfill.</p> <p><b>Tsunami.</b> Request: There needs to be a study on what will happen in Tsunami scenarios that range from a minimal Tsunami (historic size that happened around the 1940-1950 era), a moderate Tsunami that is the same magnitude as the Indonesian Tsunami a few years back and a major Tsunami that is generated locally (probably from the Big Island). This study should address the ability of KLF to sustain all levels of Tsunami inundation, what are the probable consequences and what will need to be done after the Tsunami to contain the hazardous materials that could be released if the KLF is damaged or destroyed. From what I understand the 1940-50 Tsunamis reached the base of the Pali in some areas, a Tsunami the size of the Indonesian Tsunami reached the 100' above mean sea level in some areas and a Tsunami from the Big Island could completely wipe out the KLF along with all coastal areas of Kauai.</p>
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Response: The site is located in the tsunami evacuation zone, however the site is outside the tsunami inundation zone and is not within the 100-year or 500-year flood zones as delineated by the Federal Emergency Management Agency (FEMA). All MSW to be placed in cell 1, 2, and 3 will be placed at elevations above 10 ft msl, which is above the two NOAA recorded tsunami run-up events in Kekaha area. This has been added to Sections 3.7 and 4.7 of the Final EA.

Protection against excessive erosion of the landfill is provided with the composite liner and capping system. Should vegetation and soil be eroded, the geomembrane system that completely encapsulates the MSW will prevent any MSW from being released from the KLF. All areas of vegetation and soil erosion would be repaired and restored after the event.

7	3.11	<p><b>Transportation.</b> "Traffic along Kaunualii Highway is usually light and use is most commonly associated with Polihale State Park and federal reserve lands."</p> <p>Comment and request: The above statement is very misleading and seems to indicate that minimal traffic is present on Kaunaulii Highway. Polihale State Park is visited by a large amount of visitors and residents (figures are available from the State Highways and Tourist Departments), PMRF is one of the largest employers on Kauai and has in excess of six (600) vehicles entering and exiting per day. These figures and the affect of all traffic on the towns of Kekaha and Waimea need to be included in the EA. From the public testimony at the DEA meeting at Waimea on August 9, 2007 there was great concern on the speed of the trucks thru Kekaha and the amount of trash being blown out of the trucks using the KLF with these concerns also needing to be addressed.</p>
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Response: State DOT annual average daily traffic counts for Kaunualii Highway in the vicinity of the Kekaha Landfill have been added to Section 3.11 of the Final EA. Mitigation measures for litter control, including mitigation measures for wind blown trash, have been added to Section 4.13 of the Final EA. In addition, the County has requested that local law enforcement police the area more and ticket those speeding to assist with public safety in the area.

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8	3.13	<p><b>Visual Resources.</b> Comment and request: KLF is visible from the ocean from as far away as Kaumakani to the east and PMRF to the west which is around 3-7 miles. This needs to be addressed as the ocean adjacent to KLF is the main route of tour boats to the Na Pali coast.</p> <p>The Kauai General Plan has designated Kaunaulii Highway as a "Scenic Roadway Corridor" which is addressed in Sections 3.2 and 5.5 in the Kauai General Plan. Since the KLF is partially visible at this point and will become more visible as it grows and expands there needs to be a plan to bring the KLF into compliance with the Kauai General Plan.</p>
<p>Response: A Photo Log presenting views of the Kekaha Landfill from Kaunaulii Highway and from the shoreline has been added to the Final EA as Appendix C. Photo documentation shows that the Kekaha Landfill begins to blend into the horizon approximately one mile from the facility. Compatibility of the Proposed Action with Section 3.2 (Scenic Views) and Section 5.5 (Scenic Roadway Corridors) of the Kauai General Plan and mitigation measures for visual impacts have been added to Section 4.13 of the Final EA.</p>		
9	3.14	<p><b>Surface Water.</b> "Runoff from the top of the closed Phase 1 of the KLF landfill flows radially off the landfill ..... discharge to an infiltration ditch...."</p> <p>Comments and request: Phase 1 deeply concerns me as the top of Phase 1 is used as a storage area, with any runoff from the top of Phase 1 potentially containing contaminants from the "white goods" stockpiled there on dirt. Is the infiltration ditch around Phase 1 lined or is it just allowed to percolate into the groundwater? An in depth study needs to be done on Phase 1 runoff that includes all scenarios and levels of runoff from various sources like rainfall from normal weather, exceptionally wet periods (2006) or Hurricanes. The surface water data is lacking in any map/chart that defines the direction, amount and quality of the groundwater that surrounds the KLF and what happens to the groundwater during the wet/flooding episodes.</p> <p><b>Groundwater.</b> Comments and request: The groundwater data is very vague ("estimated or from a single monitoring report") and there needs to be a complete study on the groundwater flows during all scenarios. This would include the amount of groundwater that flows into the ocean at all areas adjacent to the KLF and the possibility of any groundwater reaching Kekaha. Since Phase 1 is an unlined landfill there needs to be specific attention given to Phase 1, especially since Phase 1 is the closest to the ocean and areas used by residents (beach and drag strip).</p>
<p>Response: See responses to Comments 1 and 6. The infiltration ditch is not lined, and in fact, the purpose of the ditches is to allow for infiltration of storm water. Groundwater monitoring data do not suggest that there are any surface water sources of groundwater contamination. With implementation of the proposed action, the white goods would be removed from the top of the Phase I landfill, removing any possibility of surface water contamination from the stockpiling of white goods. A detailed surface water analysis was conducted during preparation of the engineering report for the proposed lateral expansion to assist in the design of storm water conveyance structures and the infiltration pond. The basis of design is summarized in Section 4.14 of the Final EA. The groundwater flow direction has been added to Figure 2-1; Directional arrows for surface water flow have been added to Figure 2-3.</p>		
10	4.1	<p><b>Air Quality.</b> "Once collected, the gasses are burned in a flare where...."</p> <p>Comment and request: No mention of burning the landfill gas for energy and no mention of the affect of landfill gas (23x CO2) on the earth's environment. Both of these need to be addressed along with the complete identification of the wind patterns for the KLF and Mana Plain area.</p>

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Response: The Office of Economic Development, Energy Extension Service submitted a request (C2004-110) to the County Council for approval to apply for, receive, and expend \$10,000 in grant funds from the State Department of Business, Economic Development and Tourism's Energy, Resources and Technology Division (DBEDT). The source of funds was from U.S. Department of Energy. The grant was to pay for methane testing at the Kekaha Landfill, Phase 2. The \$10,000 grant request was approved by the County Council at its April 15, 2004 meeting. Subsequently, the Office of Economic Development signed a Letter of Agreement with DBEDT on April 21, 2004. On October 8, 2004, the County of Kauai, Department of Public Works, Solid Waste Division issued Informal Bid No. W00155 through the Division of Purchasing. The bid submission deadline was November 4, 2004. Purchase Order No. 129907 was issued for the work to Earth Tech, Inc. Earth Tech's final report was submitted on February 26, 2005.

The landfill gas quality analysis for Phase 2 was the first step to determine the gas quality for the entire landfill. In January 2005, the Office of Economic Development, Energy Extension Service requested Council approval to apply for, receive and expend \$80,975 in grant funds from DBEDT for a Pacific Missile Range Facility Combined Heat and Power Feasibility Study that was to examine all aspects of using methane from the Kekaha Landfill to run a combined heat and power production unit(s) for base operations. Part of this study also included a review of the testing done for Phase 2; landfill gas quality testing for Phase 1; and determining gas quantity over a 20 year period. In summary, the testing of gas quality for both Phase 1 and Phase 2 and the feasibility study concluded that the methane from Kekaha Landfill is relatively free of any corrosives harmful to boilers or electric generation equipment and that approximately 1.6 mW of power can be produced from the gas. SCS Energy was hired via competitive solicitation to conduct the feasibility study, which was completed in February 2007.

The County is currently in discussions with the Kauai Island Utility Cooperative and the Navy (Pacific Missile Range Facility) about their interests in developing the methane resource. The benefits of using the methane include the generation of about 12 million kWh of renewable energy per year over a 20 year period; reduced oil consumption of about 800,000 gallons per year; and the reduction of methane into the atmosphere, thus reducing greenhouse gas emissions. The entire report is available at [www.hawaii.gov/dbedt/info/energy/publications/chp-kauai2007.pdf](http://www.hawaii.gov/dbedt/info/energy/publications/chp-kauai2007.pdf)

See response to Comment 4 for wind patterns.

11	4.2	<p><b>Biological Resources.</b> Comment and request: This section is a complete flop and needs to be redone. Where is the consultation from the USFWS? Should it not have be included in the DEA?</p> <p>Following is a copy of what I proposed in Section 3.2. What needs to be covered in biological resources are the migratory and resident local birds that frequent the KLF that could possibly either carry any biological material out of the KLF on their bodies or have accumulations of hazardous material in their bodies that could be transferred to the local population of humans. The birds that I have observed at the KLF are Egrets, Mynah birds, Pueo and Pigeons. There are Herons when there is water present at KLF and they are present daily adjacent to the KLF. We do have an increasing Nene population on the Westside on Kauai and these are endangered birds which could make brief stops at KLF. Also there are endangered Hawaiian Coots that are present in the ditches around KLF. There needs to be biological testing of these bird species to find out if these birds have any concentrations of hazardous material building up in there bodies from their contact with the KLF and the adjacent groundwater's.</p> <p>There is no mention of any testing being done on the aquatic species that are in the ditches adjacent to KLF and in the ocean. This is a big gap in the DEA and needs to be addressed as these aquatic species are being consumed by the resident human population on a fairly regular basis. Some of the species that need to be identified and biologically checked for contaminates are Hawaiian shrimp and Tilapia from the adjacent ditches, Papio, a variety of Tuna, Ono and Moi that are caught in the ocean fronting the KLF.</p> <p>On the biological testing this needs to be done at least every six (6) months and should also include the local indicator species that will concentrate any contaminates that could be coming from the KLF. To rely only on two (2) water tests per year on contaminates is very inadequate at best to find any contaminates coming from the KLF.</p>
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 Review Comments: Bruce Pleas  
 Date: August 20, 2007

Response: See response to Comment 5. The consultation with the USFWS referenced in Section 4.2 of the Draft EA was actually conducted for the previous vertical expansion. Because there is no federal funding, permits, or licenses to be obtained for implementation of the proposed action, consultation with the USFWS is not required for the proposed lateral expansion. Therefore, reference to the previous USFWS consultation has been removed from Section 4.2, and replaced with review comments on the Draft EA for the lateral expansion by the state equivalent (e.g., the DLNR Division of Forestry and Wildlife). Mitigation measures recommended by the DLNR Division of Forestry and Wildlife to prevent the attraction of threatened and endangered seabirds to the Kekaha Landfill facility have been incorporated into Section 4.2 of the Final EA. No other impacts to protected species requiring mitigation have been identified.

12	4.7	<p><b>Natural Hazards.</b> Comment and request: The "Proposed Action" paragraph is inadequate to address any of the Natural Disaster scenarios. The storm surge from a Hurricane should not reach the KLF but the area adjacent to the KLF will flood, the storm surge and the increase in the surface/groundwater level could affect the integrity of the Phase 2 plastic barrier and since Phase 1 is unlined it just goes wherever it wants with the storm waters. As for the coastal dunes (all under 12' above MSL) dampening the affect of a Tsunami it may well happen that way with a minimal Tsunami, but with a moderate to severe Tsunami the coastal dunes will be of little protection and again Phase 1 just sits there close to the ocean with no liner. Also there is no mention of Global Warming and the possible rise of sea levels which would affect the KLF since it is only a few feet above sea level.</p> <p>This section needs to be updated and have solid information on the affects of any and all natural disasters that could affect the KLF.</p>
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Response: See response to Comment 6.

13	4.13	<p><b>Visual Resources.</b> Comments and requests: Presently the KLF is visible at around sixty (60+) feet above MSL and with the doubling of the KLF area and a final height of eighty-five (85) feet it will be very visible from the ocean and mauka areas, visible from the adjacent coastal areas. Also there is no way in ##### that you can make the KLF blend in with the dunes as they are only ten (10) to twelve (12) feet high and are made out of white to tan sand while the landfill is brown dirt. Even to plant it with vegetation is questionable due to the amount of landfill gas that will be present in the area. This landfill will have a permanent affect on the quality of the visual life on the Westside of Kauai.</p>
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Response: The peak elevation of the existing Phase II landfill is currently at approximately 70 feet above msl (see Figure 2-1). A photo log that includes views toward the Kekaha Landfill from Kaumuali'i Highway and from the shoreline has been added as Appendix C to the Final EA. Photo documentation shows that neither the Phase I nor the Phase II landfill is currently visible from the shoreline, and that views of the Kekaha Landfill from Kaumuali'i Highway begin to blend into the horizon approximately one mile from the facility. The County concurs that the 85-ft Kekaha Landfill can not be completely obscured from view. However, what will be visible post-closure is a topographic feature that has been landscaped to be consistent with the local environment. It should not be evident to the casual observer that the feature is in fact a landfill. Landfill gas from the Kekaha Landfill will be collected and either utilized for energy or burned in a flare post-closure, and landscaping would not be affected. Refer to Section 4.13 of the Final EA for a description of the mitigation measures to be implemented for visual impacts.

14	4.14	<p><b>Water Resources.</b> Comments and request: To put a liner over Phase 1 and then say that it will reduce the affect of Phase 1 on the water resources may be true to some extent but the overall effect of increasing the area and height of the KLF has the potential to greatly affect the water resources of west Kauai and the ocean. Presently and in the proposed expansion of the KLF there is only water testing being done on a semi-annual basis in an area that the groundwater is found from 2.5 to 5 feet above MSL (From Section 3.1, page 3-17) and from this figure of where the groundwater is in relation to the general height of the land above MSL (mostly under 12' above MSL) there is the need for a more comprehensive study and information on where and in what volume the groundwater moves during all scenarios. Also in the DEA it is not clear as to the current acreage volume and the proposed acreage and volume of the "leacheate and infiltration pond" areas. With the doubling of the KLF there needs to be complete information on the current and proposed "leacheate and infiltration pond" areas.</p>
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Response: See responses to Comments 1, 2, and 6. Semi-annual groundwater monitoring over a significant amount of time (over 10 years) does provide substantial and more than adequate data to conduct trend analysis and determine if the groundwater has been impacted. The analysis of the data does not indicate any significant evidence that the groundwater has been impacted to a level that would require remediation.

The acreage of the leachate and infiltration ponds is presented on Figures 2-2 and 2-3.

15	5.1	<p><b>Significance Criteria.</b> I have listed the "Bullets" in numerical order with my comments on each bullet (refer to previous testimony as needed):</p> <p>1) The expansion could have adverse impacts on biological resources, cultural resources and water resources due to the fact that the water studies are incomplete and do not cover all aspects of natural disasters and have not performed biological studies of the local bird and fish population.</p>
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Response: See responses to Comments 5 and 11 regarding impacts to biological resources and responses to Comments 1, 6, and 9 for additional information on groundwater impacts. See response to Comment 6 for discussion of impacts from floods and tsunamis and Section 4.7 of the Final EA for a discussion of emergency response procedures related to natural disasters.

Additional cultural impact analysis and supporting documentation have been added to Sections 3.3 and 4.3 of the Final EA. An archaeological inventory survey of the entire 63.2-acre Phase II parcel was conducted by Cultural Survey Hawaii in May 1993, with the Department of Land and Natural Resources (DLNR) oversight. The archaeological inventory survey included extensive subsurface test excavations by backhoe. The survey report did not identify any historic properties within the project area and no further archaeological study of the area was recommended. A copy of the 1993 archaeological inventory survey report prepared for the subject property has been added to the Final EA as Appendix B. A letter of concurrence from the State Historic Preservation Division that no historic properties would be affected by the proposed action has been added to Appendix A.

16	5.1	<p>2) The KLF facility will not be expanded but it is still questionable as to whether this parcel of land will be able to hold this increased amount of solid waste without a degradation of the local environment, especially after a natural disaster.</p>
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Response: A stability analysis that looked at two different failure scenarios was conducted as part of the geotechnical evaluation and is discussed in Section 4.4 of the EA. Calculations for the stability analysis included a safety contingency to ensure that the waste mass would remain stable under various conditions. Emergency response procedures to be implemented in the event of a natural disaster have been added as mitigation measures to Section 4.7 of the Final EA.

17	5.1	<p>3) Why a landfill was first located within an SMA, a Conservation area, a Tsunami zone, in a plain that has the groundwater so close to the surface and so close to the Pacific Ocean is a mystery to me. Now to pile more waste on a small area it is questionable to me that this sandy area can hold the tonnage of waste that is being proposed. This site has conflicted with the State policies since the beginning and will continue to conflict with the State policies as long as it exists.</p>
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Response: The executive order setting aside the Kekaha Dumping Ground (referred to as the Phase I landfill in the EA) was signed by the Governor of the Territory of Hawaii in 1953, which preceded admission of the State of Hawaii as the 50<sup>th</sup> state of the United States, and therefore also preceded passage of state land use plans and policies. Phase II, constructed in 1993, is not within a Special Management Area or Conservation District. The fact that groundwater underneath the landfill is brackish due to its proximity to the shoreline is considered a favorable condition from a public health perspective as there is no potential for the landfill to adversely impact municipal drinking water sources.

18	5.1	<p>4) This area was the "Garden of Kekaha" before the landfill was located there with many residents obtaining "Lei material" and "Cultural materials" from this area along with fishing and hunting in the entire area. The KLF has affected the economic, social and cultural practices of the community from the beginning of the operation and will continue to affect these practices for as long as it exists.</p>
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Response: Results of consultations undertaken for analysis of impacts to cultural practices in accordance with Act 50 have been added to Section 4.3 and Appendix A (Agency Correspondence) of the Final EA.

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19	5.1	5) To say that the KLF will have long term positive affects on Kauai is true, but it will continue to have negative short and long term affects on the Kekaha community in the form of potential air, water and resource pollution from a continuing operation and the proposed expansion. The amount of cancer on the Westside of Kauai is high and this is from a combination of unregulated agriculture operation (Industrial agriculture--Genetic and Herbicide research), old landfills (under Kekaha Gardens Subdivision) along with the contamination of the groundwater from 1,000+ septic systems sitting in the groundwater. KLF is just another small portion of the contamination of the Westside groundwater table that could be a major portion in the advent of a natural disaster or the failure of the protective membrane.
Response: See response to Comment 1.		
20	5.1	6) The secondary impacts such as population change will be minimal and the effect on public facilities will also be minimal. It could be a positive effect on public facilities with the proposal of a landfill energy production facility, but that is not mentioned in the DEA so that rules out a positive impact at this point from the KLF.
Response: Actions taken by the County to determine the feasibility of using methane from the Kekaha Landfill for renewable energy generation are summarized in the Kekaha Community Council response to Comment 8.		
21	5.1	7) Do we have to go over this again? Just a short comment, the quality of the environmental study in the DEA is very lacking and to state "Per the analysis in this EA, the proposed Phase II lateral expansion would not cause any impacts that would degrade environmental quality." is unsubstantiated in my view with out any quantitative figures on biological testing, health of the local human population and water flows. There also needs to be a solid definition of the phrase "substantial".
Response: See response to Comment 5 with regards to biological testing. Additional Information on impacts to air and water quality has been added to this significance criterion to substantiate this determination.		
22	5.1	8) To say that a population center (Kekaha) less than 2 miles from a landfill area that sits in the same groundwater, is susuptible to a number of different natural disasters and structural failures with no contingency plans in place for these possible scenarios will not have a cumulative effect on the environment is not true.
Response: The Kekaha Landfill maintains a detailed Emergency Management Plan that provides detailed procedures to be followed by site personnel in the event of an emergency. Specific procedures are established for different types of emergencies, including medical emergencies, fires on and off site, spills, bomb threats, natural disasters, and general emergencies. The emergency plan outlines chains of command and communication, preparatory activities, response procedures, personnel evacuation procedures, and recovery activities. Emergency response procedures related to landfill fires are discussed in Section 3.9 of the EA. Emergency response procedures related to natural disasters have been added as mitigation measures to Section 4.7 of the Final EA.		
23	5.1	9) There are minimal to no endangered species within the footprint of the KLF but there are endangered species adjacent to the KLF that will and are being affected by the KLF. There is an impact happening now and it will increase with the bigger KLF.
Response: Mitigation measures recommended by the State Division of Forestry and Wildlife to prevent the attraction of threatened and endangered seabirds to the Kekaha Landfill facility have been incorporated into Section 4.2 of the Final EA. No other impacts to endangered species requiring mitigation have been identified. Groundwater quality beneath the Phase I landfill has not been significantly impacted by leachate and there is no surface water connectivity between the Kekaha landfill and adjacent areas. Therefore, the potential for adverse impacts to biological species using adjacent areas is extremely remote.		
24	5.1	10) The air quality has not addressed the amount of landfill gas being released into the atmosphere, the carbon footprint and cost to the State in carbon emissions and the possibility of an energy producing facility that would decrease the amount of landfill gas being released into the atmosphere.  The water quality issue has not been addressed fully in the DEA and to state that "Therefore, detrimental affects to water quality are not anticipated." is meaning less.

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Response: As part of the landfill closure, a system will be installed to capture landfill gas and either destroy it onsite via a flare or utilize it to generate energy. Reported collection efficiencies for landfill gas collection systems range from 60 percent to 85 percent, with an average of 75 percent most commonly used. Collection efficiencies for landfills with synthetic covers are greater than 85 percent. Once collected, the gases are burned in a flare where destruction efficiencies are estimated at approximately 90 percent or greater for various landfill constituents. For methane, the destruction efficiency is estimated to be greater than 98 percent (Belt Collins 1998). Because, a landfill gas collection system would be incorporated into the design for the Phase II lateral expansion, long-term adverse impacts to air quality are not expected to be significant.

Sections 3.14 and 4.14 of the Final EA have been expanded to include more discussion of groundwater monitoring results leading to the finding of no significant impact.

25	5.1	11) The KLF is located in all of the environmentally sensitive areas listed such as a flood plain (Mana plain was and still could be water from Waimea to Polihale), it is in a Tsunami zone, the beach is presently 1,400 feet away and with global warming and the ocean rising who knows where the beach will be in 2010 (information will be available from the County Erosion Study in the near future), erosion-prone area geologically hazardous land and estuary it is not at this point, it is lying in a freshwater area with just ditches and pumps keeping it dry presently and is adjacent to coastal waters with an undetermined amount of groundwater flowing into the ocean daily.
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Response pending: See response to Comment 6.

26	5.1	12) It does affect the scenic view from the mountains and ocean, will affect the scenic view from the Mana plain when it is finished and marginally affects the view from the "Scenic Corridor" presently.
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Response: See response to Comment 8.

27	5.1	13) The KLF should be an energy producing facility.
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Response: See response to Comment 10.

28	5.2	<b>Determination.</b> The finding of a FONSI is not accurate from my point of view as the DEA has insufficiently addressed many important aspects required in an EA.
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Response: The Office of Environmental Quality Control guidelines were used in the preparation of the Draft EA. During the environmental review process, analysis of impacts was conducted. There are no anticipated long-term adverse impacts identified that would constitute the preparation of an environmental impact statement. The Office of Environmental Quality Control reviewed the Draft EA and no comments were received. The County of Kauai stands by their determination of a Finding of No Significant Impact.

**From:** Ivy Sarmiento [mailto:████████████████████]  
**Sent:** Saturday, August 11, 2007 11:09 AM  
**To:** Mason, Michelle  
**Subject:** kekaha Landfill

hi my name Ivy Sarmiento and i am 11 years old and I dont like the idea abuo making the landfill bigger because so much garbage trucks coming though here & theres garbage flying around because the truck are going so fast there trash flys everywhere and you guys make the garbage piles so high you can c it at a beach. And your make our beautiful beach look like a dirty landfill. Big Save bags are going into the ocean and dolpins like to play w/ them then the bags go over they're blow holes and then they die because they cant breathe, trutles they're favor. food is jellyfish and the bags

look like jellyfish and guess  
they die too. and  
Niihau's beach is covered w/  
trash and Kauais too. At least  
make it in the middle of Kauai  
instead of just Kekaha  
because us locals love our  
beach we want it C-L-E-A-N  
OOOOKKKAY so make it  
somewhere else.....

from,

ivy sarmiento

p.s think of others not  
ourselves.

think what JESUS would do or  
get to know

JESUS!!!!!!!!!!!!!!!!!!!!!!!!!!!!!!

Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: Ivy Sarmiento  
Date: August 11, 2007

Comment No.	Comment
1	hi my name Ivy Sarmiento and i am 11 years old and I dont like the idea abuot making the landfill bigger because so much garbage trucks coming though here & theres garbage flying around because the truck are going so fast there trash flies everywhere and you guys make the garbage piles so high you can c it at a beach. And your make our beautiful beach look like a dirty landfill. Big Save bags are going into the ocean and dolpins like to play w/ them then the bags go over they're blow holes and then they die because they cant breathe, trutles they're favor. food is jellyfish and the bags look like jellyfish and guess they die too. and Niihau's beach is covered w/ trash and Kauais too. At least make it in the middle of Kauai instead of just Kekaha because us locals love our beach we want it C-L-E-A-N OOOOKKKAY so make it somewhere else.....

Response: Comment noted. Mitigation measures to prevent wind-blown litter from leaving the landfill premises have been added to Section 4.13 of the Final EA.



# Written Comment Sheet

## Public Meeting Attendance Record

### Kekaha Landfill Phase II Lateral Expansion, Kekaha, Kauai, Hawaii

Thank you for providing your comments on the Draft Environmental Assessment for the Kekaha Landfill Phase II Lateral Expansion. Comments may be submitted at this meeting or via U.S. Postal Service to the address below postmarked no later than August 24, 2007.

I PROPOSE THAT WE HAVE A SECOND LANDFILL ON THE EAST OR NORTH SIDE. NO QUESTIONS - WE MUST HAVE IT DONE. ONCE COMPLETED, LIKELY TO THE NORTH SHORE MUST GO THERE, UNLESS THEY ACCUMULATE WASTE ON THE WEST SIDE DOING JOBS, ETC. SAME GOES FOR THE KOLA TO WESTSIDE PEOPLE. THEY USE KEKAHA LANDFILL.

WORST CASE SCENARIO - WHAT WOULD HAPPEN IF WAIMEA BRIDGE WAS DAMAGED, CONDEMNED BY THE FEDERAL GOVT (AFTER MINNEAPOLIS) OK A WEIGHT LIMIT WAS ENFORCED. WHEN WOULD THE SOLID WASTE GO?

I AM AGAINST THE EXPANSION AND THE 85 FT. LIMIT.

Name: ROBERT TANAITA

Address (Street/City/Zip):

\* Phone number & e-mail (optional):

Mail Comments to:  
Earth Tech

c/o Michelle Mason  
841 Bishop Street, Suite 500  
Honolulu, HI 96813

or

Michelle.Mason@earthtech.com



Project Title: Draft EA for Kekaha Landfill Phase II Lateral Expansion  
Review Comments: Robert Tanita

Comment No.	Comment
1	I propose that we have a second landfill on the east or north side. No questions – we must have it done. Once completed, Lihue to the north shore must go there, unless they accumulate waste on the west side, doing jobs, etc. Same goes for the Koloa to west side people. They use Kekaha Landfill.
Response: Comment noted. The County is conducting a comprehensive siting study to evaluate potential locations to site a new landfill facility. It is the intent of the County to keep the public well informed of the study as it progresses. There will also be a community advisory committee comprised of members of the public and local officials to assist in the ranking of potential locations. The completion of the siting study is anticipated to be in the fall of 2008.	
2	Worst case scenario – what would happen if Waimea Bridge was damaged, condemned by the federal court (after Minneapolis) or a weight limit was enforced. Where would the solid waste go?
Response: If those were to occur, contingency measures would be implemented and there would be an impact to the entire island.	
3	I am against the expansion and the 86 ft. limit.
Response: Comment noted.	



