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Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

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COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

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Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

July 23, 2001

Honorable Genevieve Salmonson, Director
Office of Environmental Quality Control
235 South Beretania Street, Room 702
Honolulu, Hawaii 96813

Dear Ms. Salmonson:

SUBJECT: Final Environmental Assessment
Entrance Facility to Central Maui Landfill Expansion
and Related Improvements
Puunene, Maui, Hawaii

The Department of Public Works and Waste Management has reviewed the comments received during the public review period. The agency has determined that this project will not have significant environmental effects and has issued a Finding of No Significant Impact FONSI determination. ✓

We respectfully request publication of the Final Environmental Assessment (EA) for the Entrance Facility to Central Maui Landfill Expansion and Related Improvements in the next edition of the OEQC Environmental Notice.

Four copies of the Final EA are enclosed. We are transmitting the publication form and project summary on E-mail at www.oeqc.gov.

If you have any questions, please call Elaine Baker of our staff at 270-7872.

Sincerely,

Milton Arakawa

for David Goode, Director

DG:eb
Enclosure

91

2001-08-08-MA-FEA

ENTRANCE FACILITY TO CENTRAL MAUI LANDFILL EXPANSION AND RELATED IMPROVEMENTS

FINAL ENVIRONMENTAL ASSESSMENT

Prepared by:
County of Maui
Department of Public Works & Waste Management

July 2001

ENTRANCE FACILITY
TO
CENTRAL MAUI LANDFILL EXPANSION
AND
RELATED IMPROVEMENTS

FINAL
ENVIRONMENTAL ASSESSMENT

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Department of Public Works & Waste Management

July 2001

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PREFACE

Proposed Action
The applicant, the County of Maui, Department of Public Works and Waste Management, Solid Waste Division, proposes to construct an entrance facility to the Central Maui Landfill Phase IV expansion. The entrance facility includes a scale, scale house, self-haul recycling area, self-haul disposal area, reuse center, office building, and equipment wash slab around a one-way perimeter loop road.

Proposed Action Supplements the Environmental Impact Statement (EIS)
The proposed action supplements the Environmental Impact Statement (EIS), entitled Expansion of the Central Maui Sanitary Landfill, accepted by the County in April 1996. The five acre entrance facility proposed for TMK 3-8-03:25, the 29.34 acre Phase IV parcel, replaces an area to be filled with refuse as described in the EIS. *Value engineered modifications made to the landfill design during construction* are also described in this Draft Environmental Assessment (DEA).

Trigger
The trigger for environmental review required under Chapter 343, Hawaii Revised Statutes (HRS) is the use of county land and funds.

Purpose of Draft Environmental Assessment (DEA)
Pursuant to Chapter 343, HRS, and Chapter 200 of Title 11, Hawaii Administrative Rules, Environmental Impact Statement Rules, this DEA documents the technical characteristics and environmental impacts of these additions to the EIS, and advances findings and conclusions relative to their significance.

1. PROJECT OVERVIEW

PROJECT OVERVIEW

BACKGROUND

1. APPROVED ACTION

On April 29, 1996 the Final Environmental Impact Statement (EIS) for the Expansion of Central Maui Landfill Project was accepted by the County of Maui. The Acceptance Notice was published in the Office of Environmental Quality Control (OEQC) Bulletin on May 23, 1996. A Special Use Permit was issued to the County by the State of Hawaii Land Use Commission on July 21, 1997 for the landfill expansion on approximately 29.34 acres.

2. SUMMARY OF ENVIRONMENTAL IMPACT STATEMENT

2.1 PROJECT DESCRIPTION

The County of Maui determined in 1995 that the existing Central Maui Landfill is reaching capacity and that an additional solid waste disposal site was needed. Instead of constructing a new landfill at a new location, the County decided to expand the existing landfill across Kalialinui Gulch into 90 acres of quarried ground and ground designated to be quarried. The project included Phases IV, V, and VI which are separated from the original landfill Phases I, II, and III by Kalialinui Gulch. Refer to Figure 1-1, Site Location Map, Expansion of the Central Maui Landfill.

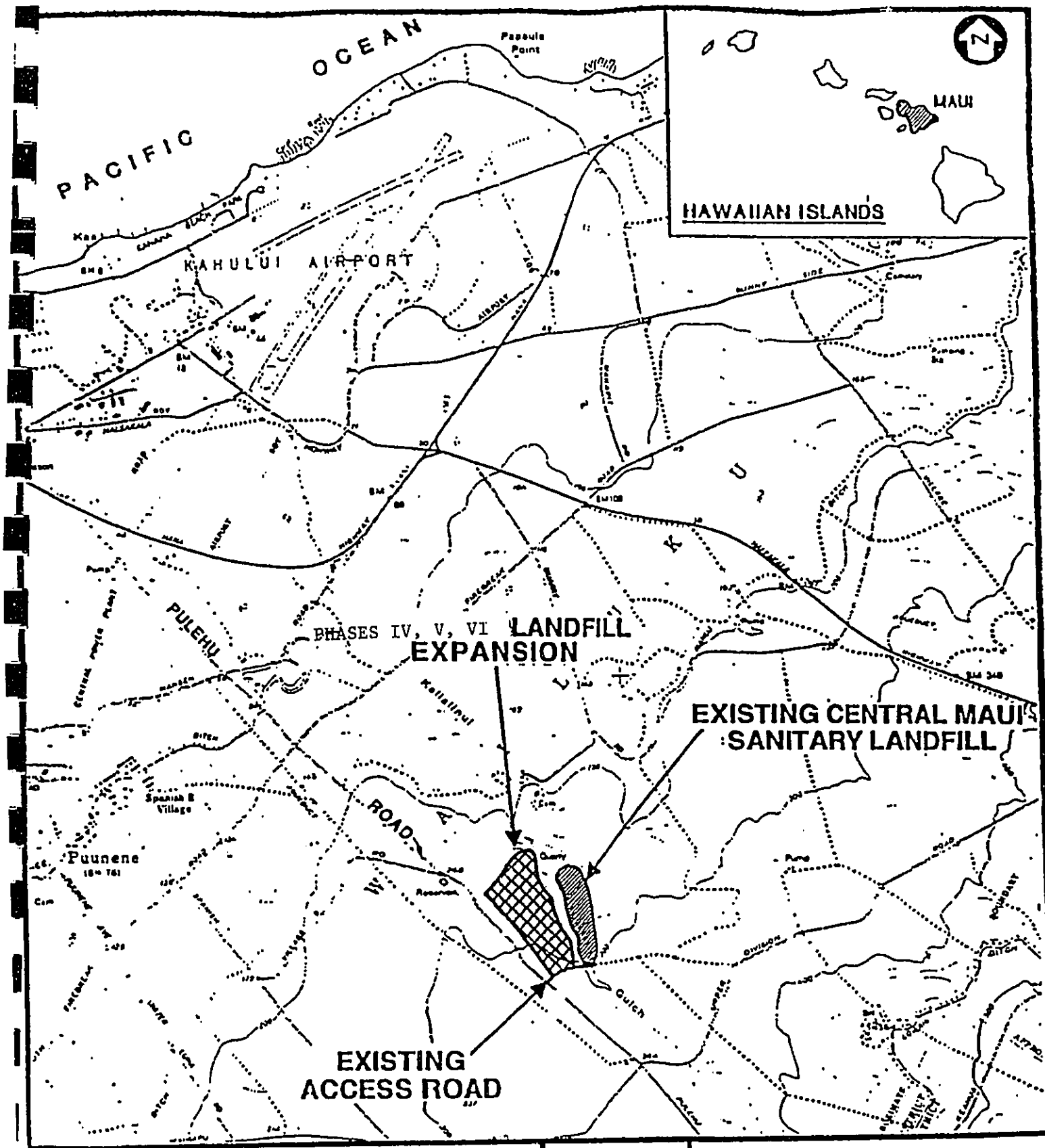


Figure 1-1
Site Location Map
Expansion of the
Central Maui Landfill
Puunene, Maui, Hawai'i

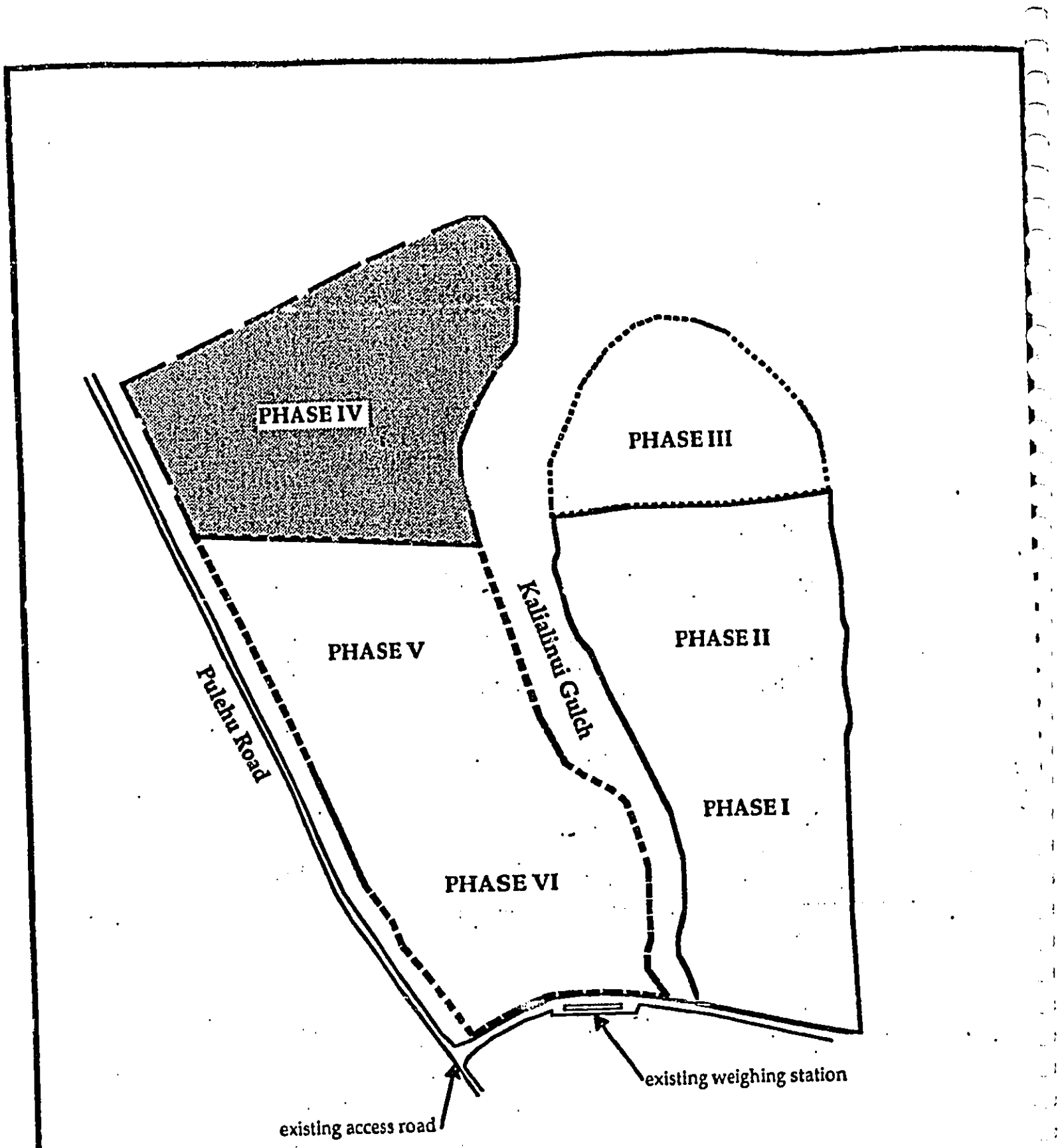
MFA MASA FUJIOKA & ASSOCIATES
ENVIRONMENTAL • GEOTECHNICAL • HYDROGEOLOGICAL CONSULTANTS

2.2 PHASED EXPANSION

Expanding the landfill into nearby areas where the neighboring quarry operation is completed eliminates the need for large-scale excavation. Moreover, cover material is available from the topsoil overlying the basalt. The 29.34 acre Phase IV parcel, already quarried, is the first expansion area for the landfill. Phase V is currently being quarried by Ameron and Phase VI is cultivated in sugarcane by Hawaiian Commercial & Sugar Company, a division of Alexander and Baldwin. The stormwater retention pond, leachate storage pond, and their respective inlet structures from the landfill are sized for Phases IV, V, and VI combined which total 90 acres.

2.3 ACCESS

The existing entrance facility with its scale and scale house and supporting infrastructure at the current landfill Phases I and II was to be used for the landfill expansion with a ford across Kalialinui Gulch for commercial haulers, County refuse trucks, and quarry vehicles. Refer to Figure 1-2, Preliminary Site Map, Expansion of the Central Maui Landfill. Instead of fording the gulch, the County proposes to construct an entrance facility in the northwest corner of the Phase IV parcel, providing direct access to and from Pulehu Road, as well as collection areas for residents and small commercial customers.



LEGEND

- existing operating phase
- existing composting area
- proposed landfill expansion
- additional planned expansions

North

Base Map: Bryan A. Stirrat & Associates, Inc.
April 31, 1994

Project No.	94128-001
Drawn By:	LTI
Approved By:	JJK
Date:	6-27-95
Scale:	1" = 400'

Figure 1-2
Preliminary Site Map
Expansion of the
Central Maui Landfill
Puunene, Maui, Hawai'i

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ENVIRONMENTAL • GEOTECHNICAL • HYDROGEOLOGICAL CONSULTANTS

2.4 LAND USE REVISION

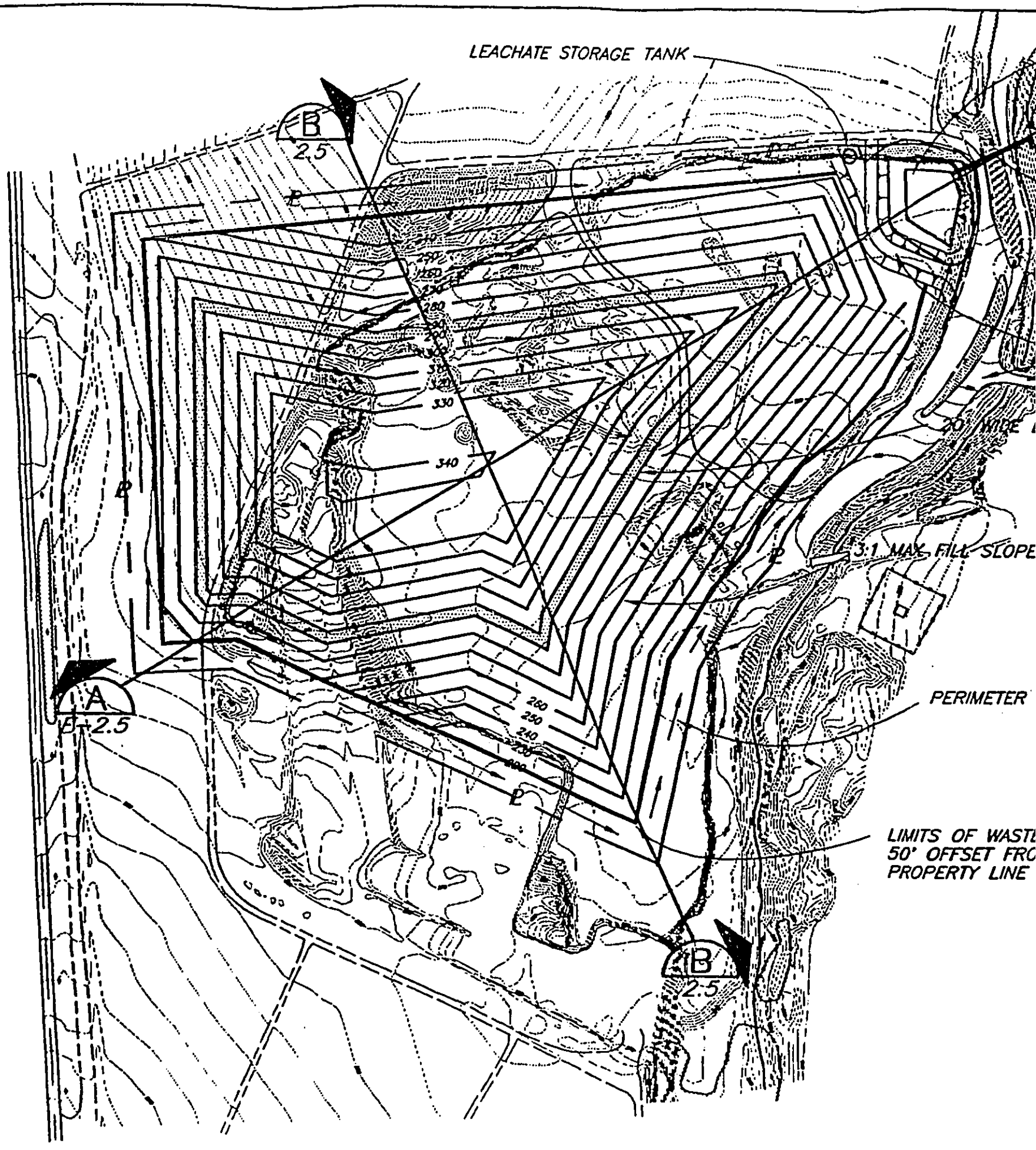
The northwest triangular corner of the landfill expansion parcel, Phase IV, where the entrance facility is proposed, was to be landfilled. Refer to Figure 1-3, Final Fill Plan, Central Maui Landfill, Phase IV.

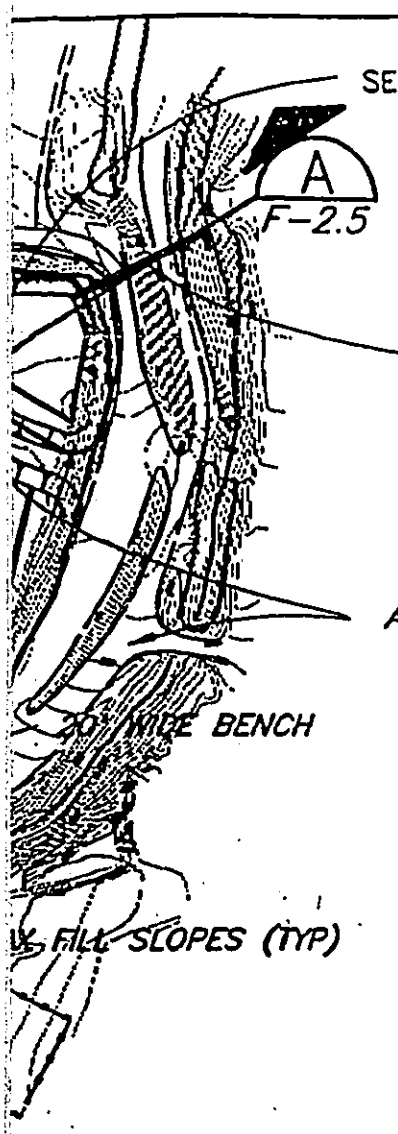
PROPOSED ACTION

3. PROJECT SUMMARY

The applicant proposes to construct an entrance facility for the Central Maui Landfill expansion in Puunene, Maui, Hawaii. The entrance facility will occupy approximately 5.3 acres on TMK: (2) 3-8-03:25, which is the northwest corner portion of the 29.34 acre landfill parcel, the area to the left of the roadway shown in Figure 1-3. The northwest corner of the parcel where the entrance facility is proposed is partially graded from the Phase IV landfill construction, stores soil stockpiles excavated from the landfill basin, and is spottily covered with patches of pili grass. With the proposed changes, the landfill will be contained in the basin portion of the parcel, formerly quarried and currently lined, ready to receive waste when capacity is reached at the existing landfill. The proposed entrance facility has an entry road, perimeter road, self-haul recycling area, reuse center for materials exchange, self-haul disposal area, scale and scale house, office and employee facility, wash slab, and water, septic, power infrastructure.

PROJECT OVERVIEW 1-3


LEACHATE STORAGE TANK
B
2.5
A
2.5
B
2.5
3:1 MAX. FILL SLOPE
PERIMETER
LIMITS OF WASTE
50' OFFSET FRO
PROPERTY LINE
330
340
280
250
240



1" = 200'

PERIMETER ACCESS AND DRAINAGE

LIMITS OF WASTE
50' OFFSET FROM
PROPERTY LINE

NOTES:

1) CONTOURS, ACCESS, AND DRAINAGE ARE CONCEPTUAL. MODIFICATIONS AND DETAILS WILL BE ADDRESSED AFTER APPROVAL OF CONCEPTUAL DESIGN.
2) DATE OF PHOTOGRAPHY: 8-6-95
3) AERIAL PHOTOGRAPHY AND PHOTOGRAMMETRY BY: AIR SURVEY HAWAII, INC.
4) GROUND CONTROL SURVEY AND PROPERTY BOUNDARY BY: NEWCOMER - LEE LAND SURVEYORS, INC. 5-8-95

VERIFY SCALES
BAR IS ONE INCH ON ORIGINAL DRAWING
IF NOT ONE INCH ON THIS SHEET ADJUST SCALES ACCORDINGLY
0 1"

SHN
CONSULTING ENGINEERS & GEOLOGISTS
2630 Harrison Ave. Eureka, CA 95501 (707)444-0427 FAX (707)444-0193

NO	DATE	REVISION	BY

DSGN RFC
DR RFC
CHK JN
APVD

CENTRAL MAUI SANITARY LANDFILL
PHASE IV - CONCEPTUAL DESIGN
FINAL FILL PLAN

FIGURE: 1-3
DATE 12/95
PROJ. NO. 095150.001

4. PROJECT DESCRIPTION

Refer to Figure 1-4, Entrance Facilities, Conceptual Site Plan, for features.

- **Entry road**
  A paved road to provide access from Pulehu Road.

- **Perimeter road**
  A one way looped road to provide internal circulation and access to the recycling/disposal areas, scale, scale house, and landfill.

- **Self-haul recycling area**
  An area with six roll-off containers, small bins for recyclables, compactor for cardboard, and service area for trucks.

- **Reuse center for materials exchange**
  A 2600 square foot spring structure of polyester and aluminum.

- **Self-haul disposal area**
  An area with two waste compactors and two containers for bulky items with service area.

- **Scale and scale house**
  A 250 square foot single story wood frame building with a foundation of posts on concrete footings and asphalt shingle roof, located next to the scale for personnel to issue weight tickets and collect fees.

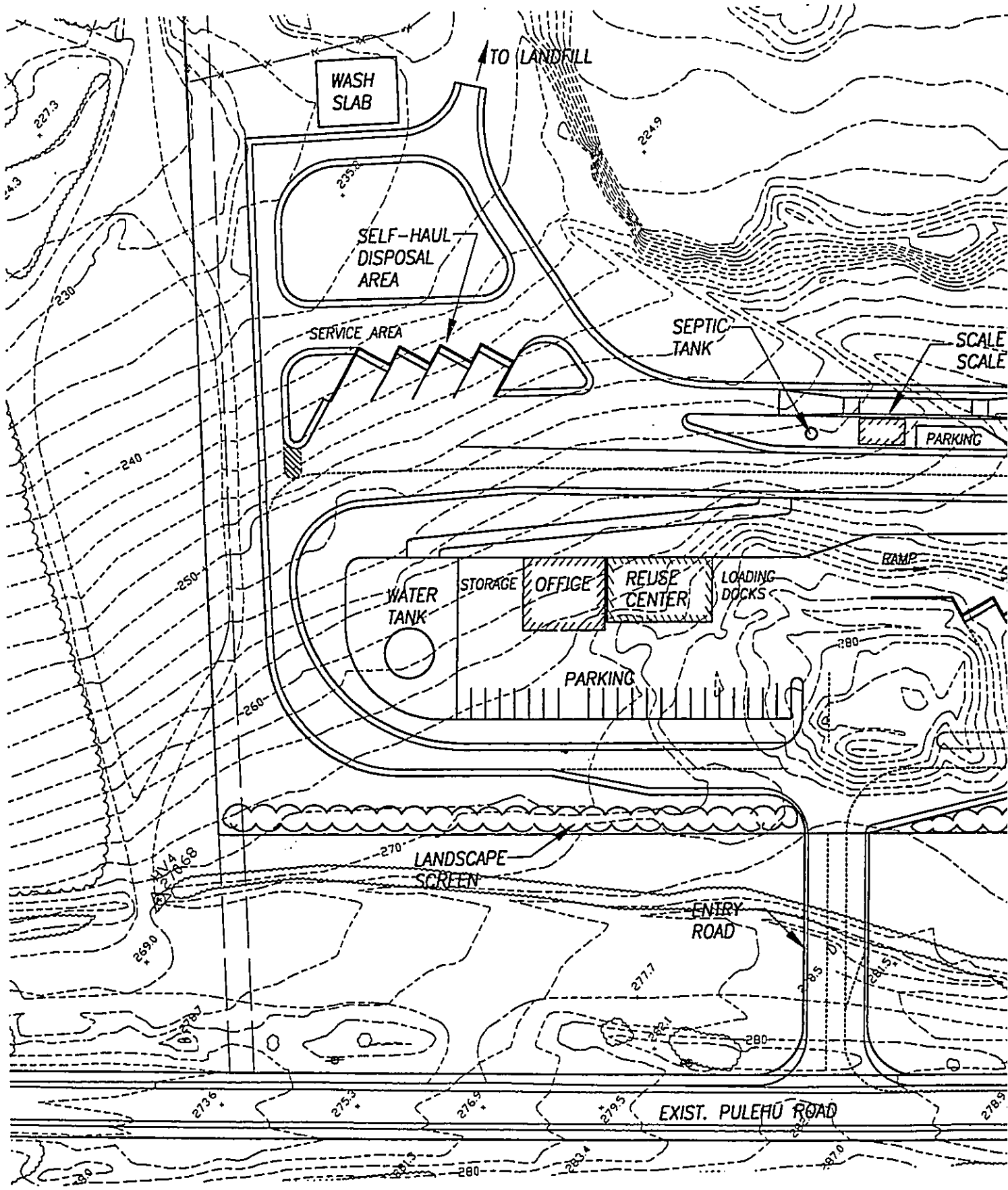
- **Office and employee facility**
  A 2250 square foot single story wood frame building, next to the reuse facility, with offices, lunchroom, and bathrooms with showers.

- **Wash slab**
  A concrete slab used for washing equipment.

- **On-site water storage and distribution system**
  A 100,000 gallon capacity water tank, pumping and piping system to provide potable and fire flow.

- **On-site sewage system disposal system**
  An underground septic tank and absorption trenches.

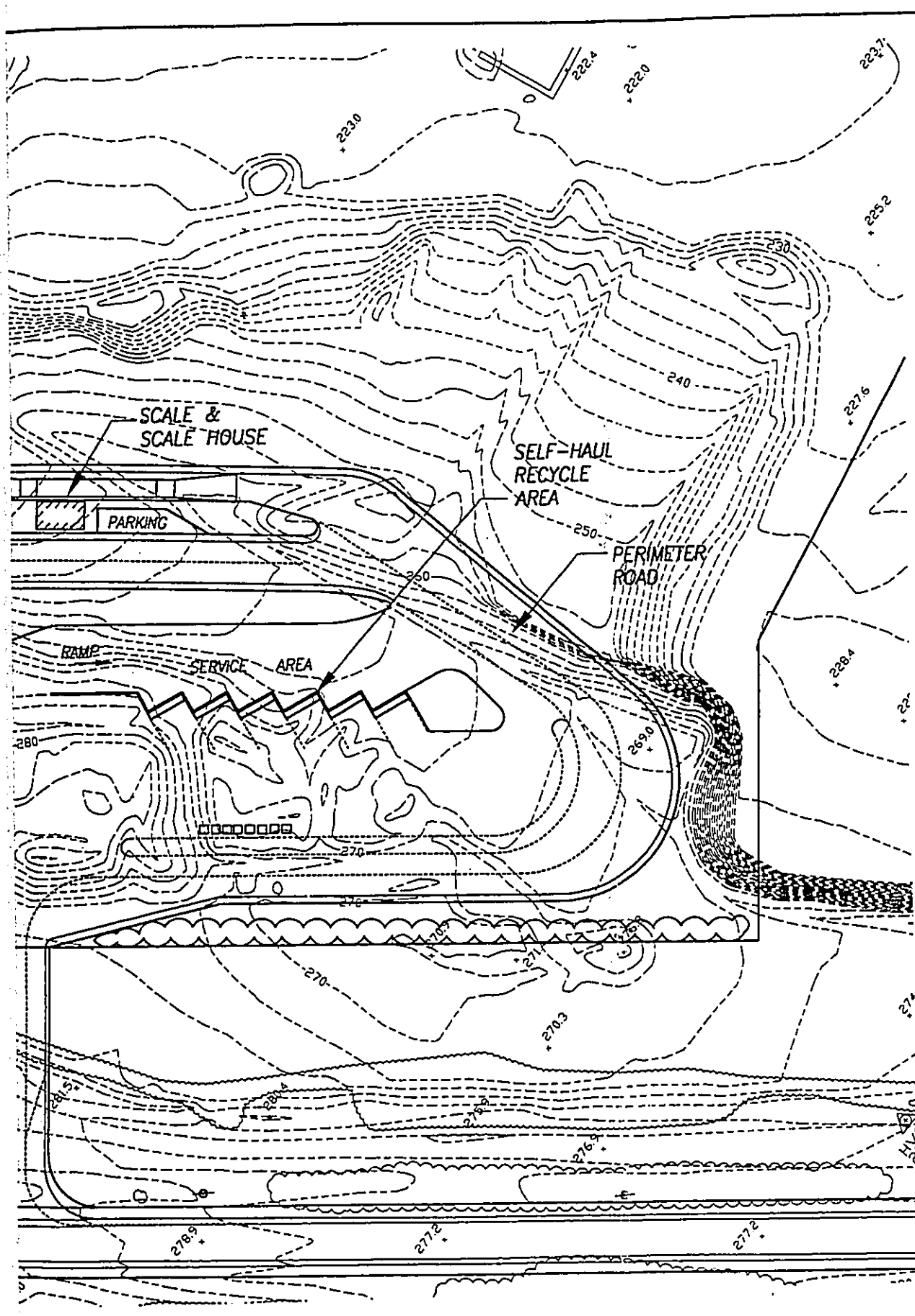
- **Electrical power and telephone system**



County of Maui
Department of Public Works and Waste Management

Central Maui Sanitary Landfill - Entrance Facilities

Conceptual Site Plan



tary Landfill - Phase IV
ce Facilities
otual Site Plan

0 40 80
SCALE: 1" = 80'

Figure 1-4

5. EXISTING ENTRANCE FACILITY

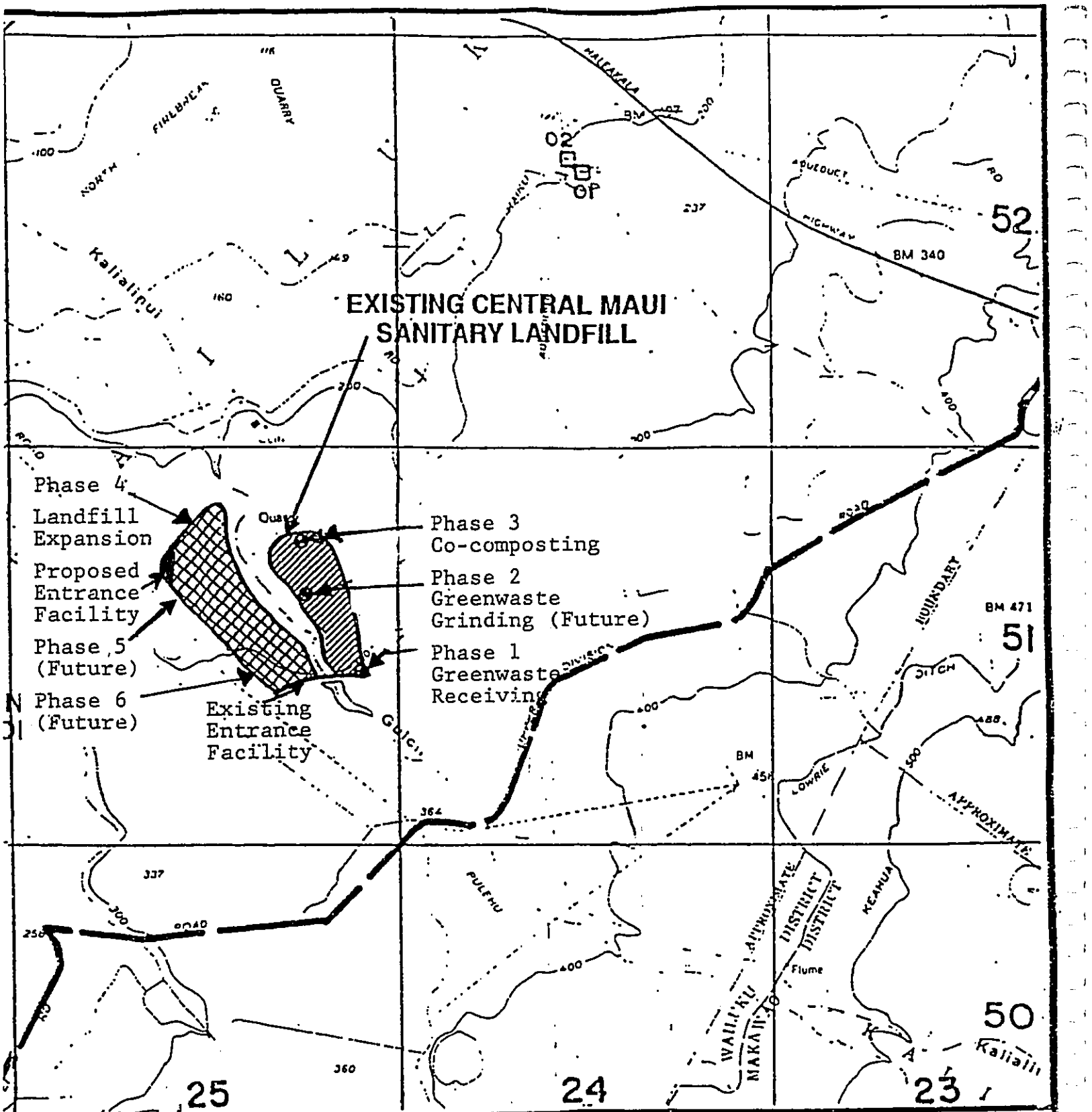
The applicant now proposes to use the existing landfill entrance with its scale, scale house, and office for the co-composting project which currently occupies Phase I of Central Maui Landfill as a receiving area for greenwaste, pallets, and sewage sludge, and will continue to do so after the landfill closes and is capped. The co-composting processing area will remain on Phase III with greenwaste grinding occurring on Phase II. Fats, oils, and grease receiving and biodiesel sales will remain on Phase III. Co-composting sales may move from Phase III to Phase I. Refer to Figure 1-5, Location Map.

6. VALUE ENGINEERED MODIFICATIONS TO LINER DETAILS AND LEACHATE, LANDFILL GAS, AND STORMWATER MANAGEMENT

Value engineered design modifications for the landfill cell constructed on the ten acres of the basin parallel to Kalialinui Gulch were minor. They involved liner details, leachate, gas, and stormwater management. The constructed cell, reduced in half from the original 20-acre waste cell, is located on sections I, II, and IV shown in Figure 1-6, Leachate & Stormwater System Modifications.

6.1 LINER DETAILS

- Reducing sideslopes from 2:1 to 3:1 flattens their angle from 26.7 degrees to 18.6 degrees. This decreases the chance of slide planes occurring along the surfaces of the geosynthetics which are placed over each other. Stability is also increased for the layers of refuse and soil placed on top of the geosynthetics.



Legend:

- injection well
- other well
- UIC Line

North

Source: State of Hawaii, Department of Health
Underground Injection Control Program
Paia Quadrangle, 1983

Project No.	94128-001
Drawn By:	ALS
Approved By:	JJK
Date:	12-12-95
Scale:	As Noted

Figure 1-5
Location Map
Central Maui Landfill

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- Textured 60 mil High Density Polyethylene (HDPE), whose rough surface increases the friction with adjacent materials, is used only on slopes, for cost savings. The basin bottom, being relatively flat, makes slippage negligible, and therefore, is lined with smooth 60 mil HDPE, which costs less than textured (Parametrix, *Design Modifications*, January 1998).

6.2 LEACHATE MANAGEMENT

- A 3,000,000 gallon leachate storage pond replaces a 10,000 gallon tank. A leachate storage pond with sufficient capacity for the 90 acre landfill during winter storms is more protective of the environment than a single tank. The pond is double lined with a leak detection mechanism between the liners. Two 500 gpm pumps provide redundancy, should one pump fail, ensuring that no more leachate head than is allowed by the regulations accumulates over the 90 acres of landfill.

- A geocomposite drain layer replaces a granular layer sandwiched between 16 oz geotextile layers. This layer is less costly than a foot deep gravel drainage layer over the bottom of the landfill. The geonet can withstand a loading of 15,000 psf, sufficient for the loading of 8000 psf applied by 150 feet of refuse and soil, which is the landfill's design height (Parametrix, *Engineering Report*, June 1998).

6.3 LANDFILL GAS MANAGEMENT

- Instead of layers of horizontal gas collection systems installed at 50-foot elevation increments and embedded in 3 foot wide and 4 foot deep trenches backfilled at the top and bottom of pipe with rock, the landfill gas management system will be installed at closure when the landfill is capped and point discharges occur. This system will consist of horizontal landfill gas collectors in the final cover.

- Overdrawing on the gas collection system causes fires by drawing on outside air. Once this landfill is operational, a gas extraction system will not be needed for several years. When the system is operational, procedures to monitor for over-drawing will be implemented (Parametrix, *Operations Plan*, March 2000).

6.4 STORMWATER MANAGEMENT

- Operation of the stormwater system consists of recognizing and maintaining the design concept of separate handling of stormwater and leachate flows. This is accomplished by ensuring that the stormwater system is maintained to handle peak flows without overtopping the channels and eroding berms and channel bottoms. Reshaping the channels and berms as needed and installing additional rock armor or geotextile mat in eroding channel bottoms may be required.

- The constructed ten acre landfill cell will be subdivided by berms into smaller cells to minimize leachate produced by stormwater.

- The pond has a volume of 323,000 cubic feet or 7.4 acre feet. The 10-year, 1-hour storm is 2 inches or 0.17 feet, which means that 43.5 acres can be stored during the 10-year storm (Parametrix, *Engineering Report*, June 1998).

7. SCHEDULE

A six month construction schedule is anticipated. Estimated start date is Winter 2001 with an estimated finish date of Summer 2002. An opening date of Summer 2002 for the proposed entrance facility and landfill coincides with the one year baseline data collected from three additional groundwater monitoring wells fully installed and developed by Summer 2001.

8. FUNDING

The construction cost of the entrance facility is projected at $2,500,000 funded from general obligation bonds. Furnishing the facility with the roll-offs and compactors with trucks to haul them is projected to be an additional $1,000,000 funded by the general fund.

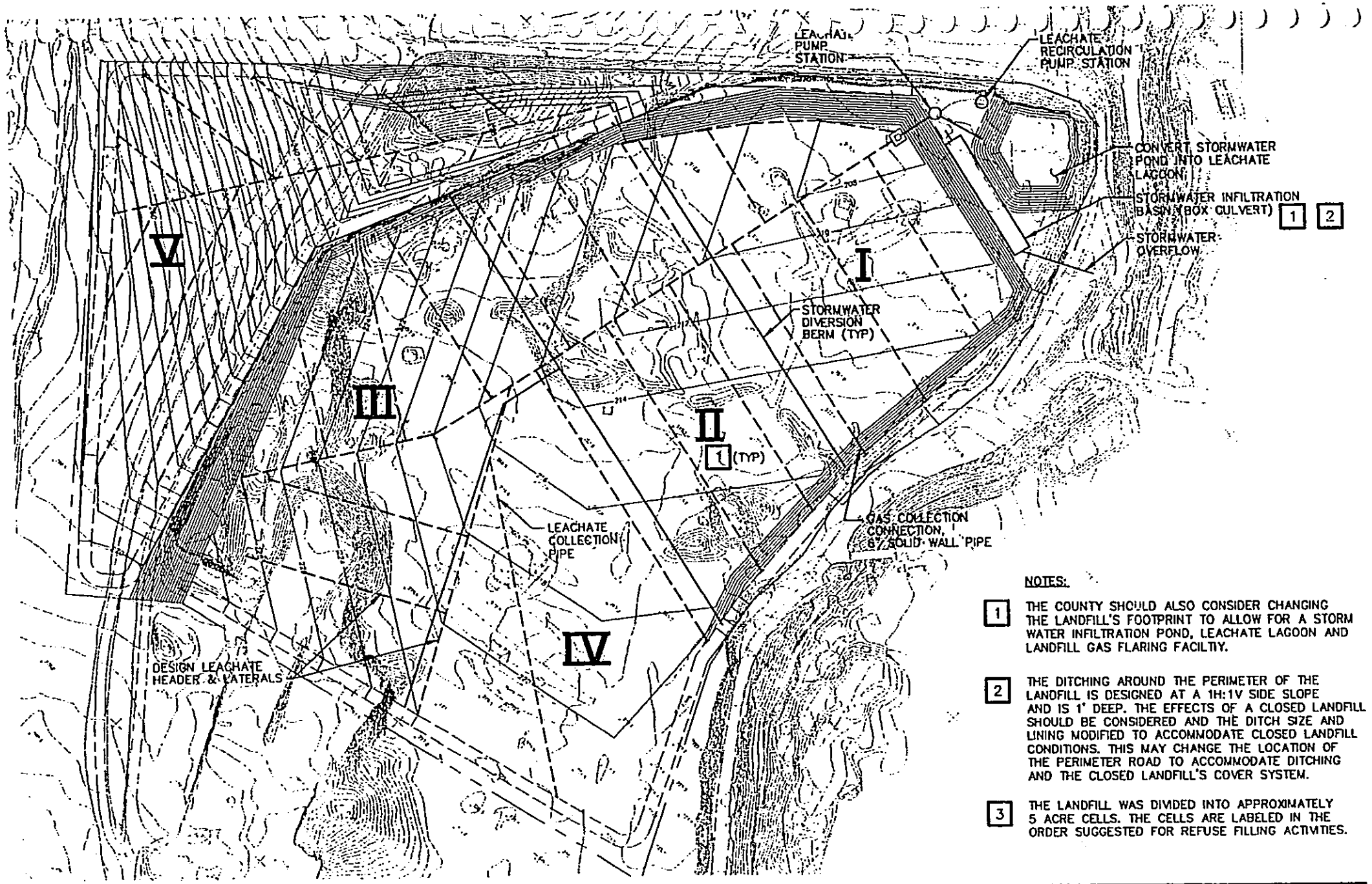

Figure 1 - 6
Leachate & Stormwater System Modifications

2. EXISTING CONDITIONS

EXISTING CONDITIONS

1. PHYSICAL ENVIRONMENT

1.1 CLIMATE

The site for the proposed entrance facility and related improvements is located in the valley isthmus, which has an average temperature range from 67 degrees to 84 degrees Fahrenheit and annual precipitation of approximately 20 inches (R. M. Towill, *Final EIS*, 1986). The design rainfall event for the 24-hour, 25-year storm is 7.5 inches, and the 1-hour, 50-year storm is 2.5 inches (Parametrix, *Operation Plan*, 2000). Most of the rain is produced by the higher intensity Kona rains during the winter months. Kona rains, which may occur for a few days in any year, can cause serious runoff and flooding problems in low-lying areas (Fujioka, *Final EIS*, 1996).

1.2 GEOLOGY

The bedrock geology in the vicinity of the landfill site is characterized by late-stage basaltic lava flows from Haleakala volcano. The Kula volcanic series, of Pleistocene age (Macdonald et.al., 1983), is the upper series, overlying Honomanu basalts. Haleakala basalts overlap the Honolua volcanic series of West Maui at approximately -500 feet mean sea level (Fujioka, *Final EIS*, 1996).

1.3 SOILS

1.3.1 Soil Types

The subject property contains deep, well-drained, moderately fine-textured residual soils which are typical of the low uplands of Central Maui with slopes ranging from nearly level to moderately steep. The site is characterized by two major soil types, referred to as Rock Land (rRK) and Waiakoa silty clay loam, 3 to 7 percent slopes (WeB). Rock Land is made up of areas where exposed rock covers 25 to 90 percent of the surface. Rock Land occurs in the vicinity of Kalialinui Gulch. The Waiakoa soil series consists of well-drained soils developed in material weathered from basic igneous rock (*Soil Survey*, Maui, 1972).

1.3.2 Soil Profile

A representative profile at the site has a surface layer of dark reddish-brown silty clay loam about 2 inches thick. The subsoil, about 23 inches thick, is dark reddish-brown and very dark grayish-brown silty clay loam that has prismatic structure or is massive. The substratum is very dark brown silty clay loam and hard, basic igneous rock. Depth to bedrock in a typical profile ranges from 20 to 40 inches. Waiakoa silty clay loam exhibits moderate permeability and slow runoff, and the erosion hazard is slight. The clay loam is considered excellent landfill cover material (*Soil Survey*, Maui, 1972).

1.3.3 Agricultural Lands of Importance to the State of Hawaii

The Agricultural Lands of Importance to the State of Hawaii (ALISH) system classifies the agricultural lands within the State of Hawaii (ALISH, 1977). This system was established by the State Department of Agriculture and includes the following three categories of agricultural lands:

A. *Prime Agricultural Land* - Land which has the soil quality, growing season, and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern farming methods.

B. *Unique Agricultural Land* - Land that has a special combination of soil quality, location, growing season, moisture supply, and is used to produce sustained high quality and or high yields of a specific crop when treated and managed according to modern farming methods.

C. *Other Important Agricultural Land* - Land other than Prime or Unique Agricultural Land that is also of state-wide or local importance for agricultural use.

1.3.4 Agricultural Classification of Site

Figure 2-1 illustrates the ALISH classifications for the lands in the vicinity of the proposed project site. The project site and all of the surrounding area are classified as prime agricultural land, with the exception of Kalialinui Gulch, which is not classified. The Land Study Bureau has also classified the area as having good productivity potential for agricultural uses, except within the quarry and gulch (Fujioka, *Final EIS*, 1996).

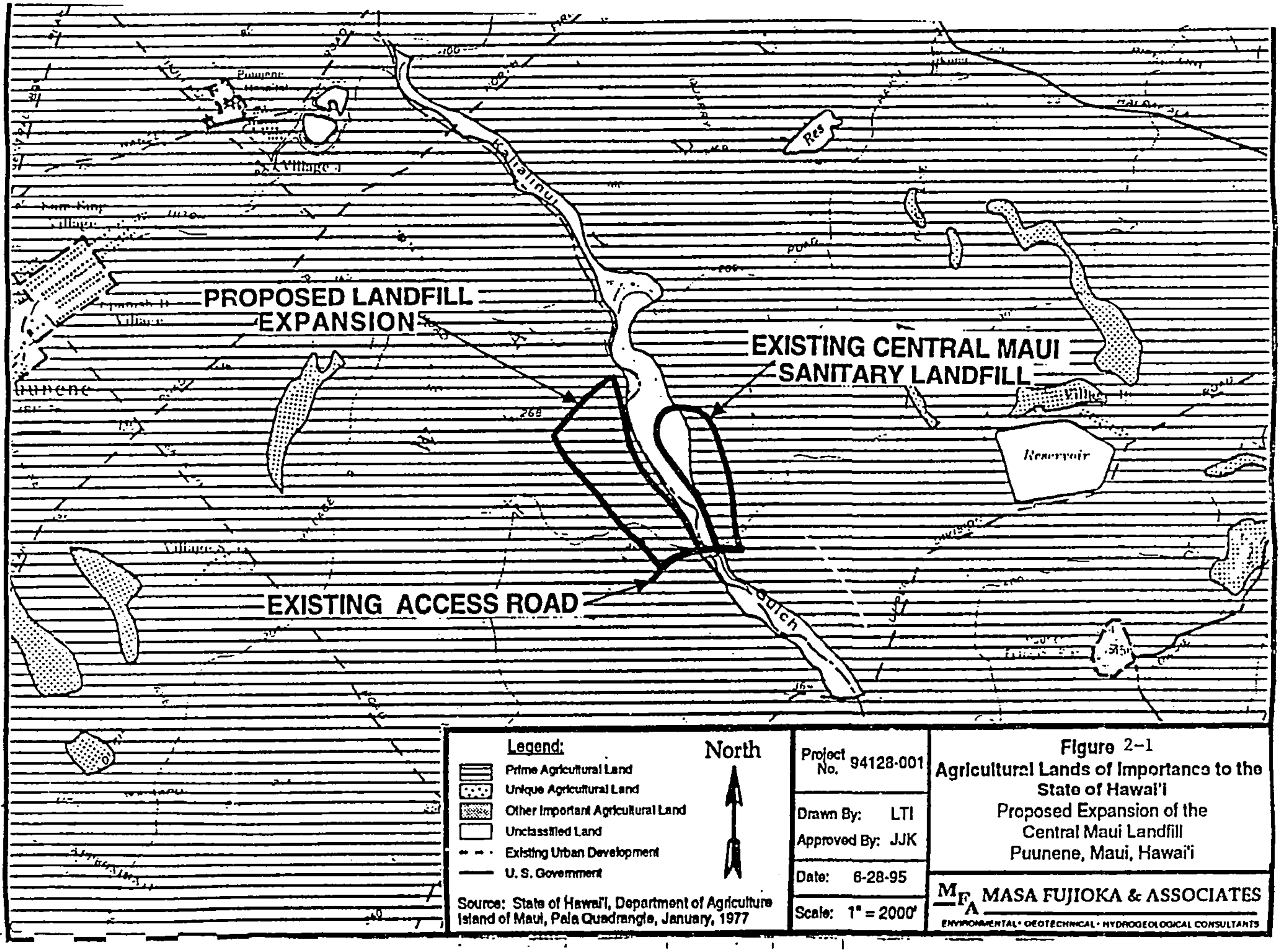
PROPOSED LANDFILL
EXPANSION
EXISTING CENTRAL MAUI
SANITARY LANDFILL
EXISTING ACCESS ROAD
Reservoir
Kalialinui
Gulch
Legend:
Prime Agricultural Land
Unique Agricultural Land
Other Important Agricultural Land
Unclassified Land
Existing Urban Development
U. S. Government
North
Source: State of Hawai'i, Department of Agriculture
Island of Maui, Pala Quadrangle, January, 1977
Project No. 94128-001
Drawn By: LTI
Approved By: JJK
Date: 6-28-95
Scale: 1" = 2000'
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Figure 2-1
Agricultural Lands of Importance to the State of Hawai'i
Proposed Expansion of the Central Maui Landfill
Puunene, Maui, Hawai'i

1.3.5 Land Disturbance

Although the project site is located within an area classified as prime agricultural land, the site is already a disturbed area and will be even more so when quarry operations progress. Use of the site as an extension to the Central Maui Landfill will not disturb activities on the adjacent agricultural lands, as the landfilling activities will make use of the mined areas.

1.3.6 Topography and Slopes

The Central Maui isthmus is characterized by level to gently sloping terrain. The site is located within the 200- to 300-foot elevation levels. The regional slope in the vicinity of Phases I, II, and III is approximately 2.5 percent, sloping downward toward the northwest. The natural topography has been highly disturbed in the immediate area of Phases I, II, and III during quarrying operations and current landfill operations. The regional slope in the vicinity of Phases IV, V, and VI is approximately 3.5 percent, sloping downward toward the northwest. The natural topography in the immediate vicinity of Phases IV and V has been highly disturbed, and the natural topography of Phase VI will be highly disturbed, as a result of quarry and landfill operations (Fujioka, *Final EIS*, 1996).

1.4 ARCHEOLOGICAL AND HISTORIC SITES

There are no known significant or historic sites within the area of the proposed entrance facility or value engineered improvements. These areas have been formerly utilized for sugarcane cultivation and some of them have been subsequently quarried.

1.4.1 State Historic Preservation Division

The State Historic Preservation Division (SHPD) noted in its letter of March 18, 1996, that it is unlikely that historic sites are present within the proposed landfill expansion area. Therefore, the use of the quarry area for landfill will have "no effect" on historic sites.

1.4.2 Site Inspection

However, the SHPD noted a concern regarding the possible existence of historic sites within the adjacent portions of Kalialinui Gulch. An opportunity to inspect adjacent portions of the gulch was requested. See Appendix A. Although the inspection has not yet occurred, there has been no work or alteration to lands within the gulch. The applicant will coordinate with SHPD on its desired inspection of the gulch at SHPD's convenience.

1.5 FLORA

The existing vegetation in the vicinity of the project site consists almost entirely of cultivated sugarcane fields. Immediately east of the site is an intermittent stream channel, Kalialinui Gulch, with an associated strip of natural vegetation about 100 feet wide. The vegetation in the gulch consists mainly of common species such as kiawe, klu, pili grass and haole koa. There are no endangered or rare plant species on or near the site according to R.M. Towill in the 1986 *EIS* (Fujioka, *Final EIS*, 1996). The entrance facility site consists of soil stockpiles from construction of the Phase IV lined landfill and scattered clumps of pili grass.

1.6 FAUNA

Animal and bird species found in the vicinity are those typical of the Central Maui cane fields, including a variety of rodent species such as mongoose, and birds such as mynahs, sparrows, doves, and cattle egrets. No animals are known to inhabit the relatively barren quarry areas. R. M. Towill in the 1986 *EIS* reported the presence of barn owls (Tyto alba) roosting in crevices in the quarry walls, and barn owls were reported to have been seen in 1995 (Cameron, 1995). See Appendix A. There are no endangered or rare animal or bird species on or near the site (R. M. Towill, *Final EIS,* 1986).

1.7 HYDROLOGY AND DRAINAGE

1.7.1 Terrain

The torrential streams of East and West Maui flow on steep gradients. Streams descending the western slopes of Haleakala deposit alluvial fans onto the gentler slopes of the isthmus, where they lose velocity on the flatter terrain, burying older alluvium (MacDonald et. al, 1983). Much of the water is lost in the permeable rocks of the Kula and Honolua series according to Stearns and MacDonald (Fujioka, *Final EIS*, 1996).

1.7.2 Kalialinui Gulch

The landfill expansion site is part of the drainage area of Kalialinui Gulch, an intermittent natural water course that originates high on the northwestern slopes of Haleakala. Kalialinui Gulch is one of several major gulch features in Central Maui. It drains a total of 11,460 acres (17.9 square miles) and runs in a northwesterly direction towards Kahului Airport (R. M. Towill, *Final EIS*, 1986). The discharge point for Kalialinui Gulch is in the vicinity of Kanaha Beach Park. A portion of the gulch runs between the existing landfill and the expansion site and required fording for access to Phase IV (Fujioka, *Final EIS*, 1996). Refer to Figure 1-2, Preliminary Site Map, in Chapter 1.

1.7.3 Gulch Flows

A crest-stage gauge station was established in Kalialinui Gulch near Kahului in 1966, and annual maximum discharge flows have been recorded by the United States Geological Survey (USGS) and published in its annual reports of 1967-94 (USGS, 1994). According to these reports, the gulch received zero flow during six water years (1973, 1977, 1981, 1983, 1984 and 1985). The largest annual maximum discharge recorded was 1,330 cubic feet per second and occurred in 1971. The average annual maximum discharge for the 28-year period is 250 cubic feet per second (Fujioka, *Final EIS*, 1996).

1.7.4 Flooding

Generally, the section of Kalialinui Gulch in the vicinity of the project site does not experience any serious flooding problems. By 1986 the gulch had overflowed and flooded a portion of the northern section of the quarry at least once. The flooded area was downstream and outside of the boundary of the proposed landfill expansion site (R. M. Towill, *Final EIS*, 1986). Flooding recurred in the quarry during the winter holidays in 1996. This area was outside the project site. The landfill site is in Zone C, an area of minimal flooding. See Figure 2-2, Flood Zone.

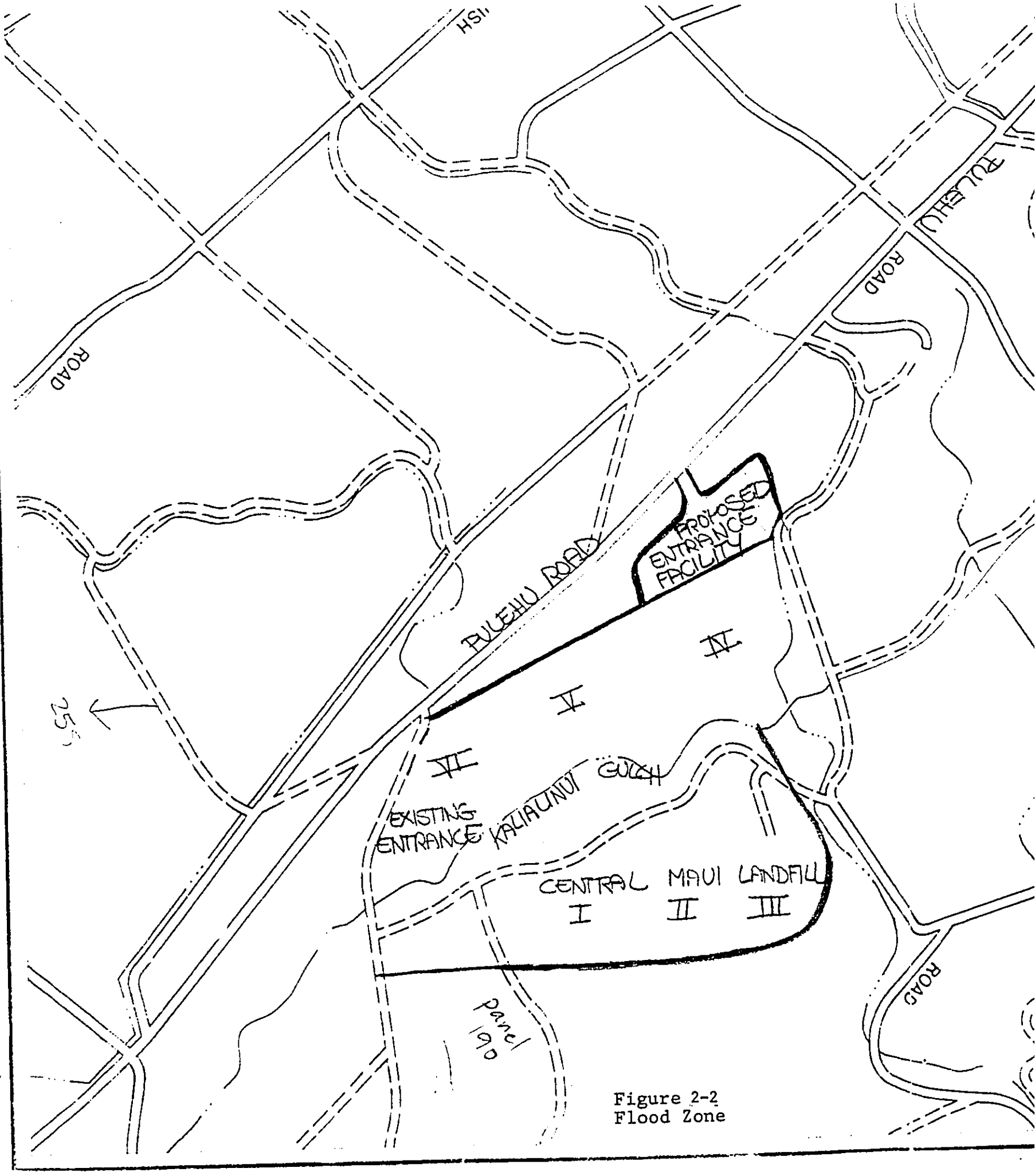
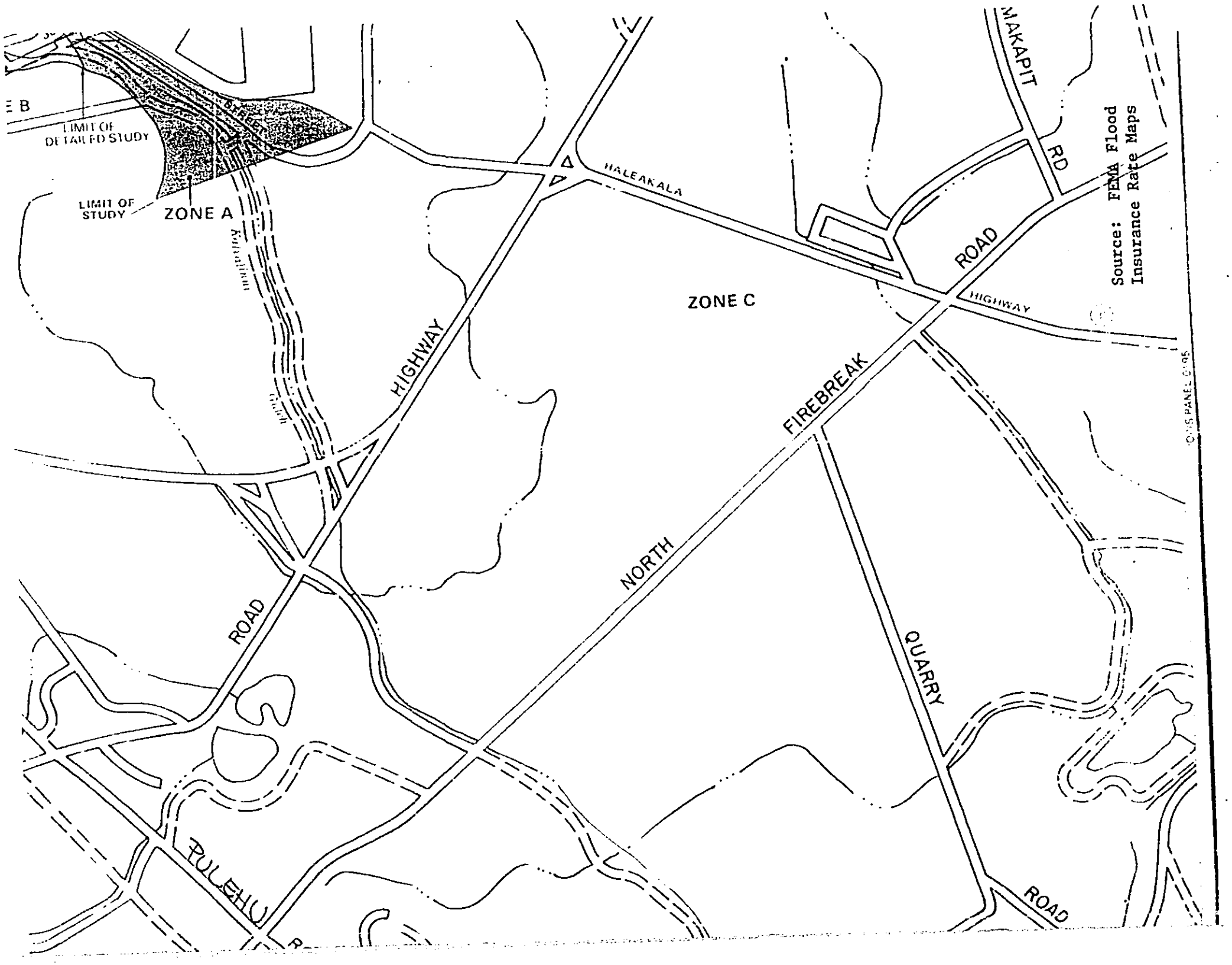


Figure 2-2
Flood Zone


LIMIT OF
DETAILED STUDY
LIMIT OF
STUDY
ZONE A
ZONE C
HALEAKALA
HIGHWAY
MAKAPIT
RD
ROAD
HIGHWAY
FIREBREAK
NORTH
ROAD
QUARRY
ROAD
PULEHU
Source: FEMA Flood
Insurance Rate Maps

1.7.5 Elevation

The landfill site ranges in elevation from approximately 210 to 310 feet mean sea level and is located approximately three miles from the nearest shoreline, far inland from the coastal high hazard and 100-year flood boundary areas. The site meets the 100-year floodplain location restrictions of state and federal regulations (Fujioka, *Final EIS*, 1996).

1.8 GROUNDWATER RESOURCES

1.8.1 Geology

Bedrock beneath the landfill site is classified as Kula volcanic series basalt overlying Honomanu basalt. Stearns and MacDonald (1942) report that the Honomanu basalts are very permeable and yield large supplies of water to wells. The andesites of the Kula series are less permeable and in wet places commonly contain water perched on interstratified soils, conglomerate, or ash. These Kula ashy soil beds cause many perched bodies of water, some of which are broad and thick, when combined with extensive layers of fairly impermeable lava in areas of high rainfall (Fujioka, *Final EIS*, 1996). Borehole logs recorded during drilling of the groundwater monitoring wells all note gray basalt, some dense with olivine crystals.

1.8.2 Groundwater Sectors

East Maui has been divided by Mink and Lau (1990) into four groundwater sectors, the most westerly of which is the Central (03) Sector, which starts with the isthmus and extends to the northwest and southwest rift zones of Haleakala. The acquifer beneath the proposed project site is part of the Paia System of the Central Sector. Mink and Lau report that basal groundwater occurs in both the Kula and Honomanu formations, and that an effective sedimentary caprock is absent in this area.

1.8.3 Paia System Upper Aquifer

The Paia System is characterized by two aquifers (Mink and Lau, 1990). The upper aquifer is high level (not in contact with seawater), unconfined (the water table is the upper surface of the saturated aquifer), and perched (on an impermeable layer). Mink and Lau (1990) use a status code to describe the development stage, utility, salinity, uniqueness, and vulnerability to contamination of the aquifer. They classify the upper Paia aquifer as having no potential use for either drinking or other ecologically important uses, as low salinity (250-1000 mg/l Cl), and as highly vulnerable to contamination but replaceable (Fujioka, *Final EIS*, 1996).

1.8.4 Perched Groundwater

Perched groundwater bodies, which were identified by Stearns and MacDonald (1942) as occurring in ashy soil beds of the Kula series, may be limited in the vicinity of the site due to the low rainfall in the area. Quarry operations at the site have not encountered perched groundwater. Groundwater monitoring wells installed in 1995 around Phases I, II, and III did not encounter perched groundwater nor have wells drilled in 2001 at Phase IV, above Phase VI, and cross gradient at Phase I.

1.8.5 Paia System Lower Aquifer

The lower aquifer is characterized by Mink and Lau (1990) as basal (fresh water in contact with seawater), unconfined (the water table is the upper surface of the saturated aquifer), and occurring in flank (horizontally extensive) lavas. They also classify this aquifer as currently used for drinking water, fresh (salinity <250 mg/l Cl), and irreplaceable with a moderate vulnerability to contamination (Fujioka, *Final EIS*, 1996). Groundwater levels measured during drilling of monitoring wells show groundwater at the site to occur at depths between 216 and 297 feet below ground surface (Fujioka, *Hydrogeological Characterization*, 1997).

1.8.6 Potable Well

The drinking water well closest to the landfill site is a single well (#6-5420-1) about 5.8 miles northeast of the site (DOH, 1983). This well is listed (DLNR, 1993) as located at the Maui High School, and owned by the State of Hawaii. The well was drilled in 1964 and has a total depth of 371 feet. Although this well is located within the same aquifer system as the Central Maui Landfill, the landfill is located hydrogeologically down gradient of the well and, therefore, will have no impact on the well. If the Department of Water Supply places any wells in the area in the future, they will be up gradient of the landfill (BWS, 2001).

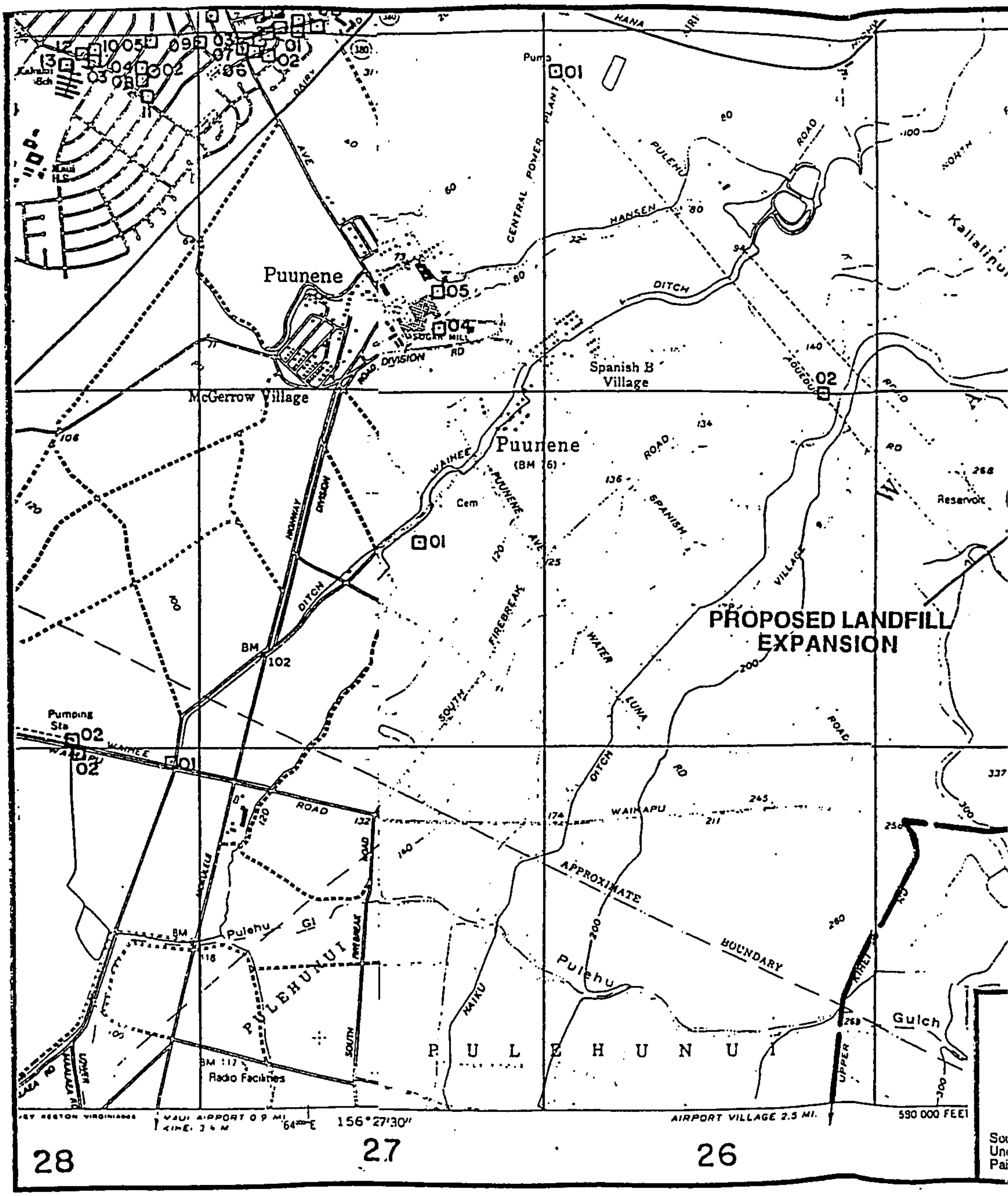
1.8.7 Other Wells in Area

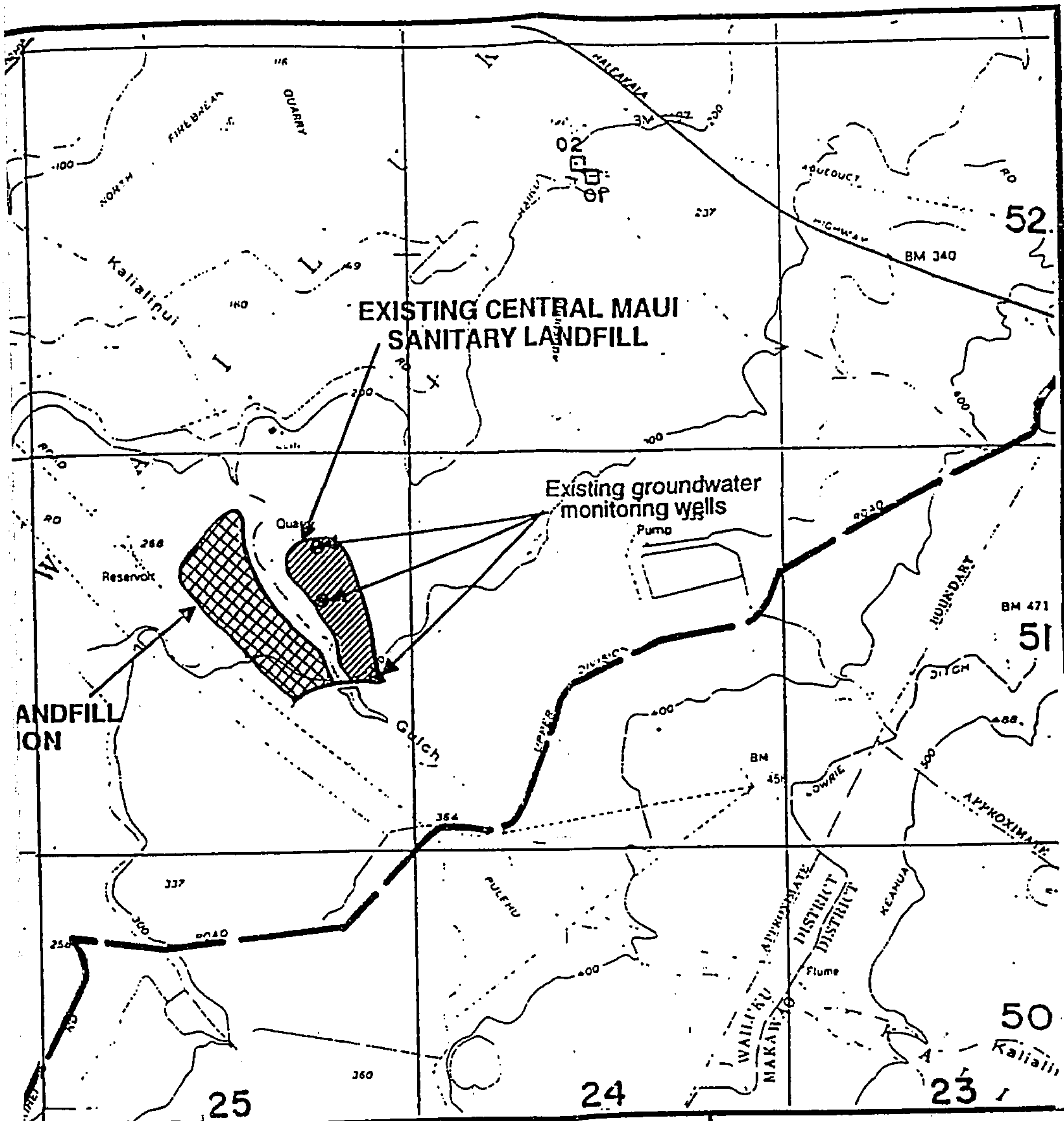
Other wells in the area of the project site are shown on Figure 2-3, Existing Wells and UIC Line Location, and listed in Table 2-1, Wells Within Two (2) Miles of the Landfill. Wells are located on Figure 2-3 and identified in Table 2-1 by the quad number and the well number. Well 6-5226-2 represents island 6 which is Maui, the quad's latitudinal identification (52), the quad's longitudinal identification (26), and the well number in that quad (2) (Fujioka, *Final EIS*, 1996).

TABLE 2-1 Wells Within Two (2) Miles of the Landfill

Well Number	Name	Owner	Total Depth (ft)	Year Drilled	Major Use	Draft (mgd)
6-5125-01*	MW-1	Maui County	318	1995	monitoring	NA
6-5125-02*	MW-2	Maui County	238	1995	monitoring	NA
6-5125-03*	MW-3	Maui County	258	1995	monitoring	NA
6-5127-01	Puunene	Maui County	165	not listed	other	not reported
6-5224-01	Haiku ditch	HC&S	204	1936	unused	not reported
6-5224-02	Puunene Pump 9	HC&S	202	1938	irrigation	11.2
6-5226-01	Puunene Pump 5	HC&S	48	1899	irrigation	7.0
6-5226-02	Puunene Pump 6	HC&S	176	1934	irrigation	18.2
6-5227-04	Puunene Pump 8	HC&S	not listed	1939	industrial	11.2
6-5227-05	Puunene Pump 19	HC&S	not listed	1952	industrial	9.9
6-5326-01	Old Pump 3	HC&S	not listed	1898	sealed	9.0

Source: DLNR, 1993.
* = Source: Masa Fujioka & Assoicates, 1995a.
NA = Not Applicable


PROPOSED LANDFILL EXPANSION
Puunene
McGerrow Village
Spanish B Village
Puunene (BM 76)
Cem
HANA
PULEHU ROAD
HANSEN
DITCH
CENTRAL POWER PLANT ROAD
SUGAR MILL
DIVISION RD
WAIHEE
PUUNENE AVE
SPANISH ROAD
VILLAGE ROAD
SOUTH FIREBREAK
WATER
LUNA
DITCH RD
WAIKAPU
APPROXIMATE BOUNDARY
Pulehu Gulch
Pulehu Gl
PULEHUNUI
P U L E H U N U I
HAIKU
UPPER
Kalialinui
Reservoir
Pumping Sta
Radio Facilities
BM 117
BM 102
Maui H.S.
Kahului Sch
MAUI AIRPORT 0.9 MI.
156°27'30"
AIRPORT VILLAGE 2.5 MI.
590 000 FEET
28
27
26



Legend:

- ⊙ injection well
- ⊡ other well
- - - - - UIC Line

North

Source: State of Hawaii, Department of Health
Underground Injection Control Program
Paia Quadrangle, 1983

Project No.	94128-001
Drawn By:	ALS
Approved By:	JJK
Date:	12-12-95
Scale:	As Noted

Figure 2-3
Existing Wells and UIC Line Location
Proposed Expansion of the
Central Maui Landfill
Puunene, Maui, Hawai'i

MASA FUJIOKA & ASSOCIATES
ENVIRONMENTAL · GEOTECHNICAL · HYDROGEOLOGICAL CONSULTANTS

1.8.8 Nonpotable Wells

The nearest known well, well 6-5226-2 (Puunene Well 6), is used by Hawaiian Commercial and Sugar Company (HC&S) for irrigation of sugarcane fields. It is located about 3,000 feet northwest of the project site as shown in Figure 2-3, Existing Wells and UIC Line Location. At this location the groundwater is brackish, with a chloride content historically ranging from 350 to 450 mg/l (R. M. Towill, *Final EIS*, 1986). This water is not potable since the chloride concentration exceeds the maximum permissible level of 250 mg/l as recommended by the National Secondary Drinking Water Regulations (Fujioka, *Final EIS*, 1996). Two other HC&S groundwater wells (#6-5224-1 and #6-5224-2) are located about 1.5 miles northeast of the landfill and another well (#6-5226-1) is located about two miles northwest of the landfill. Refer to Figure 2-3 for well locations relative to the landfill site. Water from these three wells flows into the Haiku Ditch to provide irrigation water to many users, with usage depending on the rainfall and time of year. These sources yield high chloride concentrations, generally ranging from 425 to 700 mg/l, since they are drilled to shallower depths and tap into the upper aquifer (Fujioka, *Final EIS*, 1996).

1.8.9 Groundwater Monitoring Wells

Three groundwater monitoring wells were installed in 1995 to comply with detection monitoring requirements of state and federal regulations. Groundwater samples have been collected and analyzed quarterly for a battery of constituents approved by the Department of Health (DOH) following eight baseline samples collected and analyzed during the year following well installations. The results are within the control limits set by regulatory requirements. Another three wells are currently being installed, down gradient from the leachate pond at Phase IV, up gradient of Phase VI, and cross gradient of Phase I. Eight samples will be collected and analyzed for baseline data during the year following installation. Groundwater samples will be collected and analyzed from all six wells on a quarterly basis after the baseline data is collected.

1.9 AIR QUALITY AND NOISE LEVELS

1.9.1 Odors

Odors from landfill operations are controlled by the daily application of soil or DOH approved alternative cover over the working face and a foot of interim soil cover over in-active areas. Odors from co-composting are controlled by aeration.

1.9.2 Dust and Noise

The air quality in this rural area of Central Maui is generally quite good, and noise levels are low (R. M. Towill, *Final EIS*, 1986). The only significant generator of air pollutants and noise in the area is the existing quarry. Dust from quarry operations causes a localized degradation of air quality, and noise from quarry machinery and blasting can be substantial. However, prevailing winds normally direct dust and noise towards sugarcane fields. Transient and seasonal noise and air pollutants are also generated by sugarcane harvesting operations in the fields surrounding the project site. Current landfill activities contribute little to noise pollution in the area (Fujioka, *Final EIS*, 1996).

1.9.3 Co-composting Project

The County has contracted with Maui EKO Systems to provide services to accept for processing into useable products the following waste streams: sewage sludge, greenwaste, wood waste, pallets, fats, oil, and grease. The contractor grinds the greenwaste, wood waste, and pallets, currently on Phase II, moving the grinder and receiving area as the landfill's working face changes location. Odors are controlled by the aerated static pile composting method used by this contractor.

1.9.4 Compost Products

In this proposed action, the receiving area will move to Phase I while grinding will remain on Phase II and composting will continue to occur on Phase III. Compost is sold in bulk to golf courses, resorts, and landscapers. Five products are available at the Phase III site for these customers: Claybuster, EKO compost, lawn top dressing, 60-40 topsoil blend, and sand blend. Three bag products are sold to retail stores: Claybuster, EKO compost, and lawn top dressing.

1.9.5 Biodiesel Project

Maui EKO Systems subcontracts fats, oil, and grease receiving and processing to Pacific Biodiesel, Inc. Grease is source separated from cooking oil. The cooking oil is processed with additives to convert it into biodiesel which is sold to commercial customers and used by County vehicles.

2. COMMUNITY SETTING

2.1 POPULATION

The population of the County of Maui grew at a slower rate over the past decade between 1990 and 2000 than it did over the previous decade from 1980 to 1990. The 1990 population of 101,588 (Maui County Data Book 2000) grew at a 42 percent increase from the 1980 population of 71,600. Maui County Quick Facts from the U.S. Census Bureau available on the Web puts the 2000 population at 128,094, a 26 percent increase. Population density has increased to 110 persons per square mile in 2000 from 62 in 1980, almost double.

2.2 ECONOMY

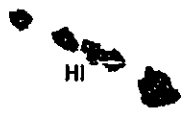
The economy of Maui County is heavily dependent on the visitor industry as shown in Table 2-3, Maui County, HI Statistics by Economic Sector, which is based on 1997 data. Retail trade has by far the largest number of establishments at 805 with the accommodation and food services industry second at 420. These two sectors employ the most people: 17,951 employees in accommodation and food services and 8,244 employees in retail trade. These two sectors have the largest annual payrolls and revenues. Total visitor arrivals have remained stable for the past decade at 2.3 million when eastbound visitors were added to the count.

Table 2-2

U.S. Census Bureau

State and County*QuickFacts*

QuickFacts Main | FAQs | What's New



Maui County, Hawaii

More data for this area ▶

Select a county in Hawaii Go

County selection map
Locate a county by place name

Select a state
USA QuickFacts

Follow the ❷ link for definition and source information.

People QuickFacts	Maui County	Hawaii
❷ Population, 2000	128,094	1,211,537
❷ Population, percent change, 1990 to 2000	27.6%	9.3%
❷ White persons, percent, 2000 (a)	33.9%	24.3%
❷ Black or African American persons, percent, 2000 (a)	0.4%	1.8%
❷ American Indian and Alaska Native persons, percent, 2000 (a)	0.4%	0.3%
❷ Asian persons, percent, 2000 (a)	31.0%	41.6%
❷ Native Hawaiian and Other Pacific Islander, percent, 2000 (a)	10.7%	9.4%
❷ Persons reporting some other race, percent, 2000 (a)	1.4%	1.3%
❷ Persons reporting two or more races, percent, 2000	22.2%	21.4%
❷ Persons under 18 years old, percent, 2000	25.5%	24.4%
❷ Persons of Hispanic or Latino origin, percent, 2000 (b)	7.8%	7.2%
❷ High school graduates, persons 25 years and over, 1990	50,353	568,314
❷ College graduates, persons 25 years and over, 1990	11,632	162,424
❷ Homeownership rate, 1990	57.6%	53.9%
❷ Single family homes, number 1990	28,350	237,031
❷ Households, 1990	33,148	356,748
❷ Persons per household, 1990	2.99	3.00
❷ Family households, 1990	23,672	266,439
❷ Median household money income, 1997 model-based estimate	$40,647	$43,627
❷ Persons below poverty, percent, 1997 model-based estimate	10.8%	11.1%
❷ Children below poverty, percent, 1997 model-based estimate	15.8%	16.2%

Business QuickFacts	Maui County	Hawaii
Private nonfarm establishments with paid employees, 1998	3,746	29,603
Private nonfarm employment, 1998	48,767	416,571
Private nonfarm employment, percent change 1990-1998	14.9%	-3.7%
Nonemployer establishments, 1997	9,622	70,203
Manufacturers shipments, 1997 ($1000)	259,608	3,192,532
Retail sales, 1997 ($1000)	1,359,298[1]	11,317,752
Retail sales per capita, 1997	$11,418[1]	$9,516
Minority-owned firms, 1992	3,149	41,111
Women-owned firms, 1992	3,771	29,743
Housing units authorized by building permits, 1999	894	4,211
Federal funds and grants, 1999 ($1000)	393,084	8,568,210
Local government employment - full-time equivalent, 1997	1,866	14,319

Geography QuickFacts	Maui County	Hawaii
Land area, 2000 (square miles)	1,159	6,423
Persons per square mile, 2000	110.5	188.6
Metropolitan Area	None	

1: Kalawao County included with Maui County; data not available separately.

(a) Includes persons reporting only one race.
(b) Hispanics may be of any race, so also are included in applicable race categories.

FN: Footnote on this item for this area in place of data
NA: Not available
D: Suppressed to avoid disclosure of confidential information
X: Not applicable
S: Suppressed; does not meet publication standards
Z: Value greater than zero but less than half unit of measure shown

Data Quality Statement

What do you think of our new QuickFacts? Send comments to quickfacts@lists.census.gov

Source U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments

Table 2-3

Maui County, HI *

Table 1. Statistics by Economic Sector
1997 Population: 119,142

NOTE TO ALL DATA USERS: All survey and census results contain measurement error and may contain sampling error. Information about these potential errors is provided or referenced with the data or the source of the data. The Census Bureau recommends that data users incorporate this information into their analyses as these errors could impact inferences. Researchers analyzing data to create their own estimates are responsible for the validity of those estimates and should not cite the Census Bureau as the source of the estimates but only as the source of the core data.

We have modified some data to protect individuals' privacy, but in a way that preserves the usefulness of the data.
[Excludes data for auxiliaries. Data in this table are subject to employment-and/or sales-size minimums that vary by geographic level; for more information, see help.
* NAICS INDUSTRIES is defined as the taxable portion of the Services sectors, the Type of Operation Totals for the Wholesale sector, and all other sectors in the Economic Census]

NAICS Industry Code	Industry Description	Number of Establishments	Number of Employees	Annual Payroll ($1,000)	Shpmts/Sales/Recpts ($1,000)
NAICS INDUSTRIES					
31-33	Manufacturing	100	1,919	51,302	259,608
42	Wholesale trade	166	1,324	41,188	433,565
44-45	Retail trade	805	8,244	150,721	1,359,298
53	Real estate & rental & leasing	213	1,696	39,651	275,617
54	Professional, scientific, & technical services	227	754	25,731	75,165
56	Administrative & support & waste management & remediation serv	194	2,022	34,218	89,936
61	Educational services	33	91	1,227	4,859
62	Health care & social assistance	230	1,561	63,875	138,377
71	Arts, entertainment, & recreation	80	945	20,139	78,144
72	Accommodation & foodservices	420	17,951	364,380	1,130,702
81	Other services (except public administration)	163	884	16,187	54,180
MERCHANT WHOLESALERS					
42	Wholesale trade	151	g	D	D
MANUFACTURERS' SALES BRANCHES AND SALES OFFICES					
42	Wholesale trade	7	b	D	D
AGENTS, BROKERS, AND COMMISSION MERCHANTS					
42	Wholesale trade	8	b	D	D

Source: U.S. Bureau of the Census, 1997 Economic Census
D: Withheld to avoid disclosing data of individual companies; data are included in higher level totals
N: Not available or not comparable
S: Withheld because estimate did not meet publication standards
Z: Less than half the unit shown
a: 0 - 19 employees
b: 20 - 99 employees
c: 100 - 249 employees
e: 250 - 499 employees
f: 500 - 999 employees
g: 1,000 - 2,499 employees
h: 2,500 - 4,999 employees
i: 5,000 - 9,999 employees
j: 10,000 - 24,999 employees
k: 25,000 - 49,999 employees
l: 50,000 - 99,999 employees
m: 100,000 or more employees
p: 10 to 19 percent estimated
q: 20 to 29 percent estimated
r: Revised
s: Sampling error exceeds 40 percent

2.3 AGRICULTURE

Agriculture is also a major component of the local economy. Sugarcane cultivation occurs on sizeable acreages in Maui's central isthmus with pineapple grown at higher elevations.

2.4 PUUNENE

Puunene, the closest town to the project site, is located about two miles to the west-northwest. Formerly a mill town for sugarcane workers, Puunene's homes have been demolished, since the residents were relocated from the HC&S-owned mill camp houses to homes in Kahului. Remaining is the HC&S sugar mill, where cane is processed into molasses and raw sugar for export to the mainland for refining except for a Maui made brand of raw sugar which is produced here. The Sugar Museum, U. S. post office, and a school for special needs students make up the rest of what remains of this former mill town.

2.5 POLICE AND FIRE PROTECTION

The Maui Police Department (MPD) consists of five patrol divisions and includes about 400 employees. These divisions provide police services through the Hana, Lahaina, Lanai, Molokai, Kihei, Makawao, and Wailuku districts. Fire prevention, protection, and hazardous waste containment services are provided by the Fire Department in these districts as well as through an additional six stations.

2.6 RECREATION

There are no recreational opportunities in the vicinity of the project.

2.7 ROADS

The main County road in the area is Pulehu Road, a paved two-lane road of generally good quality. Pulehu Road connects Hana Highway with Kula Highway. Access to Central Maui Landfill is by a road southwest of the site. This access road travels northeast from Pulehu Road to the scale and then into Phase I of the existing landfill.

2.8 WATER

There is no on-site source of potable water at the landfill site. Water for personnel use is trucked in and stored in a tank for the scale house lavatory which outlets into a cesspool. A water truck controls dust on landfill roads and the working face.

2.9 UTILITIES

2.9.1 Electricity

Three phase power is available to the current and proposed entrance facilities from overhead lines on Pulehu Road.

2.9.2 Telephone

Telephone service is available to the current and proposed entrance facilities from overhead lines on Pulehu Road.

3. POTENTIAL IMPACTS AND MITIGATION MEASURES

POTENTIAL IMPACTS AND MITIGATION MEASURES

1. SURROUNDING USES

Sugarcane is cultivated by Hawaiian Commercial & Sugar Company (HC&S), a division of Alexander and Baldwin (A&B). A&B owns the fields neighboring the proposed entrance facility. Ameron Hawaii is quarrying in Phase V.

1.1 SUGARCANE

With regard to HC&S, the following items will be done:

A. A field road parallel to Pulehu Road will be retained with the landfill access roadway and easement across it.

B. The field road will be included in a 300 foot buffer between the proposed landfill entrance facility and Pulehu Road for HC&S equipment use.

C. The access roadway will design for an irrigation pipe which crosses it.

D. The easement for utility poles to the landfill leachate pumps includes a 35 foot height clearance for wires required by HC&S for field equipment.

1.2 QUARRY

The Maui office of Ameron Hawaii is located to the northeast of the proposed entrance facility. Ameron quarries the adjacent parcel to the south of the constructed Phase IV landfill, the projected Phase V, operates a portable rock crushing plant at that site, and conveys the crushed basalt on a belt across the existing landfill to the main plant.

When Ameron is finished quarrying Phase V, Phase VI will be quarried next. The County will continue to coordinate with Ameron to relocate their conveyor belt across the landfill as their quarrying operation moves further away from the main plant. It is noted that the timetable for use of future phases of the landfill depends on the rate of fill at the operating landfill, the rate of diversion of materials from the landfill, and the quarrying rate. The County will continue to coordinate with Ameron, since as the quarrying operation moves further from the plant, access over the landfill is required for Ameron's conveyor belt.

1.3 ARCHEOLOGICAL RESOURCES

No archaeological or historic sites or remains were discovered during the construction of the Phase IV landfill expansion nor have they been discovered in the present quarrying of Phase V. It is unlikely they will be encountered in Phase VI since quarrying will have removed the topsoil and approximately 40 feet of rock. Excavation work will grade the landfill floor following quarry operations. Despite the unlikelihood of unearthing unidentified sites or remains, caution will be taken during construction activities and the office of the State Historic Preservation Division will be contacted immediately if such remains or sites are uncovered. The applicant also intends to coordinate with SHPD on an inspection of Kalialinui Gulch in the vicinity of the landfill.

1.4 FLORA AND FAUNA

The constructed landfill expansion at Phase IV and the remaining portion of the parcel are relatively barren with clumps of pili grass and no significant animal inhabitants. However, landfilling operations will attract scavenger-type animals such as rats, birds, cats, dogs, and flies. Numerous birds, especially egrets, migrate to the landfill for food and perch nearby. The proposed project should not result in any adverse effect upon existing flora and fauna.

1.5 STORMWATER

The stormwater system for the facility has the following features:

1.5.1 Perimeter Road Swale

The perimeter road will be designed with an inside swale to collect any stormwater falling onto the roadway.

1.5.2 Natural Contours

The site layout follows the natural contours of the land which slope down to the landfill basin, starting at elevation 280 feet above sea level at the Pulehu Road intersection and dropping 40 feet in elevation to the landfill ramp. See Figure 1-4.

1.5.3 Sheet Flow Across Terraces

Buildings and customer service areas are designed on a series of terraces which allow for sheet flow of stormwater.

1.5.4 Office, Recycling, and Reuse Area

The office building, reuse facility, and recycling area are on the upslope terrace which is accessed by the entrance roadway which slopes downward from an elevation of 280 feet.

1.5.5 Recycling Roll-off Area

The service area for the recycling roll-offs is on the next lower terrace, six feet below the customer area with guard rails for safety. Trucks enter from the incoming roadway, travel down a ramp and exit onto the perimeter road after the first turn and before the scale and scale house.

1.5.6 Scale and Scale House

The scale and scale house are on the next lower terrace next to the downslope loop of the perimeter road.

1.5.7 Self-haul Disposal Area

The self-haul disposal area is located off the lower loop of the perimeter road with a drop of five feet from the scale.

1.5.8 Self-haul Disposal Service Area

Trucks to pull the compactors from the self-haul disposal service area enter from the landfill access road which turns off the perimeter road after the scale and scale house. They exit either onto the perimeter road or back to the landfill access road.

1.5.9 Gravity Flow

The perimeter road slopes so that the interior swale drains at the bottom of the exit loop on the downslope side where it is piped to the existing landfill stormwater pond located next to Kalialinui Gulch. The capacity of the stormwater pond is 7.4 acre-feet, which allows for 43.5 acres of water storage during the 10-year 1-hour storm with a rainfall intensity of two inches. The run-off from the entrance facility for that time interval will occupy less that one acre of the pond's water storage capacity. The stormwater system, with its retention and collection capacity with the pond, swales, and ditches should not result in adverse effects to adjacent and downstream lands.

1.6 EROSION CONTROL

Best management practices (BMP's) will be implemented during the construction phase to control soil erosion especially due to wind. These practices will include adequate application of water from a water truck to condition the soil prior to excavation, transport, or placement in embankments. The construction zone will be sprayed with water as necessary for dust control. A silt fence can further prevent migration of windblown soil off-site. Berms can be built to prevent soil loss due to run-off in the case of a storm.

1.7 WASHWATER

The equipment wash slab is located on the lowest terrace below the self-haul disposal bins service area. Washwater will be potable as personnel will be washing landfill heavy equipment and refuse trucks. The washwater will be piped to the existing landfill leachate pond which is separate from the stormwater pond and drainage system.

1.8 LEACHATE PRODUCTION AND WATER QUALITY

The proposed entrance facility will displace approximately 5.3 acres intended for landfill use. The entrance facility itself should have no significant effect on water quality. The Phase IV landfill berm and liner system protects both surface water and groundwater resources. The stormwater control system for the 90 acre landfill site will prevent water from moving across the landfill, producing leachate from rain coming into contract with waste, and eroding waste material from the slope into the gulch. Landfill operating procedures will include appropriate maintenance of the gulch near the landfill, including litter removal, removal of obstacles in the gulch that might cause restricted low conditions, and subsequent scouring of the landfill boundary. The groundwater monitoring system will provide early detection of degradation of groundwater quality so that prompt corrective action can be initiated if necessary (Fujioka, *Final EIS*, 1996).

1.9 AIR QUALITY AND NOISE

1.9.1 Dust

Air quality impacts attributed to the project will include dust generated by short term construction related activities. Sitework, such as clearing, grubbing and grading, and utilities and pavement construction, for example, will generate air-borne particulates. Dust control measures, such as regular watering and sprinkling, will be implemented to minimize wind-blown emissions. The ground surface of the proposed entrance facility will be covered by either asphalt or vegetation to minimize sources of dust releases into the air over the long term.

1.9.2 Noise

Short term noise impacts associated with construction activities from project construction may occur. Since the immediate neighbors engage in industrial activities which produce noise, the contribution to the noise level from this project will be minor. Construction activities will be restricted to normal daylight working hours, from Monday through Friday, excluding certain holidays. Landfill and entrance facility functions such as weighing and recycling do not generate loud noises for the long term.

1.9.3 Odor

Long term impacts can be greatly reduced through proper operation and maintenance of the landfilling operation. Odor problems will be minimized through good housekeeping procedures, such as proper waste handling and soil covering. The impacts of air pollution on adjacent properties will be minimal. Mixed municipal solid waste remaining after recyclables are removed will be collected in compactors, which will not only compress the waste but hold it in closed containers minimizing its exposure to air and reducing odor releases into the air. The compactors in the self-haul disposal area are enclosed except for the feed hopper which empties into the enclosure. Hauling the compactors when full will remove odor sources from the entrance facility to the landfill where they will be covered by soil on a daily basis. No organic recyclable commodities will be collected which minimizes odor releases into the air. The area will be monitored as recommended by the Department of Health so that contamination with odor causing residues is reduced. The roll-offs in the recycling area will have screened covers and the smaller containers will have lids. The reuse facility will only handle inert materials with no odor sources.

1.10 VISUAL RESOURCES

With regard to litter problems from landfilling activities and to reduce litter problems encountered by the expansion, a litter control plan is included in the Operations Manual for Phase IV. Included are: Caron wheels on the compactors to increase compaction and reduce the amount of litter that is carried away by area winds, and portable litter control fences at the working face of the landfill. The entrance facility provides residents and small commercial handlers with a place to deposit municipal waste, thus keeping them off the working face so that the County can better control the size of the face and manage the waste compaction. These measures ensure a greater control over litter (Fujioka, *Final EIS*, 1996). Slopes and other unpaved surfaces will be covered with groundcover. A xeriscape of native plants will be established as recommended by the County Department of Water Supply. Windbreak landscaping includes 270 hibiscus planted along Pulehu Road to mitigate the visual impact of the entrance facility and landfill activities. Drought resistant trees will be established which will function as a windbreak and visual barrier. A landscaping plan will be prepared which meets the water and wind conditions of the site. A chainlink fence with locked gates will secure the entrance facility. Security and waste screening procedures recommended by the Department of Health will be implemented.

2. COMMUNITY SETTING

2.1 POPULATION

On a short term basis, the project will support construction and construction related employment.

2.2 ECONOMY

The entrance facility will not create additional employment.

2.3 COMMUNITY SERVICES

The proposed action will not increase demands placed upon police, fire and medical services. The proposed entrance facility should have no effect on recreational activities.

2.4 TRAFFIC

A traffic assessment for Pulehu Road and Hana Highway was conducted at the request of the Department of Transportation. See Appendix B. Traffic volume is not expected to increase beyond current levels due to the construction of the proposed entrance facility. The current traffic stream will split between the proposed entrance and the existing entrance. Greenwaste, pallets, sewage sludge, wood waste, fats, oil, and grease will be received at the current landfill entrance. Recyclables and refuse will be received at the proposed entrance facility. Traffic flows in a series of one-way loops minimizing intersections with cross traffic and maximizing merging lanes.

The facility traffic pattern has the following components:

1) The access road has two incoming lanes and one egress lane.

2) The perimeter road loops around the office, reuse, and recycling employee, customer, and service areas, passes the scale and self-haul disposal area with an offshoot to the wash slab and landfill and an exit loop back out to Pulehu Road.

3) Employees enter the office area from the incoming roadway, park and exit out the outgoing lane of the same roadway.

4) Customers enter the reuse facility from the incoming roadway, park and either exit to the outgoing lane of the access roadway or exit to the recycling area.

5) Customers enter the recycling area from the incoming roadway, park, and exit onto the perimeter loop after the first turn.

6) Commercial customers exit the perimeter loop to the scale loop for weighing, take a right to the landfill, and return around the self-haul disposal area and onto the perimeter loop to exit.

7) Self-haul commercial customers exit the perimeter loop to the scale loop for weighing, proceed to the self-haul disposal bins, and onto the perimeter loop to exit.

8) Residential customers with refuse pass the scale for payment while they travel on the perimeter road, proceed to the self-haul disposal bins, and onto the perimeter loop to exit.

9) Self-haul recycling customers, commercial and/or residential travel the by-pass lane, continue on the perimeter loop and exit.

10) Loop turns are sufficiently wide to accommodate low boys for hauling heavy equipment in and out of the landfill for servicing.

Horizontal sight distance in both directions along Pulehu Road from the access road to the proposed entrance facility was checked by a licensed surveyor to verify County standards are met for vehicles turning into and out of the facility. Vertical sight distance was also checked in both directions along Pulehu Road by a licensed surveyor and the driver's line of vision meets County standards. Left-turn warrants provided by the County Engineering Division were evaluated for a left-turn storage lane on Pulehu Road. Based on available data for opposing traffic and left-turn traffic volumes, a left-turn storage lane is not required.

2.5 WATER

There is no County water system hook-up for the new entrance facility. A well or storage tank will provide water for potable use and fire flow. If a tank is used, it will be sited on the upper terrace and store 100,000 gallons. The system will have the following features:

- A separate piping system,
- No cross connections with wastewater,
- A concrete pad for the tank,

- A concrete pad for the truck to deliver water so that no dust sources mix with the water flow from truck to tank,
- A tank with materials meeting the specifications of the National Sanitation Foundation,
- A covered connection to the tank to minimize dust and dirt from mixing with the water flow from truck to tank,
- A lockbox to secure the water connection so that no non-potable water can be placed into the tank in error.

The water hauler will be certified by the State of Hawaii Department of Health Clean Water Branch. Water hauling will be contracted.

2.6 WASTEWATER

An underground septic tank and absorption trenches will be installed to address wastewater needs generated by the entrance facility. The applicant will coordinate with the Department of Health to ensure compliance with applicable regulations.

2.7 ELECTRICITY AND TELEPHONE

Electrical and telephone requirements for the entrance facility will be addressed by Maui Electric Company, Ltd. and Verizon Hawaii.

Roadway height clearance for service vehicles will be at least 18 feet.

2.8 LANDFILL DESIGN MODIFICATIONS

The impact of the liner modifications and leachate management improvements are to ensure that groundwater is protected. The gas collection system ensures that landfill gas emissions are controlled. Surface waters are protected by an adequate stormwater system.

4. RELATIONSHIPS TO GOVERNMENT PLANS, POLICIES, AND CONTROLS

RELATIONSHIPS TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

1. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission, establishes the four major land use districts in which all lands in the State are placed. These districts are designated *Urban*, *Rural*, *Agricultural* and *Conservation*. The subject parcel is within the *Agricultural* district. Sanitary landfilling and quarrying activities are not included in the list of permitted uses. A State Special Use Permit was issued for the landfill expansion in July 1997. Another Special Use Permit application is being submitted for the entrance facility and related improvements.

1.1 SPECIAL USE PERMIT

A Special Use Permit is granted by the Land Use Commission for an "unusual and reasonable" use within the State Agricultural District. In accordance with Section 205-6, HRS, the proposed project meets the criteria for issuance of a Special Use Permit.

1.2 SPECIAL USE PERMIT CRITERIA

Guidelines to determine an "unusual and reasonable use" are found in the Statutes and are as follows:

1) *The use shall not be contrary to the objectives sought to be accomplished by chapters 205 and 205A, HRS, and the rules of the commission;*

The entrance facility and related improvements are an integral part of the landfill which is not a permissible use within an agricultural district. According to HRS 205-4.5 (7) "solid waste transfer stations" however, are included as a permitted use. It is noted that the entrance facility is very similar in use and function to a solid waste transfer station. The proposed action complies with HRS 205A pertaining to coastal zone management and special management areas.

2) *The desired use would not adversely affect surrounding property;*

Mitigating measures described in previous sections ensure that the entrance facility and related improvements do not adversely affect surrounding property. Measures are taken to protect groundwater, surface waters, air quality, and enhance the land use.

3) *The use would not unreasonably burden public agencies to provide roads and streets, sewers, water drainage and school improvements, and police and fire protection;*

The proposed use relocates the landfill and related weighing, recycling, and reuse functions putting minimum demand on community infrastructure and services.

4) *Unusual conditions, trends, and needs have arisen since the district boundaries and rules were established; and*

The island economy has further diversified from agriculture to the resort industry and retail trade accommodating two and a third million visitors annually which places further demand on solid waste facilities.

5) *The land upon which the proposed use is sought is unsuited for the uses permitted within the district.*

Much of the parcel has been quarried and the topsoil removed so that its use is unsuitable for agriculture.

2. MAUI COUNTY GENERAL PLAN

The Maui County General Plan (1990 Update) sets forth broad objectives and policies to help guide the long range development of the County. As stated in the Maui County Charter: *"The purpose of the General Plan is to recognize and state the major problems and opportunities concerning the needs and development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns, and characteristics of future development."* The proposed action is in keeping with the following General Plan objectives and policies.

Objective: *To provide efficient, safe, and environmentally sound systems for the disposal and reuse of liquid and solid wastes.*

Policy: *Explore new waste disposal methods that are safe, economical, environmentally sound, and aesthetically pleasing, and that minimize the disposal of wastes in landfills.*

Response: The new entrance facility segregates larger commercial truck traffic from the smaller users, resulting in a safer and more efficient operation. Moreover, a recycling area and reuse center provide convenient drop-off points which allow for additional landfill diversion.

3. WAILUKU-KAHULUI COMMUNITY PLAN

The proposed entrance facility is designated "Agricultural" in the County's Wailuku-Kahului Community Plan. The proposed project is not contrary to the Community Plan designation for the site.

4. ZONING

The proposed entrance facility is zoned "Agricultural" and a Conditional Permit application will be submitted to the Planning Department.

5. SPECIAL MANAGEMENT AREA

The subject property is considered to be within the State's Special Management Area (SMA). Pursuant to Chapter 205A, Hawaii Revised Statutes, projects located within the SMA are evaluated with respect to SMA objectives, policies, and guidelines. This section addresses the project's relationship to applicable coastal zone management considerations, as set forth in Chapter 205A. Objectives, policies, and responses follow for each of the considerations for the SMA. The project is not within the County's SMA so only the State criteria are addressed.

5.1 RECREATIONAL RESOURCES

Objective:
Provide coastal recreational resources accessible to the public.

Policies:

a. Improve coordination and funding of coastal recreational planning and management; and

b. Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreation activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having recreational value, including but not limited to surfing sites, fishponds and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the State for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect and where feasible, restore the recreational value of coastal waters;

(vii) Developing new shoreline recreational opportunities where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the Land Use Commission, Board of Land and Natural Resources, County Planning Commission; and crediting such dedication against the requirements of Section 46-6 of the Hawaii Revised Statutes.

Response:
The proposed project is located inland from the shoreline and is therefore not anticipated to affect existing coastal or inland recreational resources.

5.2 HISTORICAL/CULTURAL RESOURCES

Objective:
Protect, preserve and where desirable, restore those natural and man-made historic and prehistoric resources in the coastal zone management area that are in Hawaiian and American history and culture.

Policies:
a. Identify and analyze archaeological resources;

b. Maximize information retention through preservation of remains and artifacts or salvage operations; and

c. Support State goals for protection, restoration, interpretation, and display of historic resources.

Response:
The entrance facility as well as landfill areas have been previously disturbed. However, should historic or cultural materials be found, work will cease in the vicinity of the find and the State Historic Preservation Division will be notified to determine appropriate mitigation measures.

5.3 SCENIC AND OPEN SPACE RESOURCES

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

Policies:

a. Identify valued scenic resources in the coastal zone management area;

b. Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural land forms and existing public views to and along the shoreline;

c. Preserve, maintain and, where desirable, improve and restore shoreline open space and scenic resources; and

d. Encourage those developments which are not coastal dependent to located in inland areas.

Response:
Improvements to the subject property are not expected to adversely impact coastal ecosystems. Erosion control measures will be implemented during construction to ensure that coastal ecosystems are not impacted.

5.4 ECONOMIC USES

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

Policies:

a. Concentrate coastal dependent development in appropriate areas;

b. Ensure that coastal dependent development such as harbors and ports, and coastal related development, such as visitor facilities and energy-generating facilities are located, designed and constructed to minimize adverse social, visual, environmental impacts in the coastal zone management area; and

c. Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when;

(i) Use of presently designated locations is not feasible;
(ii) Adverse environmental effects are minimized; and
(iii) The development is important to the State's economy.

Response:
The project would have a beneficial short term impact on the local economy during construction. In the long term the project enhances landfill operations and encourages recycling and reuse. In this context, the proposed project indirectly contributes toward maintaining and enhancing the region's long-term economic stability.

5.5 COASTAL HAZARDS

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

Policies:

a. Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and non-point source pollution hazards;

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

c. Ensure that developments comply with requirements of the Federal Flood Insurance Program; and

d. Prevent coastal flooding from inland projects; and

e. Develop a coastal point and non-point source pollution control program.

Response:
The project site is entirely within Flood Zone C outside the tsunami inundation limits and subject to minimal flooding. Erosion control measures will be incorporated during the construction period to minimize soil loss and erosion hazards. No adverse drainage impacts to downstream properties should result from the proposed project.

5.6 MANAGING DEVELOPMENT

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

Policies:

a. Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal development;

b. Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and

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

Response:
This Draft Environmental Assessment is prepared for public review in compliance with Chapter 343, Hawaii Revised Statutes, and Chapter 200 of Title 11, Administrative Rules, Environmental Impact Statement Rules. In addition, a State Special Use Permit application and County Conditional permit application are being prepared. Applicable State and County requirements will be adhered to in the design and construction of the proposed project.

5.7 PUBLIC PARTICPATION

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

Policies:

a. Maintain a public advisory body to identify coastal management problems and to provide public advice and assistance to the coastal zone management program;

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

c. Organize workshops, policy dialogues, and site-specific mediation to respond to coastal issues and conflicts.

Response:

As noted previously, public input is being solicited through the Environmental Assessment, State Special Use Permit application, and County Conditional Permit application. The proposed project meets the objective of public awareness, education, and participation.

5.8 BEACH PROTECTION

Objective:

Protects beaches for public use and recreation.

Policies:

a. Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;

b. Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved aesthetic and engineering solutions to erosion at the sites and fo not interfere with existing recreational and waterline activities;

c. Minimize the construction of public erosion-protection structures seaward of the shoreline.

Response:

The project site is located approximately 3 miles inland from the nearest shoreline. Consequently the proposed project is not anticipated to adversely impact any beaches in the vicinity.

5. UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

UNAVOIDABLE ADVERSE ENVIRONMENTAL IMPACTS

The unavoidable adverse environmental impacts are both short term and construction related. These impacts primarily relate to dust, noise, hydrocarbon emissions, and traffic increase associated with construction activities.

1. DUST

Dust that becomes airborne when soil is excavated is mitigated by adding water to the soil so that it is properly moisturized to minimize fugitive dust. A water truck will keep graded areas moist during construction during working hours. Landscaping will be established early in the project.

2. NOISE

Construction will be limited to daylight hours.

3. HYDROCARBON EMISSIONS

Construction is projected to occur for a period of approximately six months. The tradewinds will disperse equipment emissions.

4. TRAFFIC INCREASE

There will be an increase in traffic at the site during construction as workers report to their jobs. The entry from Pulehu Road would be constructed first to accommodate the increased traffic to the site. All construction worker parking can be accommodated on site. The number of workers on site will vary with each phase of construction from earthwork to building.

6. ALTERNATIVES

ALTERNATIVES

1. NO ACTION

The no action alternative is to keep the landfill expansion as projected next to Pulehu Road with the attendant litter and odor problems to be mitigated. The existing entrance does not provide direct access to the landfill expansion so that a ford over Kalialinui Gulch is required. Neighboring land users are concerned about the impact of landfill traffic fording the gulch, especially during inclement weather when the gulch flows. The gulch crossing also imposes hardships on commercial and County customers who would be required to use the existing landfill road, an undulating surface built over refuse, as well as an indirect and lengthy route which runs the perimeter of Phases I and II, crossing the landfill at the boundary between Phase II and III.

2. PROPOSED ACTION

The proposed entrance facility provides direct access to the landfill expansion without commercial and County trucks fording the gulch, which becomes impassible when it flows. Additionally, it provides the public a safe alternative to disposing of their refuse at the landfill face and provides additional opportunity for recycling which has the effect of increasing landfill life. The proposed landfill entrance facility is more beneficial for neighbors, customers, and the public than the no action alternative.

7. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

SUMMARY OF COMMITTED RESOURCES

The proposed action will involve the use of County funds as well as commitment of energy, capital, labor, and material resources. Once committed, these resources will be irreversible and irretrievable. However, they are measurable and consumed over a period of time. There are no other irreversible and irretrievable commitment of resources anticipated.

8. FINDINGS AND CONCLUSIONS

FINDINGS AND CONCLUSIONS

1. SUMMARY

The proposed action is to construct an entrance facility for the Central Maui Landfill expansion on five acres of the Phase IV parcel designated for landfilling and related improvements. The entrance facility has the following components: entry road, perimeter road, self-haul recycling and service area, self-haul disposal and service area, reuse center, office building, scale and scale house, and wash slab for heavy equipment. Other improvements are primarily value engineered improvements. The proposed action and its impacts, both short term and long term, are evaluated below with respect to the "Significance Criteria" of Section 11-200-12 of the Administrative Rules.

2. SIGNIFICANCE CRITERIA

1) *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;*

Response: The proposed entrance facility and related improvements are located at a site which has been cultivated for sugarcane and quarried. The natural resource of basalt has been mined and there are no known cultural resources.

2) *Curtails the range of beneficial uses of the environment;*

Response: The range of beneficial uses of the environment is expanded by the proposed entrance facility which, instead of filling the land with refuse as previously planned, includes structures for recycling and reusing materials. Other value engineered improvements have no effect on beneficial uses of the environment.

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

Response: The design and construction of the proposed entrance facility and related improvements will follow the state's environmental policies, goals, and guidelines as discussed in Chapter 344, HRS.

4) *Substantially affects the economic or social welfare of the community or state;*

Response: The proposed entrance facility provides safer options for the public to dispose of their refuse in addition to recycling and reuse opportunities. The effect of these activities on the community is beneficial, since the waste disposed by the customer is still disposed. The disposal method for some materials is recycling instead of landfilling.

5) *Substantially affects public health;*

Response: The proposed entrance facility enhances the process of waste disposal for the public, but does not substantially affect public health as it is a collection facility only, an adjunct to the landfill. Other value engineered improvements will not substantially affect public health.

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

Response: The proposed action involves solid waste disposal at the proposed entrance facility as at the existing landfill with no population change or further demand on public facilities.

7) *Involves a substantial degradation of environmental quality;*

Response: The proposed entrance facility and related improvements enhances the environmental quality of the municipal solid waste function, by providing structures for recycling and reuse and equipment for waste disposal in clean, dedicated areas away from the landfill.

8) *Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;*

Response: The proposed entrance facility simply re-routes traffic and provides landfill customers with the opportunity to recycle and reuse in a clean and safe manner.

9) *Substantially affects a rare, threatened, or endangered species, or its habitat;*

Response: The location of the proposed entrance facility has no rare, threatened, or endangered species or habitat for them.

10) *Detrimentally affects air or water quality or ambient noise levels;*

Response:

- The proposed entrance facility will have covered containers to control odors emanating from any recyclables or municipal solid waste.
- Equipment and vehicles entering the facility do not increase noise levels over those already experienced at the landfill site.
- Since the facility is paved and landscaped, with stormwater drainage, there is no impact on the underlying groundwater.
- Value engineered improvements have no effect on air or water quality or ambient noise levels.

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

Response: The proposed entrance facility and related improvements are located upslope of Kalialinui Gulch and any stormwater effects on the gulch are mitigated by the stormwater collection and storage system. The facility is not located in any environmentally sensitive areas nor does it affect any.

12) *Substantially affects scenic vistas and viewplanes identified in county or state plans or studies;*

Response: The proposed entrance facility is located in the central area of Maui, a low point in elevation without substantially affecting scenic vistas or viewplanes.

13) *Requires substantial energy consumption.*

Response: The power requirements of the scale, office, and equipment at the proposed entrance facility are not substantial, and do not represent a substantial increase over the requirements at the existing facility.

3. CONCLUSION

The County of Maui, Department of Public Works and Waste Management, Solid Waste Division finds the proposed entrance facility and related improvements have no significant impact on the environment.

9. PERMITS AND APPROVALS

PERMITS AND APPROVALS

1. STATE OF HAWAII

1.1 DEPARTMENT OF HEALTH

1.1.1 Office of Solid Waste Management

The Department of Health requires a Solid Waste Management Permit for the recycling/reuse center and transfer station within the entrance facility. The permit requires an Operations Plan.

1.1.2 District Environmental Health Office

The District office of the Department of Health requires a review of the detailed wastewater plans for conformance to the rules.

1.1.3 Safe Drinking Water Branch

The water tank, its materials and fabrication and water distribution system will meet the requirements of the Safe Drinking Water Branch. The water hauler will be state certified and the source will be an approved source.

1.2 LAND USE COMMISSION

The State Land Use Commission requires an amendment to the Special Use Permit for the landfill expansion to include the entrance facility.

2. COUNTY OF MAUI

The County requires a Conditional permit, building and grading permits.

10. AGENCIES CONSULTED DURING EARLY CONSULTATION: LETTERS AND APPLICABLE RESPONSES

EARLY CONSULTATION MAILING LIST
ENTRANCE FACILITY
CENTRAL MAUI LANDFILL

NEIGHBORS (new)

Mr. Rubens Fonseca, General Manager
Maui EKO Systems Inc.
P.O. Box 1065
Puunene, HI 96784

Mr. Hideo Kawahara
A & B Properties Inc.
33 Lono Ave., Suite 400
Kahului, HI 96732

Mr. Cleve Okamura, General Manager
Hawaiian Bitumuls Paving & Precast Company
P.O. Box 848
Puunene, HI 96784

Mr. Norman Shinno, General Manager
Grace Pacific Corporation
P.O. Box 330838
Kahului, HI 96732

Mr. Eric Yoshizawa, General Manager
Ameron Hawaii Maui Office
P.O. box 86
Puunene, HI 96784

Kahului Town Association
P.O. Box 1643
Kahului, HI 96732

NEIGHBORS (EIS letters)

Mr. James R. Judge
2233 Vineyard Street, Suite B
Wailuku, HI 96793

Mr. Richard Cameron
Plantation General Manager
Hawaiian Commercial and Sugar Company
P.O. box 266
Puunene, Maui, Hawaii 96784

EARLY CONSULTATION MAILING LIST – page 2

COUNTY (new, routed in mail room or office)

Mr. Tom Phillips, Chief
Police Department

Mr. Clayton Ishikawa, Chief
Fire Department

COUNTY (EIS letter, routed in mail room or office)

Mr. David R. Craddick, Director
Department of Water Supply

Mr. Floyd Miyazono, Director
Department of Parks and Recreation

Mr. John E. Min, Director
Planning Department

UTILITIES (new)

Ms. Sharon Westfall
Engineeering
Maui Electric Company, Ltd.
210 W. Kamehameha Ave.
Kahului, HI 96732

Verizon Hawaii
60 S. Church
Wailuku, HI 96793

Mr. Ralph Kubota
Engineering
Maui Electric Company, Ltd.
210 W. Kamehameha Ave.
Kahului, HI 96732

PRIVATE INDUSTRY (EIS letter)

Mr. Chris Wayne, President
Waste Converters International, Inc.
1135 Makawao Ave., Suite 103-331
Makawao, Maui, Hawaii 96768

FEDERAL (EIS letter)

Mr. William Meyer, District Chief
United States Department of the Interior
U.S. Geological Survey
Water Resources Division
677 Ala Moana Boulevard, Suite 415
Honolulu, Hawaii 96813

Mr. Paul Mizue, P.E.
Planning and Operations Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Fort Shafter, HI 96858-5440

Mr. Kenneth M. Kaneshiro
State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
P.O. Box 50004
Honolulu, HI 96850-0001

Mr. Stanford B.C. Yuan, P.E., Commander
Department of the Navy
Naval Base Pearl Harbor
Box 110
Pearl Harbor, Hawaii 96860-5020

PERMITTERS (new)

Ms. Esther Ueda, Executive Officer
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804-2359

PERMITTERS (EIS letter)

Ms. Genevieve Salmonson, Director
Office of Environmental Quality
235 S. Beretania St., #702
Honolulu, Hawaii 96813

REGULATORS (new)

Ms. Lene Ichinotsubo, Solid Waste Coordinator
State of Hawaii, Department of Health
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Mr. Steven Y.K. Chang, P.E., Chief
State of Hawaii, Department of Health
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

Mr. Gary Siu, P.E., Environmental Engineer
State of Hawaii, Department of Health
Solid and Hazardous Waste Branch
919 Ala Moana Boulevard, Room 212
Honolulu, HI 96814

STATE (EIS letter)

Mr. Herbert S. Matsubayashi
Chief Sanitarian, Maui
State of Hawaii Department of Health
Maui District Health Office
54 High Street
Wailuku, Maui, Hawaii 96793

Ms. Linda M. Colburn, Administrator
State of Hawaii, Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Mr. Don Hibbard, Administrator
State Historic Preservation Division
State of Hawaii, Department of Land and Natural Resources
33 South King Street, 6th floor
Honolulu, HI 96813

Director
State of Hawaii
Department of Transportation
869 Punchbowl St.
Honolulu, HI 96813-5097

Mr. Maurice H. Kaya
Energy, Resources, and Technology Program Administrator
State of Hawaii
Department of Business, Economic Development, and Tourism
395 Merchant St., Room 110
Honolulu, HI 96813

Mr. Gregory G.Y. Pai, Ph.D, Director
State of Hawaii
Office of State Planning
P.O. Box 3540
Honolulu, HI 96811-3540

Mr. John T. Harrison, Environmental Coordinator
Environmental Center
University of Hawaii at Manoa
Crawford 317, 2550 Campus Road
Honolulu, HI 96822

Mr. Gordon Matsuoka
State Public Works Engineer
DAGS, Division of Public Works
P.O. Box 119
Honolulu, HI 96810

Mr. Rae M. Loui, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 620
Honolulu, HI 96809

Mr. Roy S. Oshiro, Executive Director
State of Hawaii
Department of Budget and Finance
Housing Finance and Development Corporation
677 Queen Street, Suite 300
Honolulu, HI 96813

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA, PH.D.
DIRECTOR
SHARON S. NARIMATSU
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

ENERGY, RESOURCES & TECHNOLOGY DIVISION
235 South Beretania Street, State Office Tower, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804
Web site: www.hawaii.gov/dbedt/ert

Telephone: (808) 587-3807
Fax: (808) 586-2536

January 26, 2001

Elaine Baker, P.E.
County of Maui
Department of Public Works and Waste Management
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Baker:

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
TMK 3-8-03:4

Thank you for the opportunity to provide early consultation comments on the subject project. We would like to call your attention to: (1) State energy conservation goals, (2) energy saving design practices and technologies, and (3) recycling and recycled-content products.

1. **State energy conservation goals.** Project buildings, activities, and site grounds should be designed with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c)(4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies.

A proposed Energy Code is before the Maui County Council that we recommend you consult early on in your project. Maui Electric Co., Inc may also have demand-side management programs that offer rebates for installation of energy efficient technologies.

2. **Energy saving design practices and technologies.** We recommend that you specifically address energy efficient design practices and technologies in this project. Some of the methods and technologies that could be considered, as appropriate, during the design phase of the project include:

- Use of natural ventilation to increase comfort of occupants;
- Maximum use of natural lighting without heat gain;

- Use of high efficiency compact fluorescent lighting;
- Use of insulation/radiant barrier for an equivalent R-19 value in ceiling; use of ceiling fans; and
- Us of landscaping for dust control and to minimize heat gain to area.

3. **Recycling and recycled-content products.**
- Develop a job-site recycling plan for the construction phase of the project and recycle as much construction and demolition waste as possible;
- Incorporate provisions for recycling into the built project – a collection system and space for bins for recyclables; and
- Specify and use products with recycled content such as: steel, concrete aggregate fill, drywall, carpet and glass tile.

Please refer to the attached *Guidelines for Sustainable Building Design In Hawaii: A planner's checklist* for additional information.

Sincerely,

for Maurice H. Kaya
Energy, Resources, and Technology
Program Administrator

Attachment

OEQC

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 30, 2001

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

Mr. Maurice H. Kaya
Energy, Resources, and Technology Program Administrator
State of Hawaii
Department of Business, Economic Development & Tourism
Energy, Resources & Technology Division
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Kaya:

Thank you for your comments on this project in your letter of January 26, 2001.

Your comments regarding State energy conservation goals, energy saving design practices and technologies, and recycling and recycled-content products are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

RECEIVED
2001 FEB -2 AM 9:47
SOLID WASTE DIVISION
DEPT. OF PUBLIC WORKS

February 1, 2001

MEMO TO: Ms. Elaine Baker, P.E., Solid Waste Management Division
Department of Public Works and Waste Management

FROM: John E. Min, Planning Director

SUBJECT: Early Consultation for Environmental Impact Statement (EIS) Supplement for the Proposed Entrance Facility, Central Maui Landfill Expansion, Tax Map Key: 3-8-003:004 (96/SUP-0009)

The Planning Department (Department) received your letter of January 5, 2001, for early consultation for the EIS Supplement for the proposed entrance facility to the landfill.

The Department's Zoning and Flood Confirmation Request Form has been completed for you and is attached for your use. The State Land Use and the Community Plan land use classification, and the zoning district are agricultural. The Flood Hazard Area Zone is "C." The project is not in the floodway and no Flood Development Permit is required, provided that no work is done in any drainage facility or stream area that would reduce the capacity of the drainage facility, river or stream, or adversely affect downstream property.

If you have any questions, please call Julie Higa, Staff Planner, of this office at 270-7814.

JEM:JH:cmb
Attachment
c: Clayton Yoshida, AICP, Deputy Planning Director
Aaron Shinmoto, Program Planning Administrator
Julie Higa, Staff Planner
Project File (w/Attachment)
General File
S:\ALL\JULIE\ENVIRON\M\central maui landfill\prelimsa.ltr.wpd

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HEROSE
Solid Waste Division

March 30, 2001

Mr. John E. Min, Planning Director
County of Maui
Department of Planning
250 South High Street
Wailuku, HI 96793

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Min:

Thank you for your comments on this project in your letter of February 1, 2001.

Your comments regarding the land use classification and zoning for the Central Maui Landfill expansion are included in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

Verizon Hawaii Inc.

verizon

60 So. Church Street
Wailuku, HI 96793

Phone 808.242.5276

January 30, 2001

Ms. Elaine Baker
County of Maui
Department of Public Works and
Waste Management
Solid Waste Division
200 S. High Street
Wailuku, HI 96793

SUBJECT: Proposed Entrance Facility
Central Maui Landfill Expansion
TMK: 3-8-03:4

Dear Ms. Baker

Thank you for the opportunity to comment on the County's plans for the proposed Entrance Facility, Central Maui Landfill Expansion, TMK: 3-8-046:26. Verizon Hawaii has aerial infrastructure along Pulehu Road. The telephone cables along Pulehu Road should have a ground clearance of 16 feet with a minimum of 18 feet clearance across the roadway. Should the County require additional height at the entrance to this project, an aid to construction cost to raise the telephone cables will be applicable.

Should you require further information or need assistance in this matter, please call me at 242-5107.

Sincerely,

Jerry S. Imai
Project Designer

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 30, 2001

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

Mr. Jerry S. Imai
Project Designer
Verizon Hawaii Inc.
60 So. Church Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Imai:

Thank you for your comments on this project in your letter of January 30, 2001.

Your comments regarding aerial infrastructure are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

Maui Electric Company, Ltd. • 210 West Kamehameha Avenue • PO Box 398 • Kahului, Maui, HI 96733-6898 • (808) 871-8461

☐RUSH

'01 FEB 12 A8:33

COUNTY OF MAUI
PUBLIC WORKS

February 9, 2001

Via Facsimile (270-7955) and Mail

Ms. Elaine Baker, P.E.
County of Maui
Department of Public Works
and Waste Management
Solid Waste Division
200 South High Street
Wailuku, Hawaii 96793

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
Tax Map Key: (2) 3-8-003:004

Dear Ms. Baker:

This is in reply to your letter dated January 5, 2001, requesting comments on the above-referenced project proposed by the Solid Waste Division.

We have no objections to the proposed project; however, we request your confirmation of the following:

1. The maximum vehicle height clearance at the project's proposed entry point on Pulehu Road will not exceed 16-feet from existing grade;

2. The proposed project entry will not conflict with the existing 23KV transmission pole line along Pulehu Road.

Thank you for providing us with the opportunity to comment on the above-captioned project.

Sincerely,

MAUI ELECTRIC COMPANY, LIMITED

Ralph Kubota
Land Agent

c: Neal Shinyama, Sharon Westfall (route)

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 30, 2001

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

Mr. Ralph Kubota
Land Agent
Maui Electric Company, Ltd.
P.O. Box 398
Kahului, Hawaii 96733

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Kubota:

Thank you for your comments on this project in your letter of February 9, 2001.

Your comments regarding aerial infrastructure are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

BENJAMIN J. CAYETANO
GOVERNOR

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

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

'01 FEB 12 P2:40

COUNTY OF MAUI
PUBLIC WORKS

IN REPLY REFER TO:

RUSH

DEPT. OF PUBLIC WORKS

HWY-PS 2.1605

DIRECTOR
DEP. DIR
PERS.
STAFF CE
LUCA
WW RECL.
SOLID W.
ENGR.
HWYS.
SECTY.

Return to______ Due______
Ref. No.______
By:______ Date:______

January 31, 2001

Mr. David Goode
Director
Department of Public Works and
Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Goode:

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
Puunene, Maui
TMK:(2)3-8-03:4

Thank you for your transmittal of January 5, 2001, requesting our comments regarding the subject proposal.

The revised Environmental Impact Statement should include a traffic assessment analyzing the traffic conditions with and without the project at the intersection of Pulehu Road with Hana Highway.

If you have any questions, please contact Mr. Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 808-587-1830.

Very truly yours,

BRIAN K. MINAAI
Director-Designate of Transportation

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 30, 2001

Mr. Brian K. Minaai
Director-Designate of Transportation
State of Hawaii
Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Minaai:

Thank you for your comments on this project in your letter of January 31, 2001.

Your comments regarding a traffic assessment analyzing traffic conditions with and without the project at the intersection of Pulehu Road with Hana Highway are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

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

In reply, please refer to:
EMD/SHW

February 28, 2001

S0214GS

Ms. Elaine Baker
County of Maui
Department of Public Works
and Waste Management
200 South High Street
Wailuku, Hawaii 96793

File: CentLF

Dear Ms. Baker:

Subject: Proposed Transfer Station at the Central Maui Municipal Solid Waste Landfill, Maui

Thank you for the opportunity to comment on the proposed transfer station concept transmitted in your letter dated January 5, 2001. We believe the installation of a transfer station would be a positive step in reducing waste management problems at the Central Maui Landfill workface.

The Department of Health (DOH) offers the following comments relating to the design and operation of the transfer station:

1. The transfer station should be manned to control the screening and receipt of waste. Other transfer stations within the state have experienced problems with the uncontrolled disposal of problem waste, vandalism, and fires. Problem waste includes derelict vehicles, tires, lead acid batteries, white goods, used oil, and bulk food waste. The County may choose to ban certain wastes from the transfer station, which may include nonresidential waste and/or specific problem waste, and divert disposal directly to the landfill.

   Security should be provided in the form of fences and gates to prevent public access after hours.

2. A written Operations Manual should be developed to direct personnel in their duties, and contain a section on screening and managing special waste. Records should be kept to facilitate management and planning. Signs should be provided at the facility to instruct the public on the correct management of general waste, special waste, and banned waste.

   The Operations Manual should include a list of special waste. Consideration should be given to the following materials: bulk food waste, various sludges including sewage, metals, used oil, cooking oils, containers including paints and fuels (propane bottles), autos and parts, tires, bulky items, and white goods. This may be an incomplete list, but is typical of waste received at transfer stations.

3. A Fire and Emergency Management Plan should be developed within the Operations Manual. The plan should include response instructions for various emergencies, including fires and chemical releases. The plan should address equipment and communication needs.

4. The Operations Manual should also address surface water drainage, leachate management, litter, vector and odor, general operations, traffic management, transfer route, closure, recordkeeping, and reporting.

We recommend that you refer to the Hawaii Administrative Rules Section 11-58.1-31, when developing the design, operations manual, and permit application for the proposed transfer station.

Should you have any questions regarding this letter, please contact Mr. Gary Siu at (808) 586-4240.

Sincerely,

STEVEN Y.K. CHANG, P.E., CHIEF
Solid and Hazardous Waste Branch

c: Mr. Andrew Hirose, County of Maui

BENJAMIN J. CAYETANO
GOVERNOR

BERT SARUWATARI
ACTING EXECUTIVE OFFICER

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

January 29, 2001

Elaine Baker, P.E.
Department of Public Works and
Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Baker:

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
TMK No.: 3-8-03: 004

This is to acknowledge receipt of your letter dated January 5, 2001, requesting comments on the subject project pursuant to Chapter 343, Hawaii Revised Statutes.

Upon review of the project summary of the proposed project, we have the following comments:

1. It appears that the proposed project area is within the State Land Use Agricultural District as shown on Figure 1, Location Map.

2. In regard to Figure 1, it appears that a portion of Phase 6 of the improvements is still part of the Ameron HC&D quarrying operation. Clarification should be provided in the Supplemental Environmental Assessment ("SEA") as to the status of this area and the timetable planned for its use as part of the landfill.

3. We would like to point out that the project is proposed for the landfill expansion that was approved in LUC Docket No. SP97-390/Department of Public Works & Waste Management, Solid Waste Division, County of Maui, pursuant to the Findings of Fact, Conclusions of Law, and Decision and Order issued July 21, 1997 ("Decision and Order").

As stated in our letter dated November 28, 2000 (copy enclosed), the proposed project would require an amendment to the Decision and Order.

4. We request a copy of the draft SEA be provided to our office when it is available.

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

If you have any questions regarding this matter, please contact me or Russell Kumabe of our office at 587-3822.

Sincerely,

BERT SARUWATARI
Acting Executive Officer

BS:RK:aa

Enclosure

c: County of Maui Department of Planning

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 30, 2001

Mr. Steven Y.K. Chang, P.E., Chief
Solid and Hazardous Waste Branch
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, HI 96801

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Chang:

Thank you for your comments on this project in your letter of February 28, 2001.

Your comments relating to the design and operation of the transfer station are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 30, 2001

Mr. Bert Saruwatari
Acting Executive Officer
State of Hawaii
Department of Business, Economic Development & Tourism
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Saruwatari:

Thank you for your comments on this project in your letter of January 29, 2001.

Your comments regarding the status and timetable for Phase 6 of the Central Maui Landfill expansion are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

BENJAMIN J. CAYETANO
GOVERNOR

BRUCE B. ANDERSON, PH.D., M.P.H.
DIRECTOR OF HEALTH
LORRIN W. PANG, M.D., M.P.H.
[redacted]
DISTRICT HEALTH OFFICER

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

January 25, 2001

Ms. Elaine Baker, P.E.
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

Dear Ms. Baker:

Subject: **Proposed Entrance Facility**
Central Maui Landfill Expansion
TMK: (2) 3-8-03:4

Thank you for the opportunity to comment on the proposed entrance facility for the Central Maui Landfill. We have the following comments to offer:

The subject project is located in a critical wastewater disposal area. All wastewater plans must conform to applicable provisions of the Department of Health's Administrative Rules, Chapter 11-62, "Wastewater Systems". We do reserve the right to review the detailed wastewater plans for conformance to the rules. Questions regarding this matter should be directed to Mr. Roland Tejano at 984-8232.

The Safe Drinking Water Branch has raised concerns about the water tank, water distribution system, the water hauler, and the source of the water. These concerns should be adequately addressed before the construction phase of the project. Mr. Gordon Muraoka should be contacted regarding the water system. He can be reached at 984-8234.

Should you have any questions, please call me at 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Roland Tejano
Gordon Muraoka
Ed Miyabara
SHWB

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

March 30, 2001

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. FISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

Mr. Herbert S. Matsubayashi
District Environmental Health Program Chief
State of Hawaii
Department of Health
Maui District Health Office
54 High Street
Wailuku, HI 96793

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Matsubayashi:

Thank you for your comments on this project in your letter of January 25, 2001.

Your comments regarding the need to review the detailed wastewater plans as well as those for the water tank, its materials and fabrication, and the water distribution system and the need to use an approved water source and certified water hauler are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

RECEIVED
2001 FEB 16 AM 7:22
OFC. OF ENVIRONMENTAL QUALITY CONTROL

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. MISHIDA
DAVID A. MORRIOA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

FEB 13 2001

Elaine Baker
Maui Department of Public Works
200 South High Street
Wailuku, Maui , HI 96973

Dear Ms. Baker:

Proposed Entrance Facility
Central Maui Landfill Expansion

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER: We understand that the new facility will require greater amounts of water, necessitating a new storage tank to increse capacity from about 1000 gallons to 100,000 gallons. We also understand that the source of water for this tank is not determined, as water must be trucked in. Please be aware that the Iao Aquifer has been overpumped beyond its sustainable yield in the recent past, and the aquifer continues to show signs it has not fully recovered. If the Commission has to designate the aquifer as a water management area, all groundwater withdrawals to the purveyor would be subject to water use permits and use reductions may be required. The service area would be subject to a declaration of a water shortage or a water emergency. If withdrawals are constrained, uses may be subject to allocation to users by the purveyor.

If there are any questions, please contact Charley Ice at 587-0251.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7199

January 16, 2001

Ms. Elaine Baker, P.E.
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Entrance Facility, Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Ms. Baker,

Thank you for the opportunity to provide comments in preparing the Supplemental Environmental Assessment. We provide the following information:

The EA should include the sources and expected potable and non-potable water usage. The Department of Water Supply does currently not service the project area. We recommend that the applicant provide fire protection according to system standards.

We encourage the applicant to consider enhancing the proposed entrance facility with a xeriscaped native plant garden. A small demo-garden displaying native plants and xeriscaping principles would require no irrigation once established and serve to educate the public in water conservation practices, including uses for greenwaste in landscaping. Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species. The Department of Water Supply would provide support and assistance in plant selection, purchase and establishment. Please refer to the "Maui County Planting Plan" and the attached documents: "Saving Water in The Yard - What and How to Plant in Your Area".

To further conserve water resources, the applicants should consider these measures where appropriate:
Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.
Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs.
Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.
Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site.
The project overlies the Paia aquifer. The Department of Water Supply strives to protect the integrity of surface water and groundwater resources by encouraging applicants to adopt best management practices (BMPs) relevant to potentially polluting activities. We list a few BMP references here. Additional information can be obtained from the State Department of Health.

"The Megamanual - Nonpoint Source Management Manual - A Guidance Document for Municipal Officials." Massachusetts Department of Environmental Protection.
"Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." United States Environmental Protection Agency, Office of Water.

If you need additional information, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering division

attachments:
1) "The Costly Drip"
2) "Saving Water in the Yard: What & How to Plant in Your Area"
3) Ordinance 2108 - "An ordinance amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"

S:\PLANNING\EMB\Permit letters\Central landfill entrance.wpd

By Water All Things Find Life

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 30, 2001

Ms. Linnel T. Nishioka
Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, HI 96809

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Ms. Nishioka:

Thank you for your comments on this project in your letter of February 13, 2001.

Your comments recommending coordination with the county government to incorporate this project into the county's Water Use and Development Plan are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

March 30, 2001

Mr. David Craddick
Director
Department of Water Supply
County of Maui
P.O. Box 1109
Wailuku, HI 96793-7109

SUBJECT: Proposed Entrance Facility and Related Improvements
Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Mr. Craddick:

Thank you for your comments on this project in your letter of January 16, 2001.

Your comments regarding sources and expected potable and non-potable water usage and landscaping with a xeriscaped native plant garden are addressed in the Draft Supplemental Environmental Assessment.

If you have any questions, please call me at 270-7872.

Sincerely,

Elaine Baker, P.E.

Elaine Baker, P.E.

BENJAMIN J. CAYETANO
GOVERNOR

STATE OF HAWAII
DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT, AND TOURISM
HOUSING AND COMMUNITY DEVELOPMENT CORPORATION OF HAWAII
677 QUEEN STREET, SUITE 300
Honolulu, Hawaii 96813
FAX: (808) 587-0600

SHARYN L. MIYASHIRO
ACTING EXECUTIVE DIRECTOR

ROBERT J. HALL
ACTING EXECUTIVE ASSISTANT

IN REPLY REFER TO:
01:PEO/0107

January 11, 2001

Ms. Elaine Baker, P.E.
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Baker:

Re: Proposed Entrance Facility, Central Maui Landfill Expansion

We have reviewed the project summary for the proposed entrance facility for the Central Maui Landfill Expansion and have no comments to offer at this time.

Thank you for the opportunity to comment.

Sincerely,

Sharyn L. Miyashiro
Acting Executive Director

BENJAMIN J. CAYETANO
GOVERNOR

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

LETTER NO. (P)1021.1

JAN 17 2001

Ms. Blaine Baker, P.E.
Department of Public Works
and Waste Management
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Baker:

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
TMK: 3-8-03:4

Thank you for the opportunity to review the project summary prior to revising the Environmental Impact Statement.

The project does not impact any Department of Accounting and General Services' projects or existing facilities. Therefore, we have no comments to offer.

Should you have any questions, please have your staff call Mr. Allen Yamanoha of the Planning Branch at 586-0488.

Sincerely,

GORDON MATSUOKA
Public Works Administrator

AY:mo

ORIGINAL

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE

YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
Fax (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

January 17, 2001

MEMORANDUM

TO : ELAINE BAKER, P.E.
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT

FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE
DEPARTMENT OF POLICE

SUBJECT : PROPOSED ENTRANCE FACILITY
CENTRAL MAUI LANDFILL EXPANSION
TMK 3-8-03:4

Thank you for your letter of January 5, 2001 requesting comments on the above subject.

We have reviewed the proposed summary and have no comments or recommendations at this time. Thank you for giving us the opportunity to comment on the proposed project.

Assistant Chief Robert Tam Ho
For: THOMAS M. PHILLIPS
Chief of Police

DEPARTMENT OF
PARKS AND RECREATION
COUNTY OF MAUI

1580-C KAAHUMANU AVENUE WAILUKU, HAWAII 96793

JAMES "KIMO" APANA
Mayor

FLOYD S. MIYAZONO
Director

ELIZABETH D. MENOR
Deputy Director

(808) 270-7230
FAX (808) 270-7934

January 24, 2001

Elaine Baker, P.E.
Department of Public Works
and Waste Management
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Baker:

SUBJECT: PROPOSED ENTRANCE FACILITY
CENTRAL MAUI LANDFILL EXPANSION
TMK 3-8-03:4

Thank you for the opportunity to review the summary for the subject project. We have no objections or comments on the proposed action.

If there are any questions, please call me or Mr. Patrick Matsui, Chief of Parks Planning and Development, at extension 7387.

Sincerely,

FLOYD S. MIYAZONO
Director

c: Patrick Matsui, Chief of Planning and Development

BENJAMIN J. CAYETANO
GOVERNOR

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

GENEVIEVE SALMONSON
DIRECTOR

January 23, 2001

Ms. Elaine Baker, P.E.
County of Maui
Dept. of Public Works &
Waste Management
200 S. High St.
Wailuku, Hi 96793

Subject: Pre-Consultation for Proposed Entrance Facility Central Maui Landfill Expansion TMK 3-8-03:4

Dear Ms. Baker,

We have reviewed the information provided for the above referenced project. As with any project, our office is concerned that all required permits and early public involvement is addressed.

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

Should you have any questions, please feel free to call me or my staff at 586-4185.

Sincerely,

Genevieve Salmonson
Director

USDA

United States Department of Agriculture

Natural Resources Conservation Service

P.O. Box 50004
Honolulu, HI
96850

Our People...Our Islands...In Harmony

January 24, 2001

Ms. Elaine Baker, P.E.
Department of Public Works and Waste Management
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Baker:

Subject: Proposed Entrance Facility
Central Maui Landfill Expansion
TMK 3-8-03:4

Thank you for the opportunity to review the attached project summary of the proposed entrance facility for the Central Maui Landfill Expansion.

We have reviewed the document and have no comments at this time.

Sincerely,

DOUGLAS W. TOEWS, P.E.
State Conservation Engineer

Attachment

cc:
Kenneth M. Kaneshiro, NRCS Honolulu
Michael Hayama, NRCS Honolulu
Neal Fujiwara, NRCS Wailuku

The Natural Resources Conservation Service works hand-in-hand with the American people to conserve natural resources on private lands.

AN EQUAL OPPORTUNITY EMPLOYER

11. LETTERS RECEIVED DURING PUBLIC REVIEW PERIOD AND APPLICABLE RESPONSES

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

'01 JUL -5 P3:41

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

July 2, 2000

LD-NAV

Ref.: SUP20012001.RCM

Honorable John E. Min
Planning Director
County of Maui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

SUBJECT: I.D.: SUP1 20001/2001 - Central Maui Landfill Expansion
TMK: 3-8-003 025, Island of Maui, Hawaii

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

We have transmitted the subject informational material to our Division of Aquatic Resources, Forestry and Wildlife, Land Division Maui District Land Office, Engineering Branch and Commission on Water Resource Management for their review and comment on the proposed project.

Attached herewith is a copy of our Land Davison Engineering Branch, Maui District Land Office and Commission on Water Resource Management comments.

The Department has no other comment to offer on the subject matter at this time. Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division's Support Services Branch at 808-587-0438.

Very truly yours,

C: Maui District Land Offic

RECEIVED
LAND DIVISION

2001 JUN 18 A 11:56

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii

June 7, 2001

LD/NAV
Ref.: SUP120001-20001.CMT

Suspense Date: 6/26/01 7/26/01 ZNAV

'01 JUN 12 PM 1:20 WATER & LAND

MEMORANDUM:

TO:
XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
000 Historic Preservation Division (RD)
XXX Commission on Water Resource Management
Land Division Branches of:
Planning and Technical Services
XXX Engineering Branch
XXX Maui District Land Office
Shoreline Processing Services

FROM: Harry M. Yada, Acting Administrator
Land Division

SUBJECT: Central Maui Landfill Expansion - TMK: 3-8-3: 25, Maui

Please review the attached material and submit your comments (if any) on your division cover letter (signed and dated) by the suspense date. Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

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

( ) We have no comments.

(X) Comments attached.

Signed: Andrew M. Monden
ANDREW M. MONDEN, CHIEF ENGINEER

Date: 6/15/01

ENGINEERING BRANCH

COMMENTS

We confirm that the proposed project site, according to FEMA Community-Panel No. 150003 0190 D, is located in Zone C (No shading). This is an area of minimal flooding.

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
ROBERT G. GIRALD
BRIAN C. NISHIDA
DAVID A. NOBRIGA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

RECEIVED
LAND DIVISION
2001 JUN 20 A 8:

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

JUN 19 2001

Ms. Elaine Baker
Maui Department of Public Works
200 South High Street
Wailuku, HI 96793

Dear Ms. Baker:

SUBJECT: Proposed Entrance Facility
Central Maui Landfill Expansion

FILE NO.: SUP1200120001.CMT

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[X] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[ ] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER: We understand that the new facility will require greater amounts of water, necessitating a new storage tank to increase capacity from about 1000 gallons to 100,000 gallons. We also understand that the source of water for this tank is not determined, as water must be trucked in. Please be aware that the Iao Aquifer has been overpumped beyond its sustainable yield in the recent past, and the aquifer continues to show signs it has not fully recovered. If the Commission has to designate the aquifer as a water management area, all groundwater withdrawals to the purveyor would be subject to water use permits. The service area would be subject to a declaration of a water shortage or a water emergency. If withdrawals are constrained, uses may be subject to allocation to users by the purveyor.

If there are any questions, please contact the Commission staff at 587-0225.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

JAMES "KIMO" APANA
MAYOR

OUR REFERENCE ty
YOUR REFERENCE

POLICE DEPARTMENT
COUNTY OF MAUI

55 MAHALANI STREET
WAILUKU, HAWAII 96793
(808) 244-6400
FAX (808) 244-6411

THOMAS M. PHILLIPS
CHIEF OF POLICE

KEKUHAUPIO R. AKANA
DEPUTY CHIEF OF POLICE

June 20, 2001

MEMORANDUM

TO : JOHN E. MIN, PLANNING DIRECTOR

FROM : THOMAS M. PHILLIPS, CHIEF OF POLICE

SUBJECT : I.D. SUP1 2001/001 & CP 21001/0015
TMK: 3-8-003:025
Project Name: Central Maui Landfill Expansion
Applicant: Ms. Elaine Baker

__X__ No further recommendation or comment is necessary or desired.

____ Refer to enclosed comments and/or recommendations.

Thank you for giving us the opportunity to comment on this project. We are returning the Application & Assessment report which was submitted for our review.

Assistant Chief Robert Tam Ho
For: THOMAS M. PHILLIPS
Chief of Police

Enclosure

United States Department of Agriculture

Natural Resources Conservation Service

210 Imi Kala St.
Suite 209
Wailuku, HI 96793

USDA

Our People...Our Islands...In Harmony

DATE: June 25, 2001

Mr. John E. Min, Director
Department of Planning
County of Maui
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min,

SUBJECT: Central Maui Landfill Expansion; TMK: 3-8-003: 025
I.D. SUP1 2001/0001, CP 2001/0015

We have no comment on the subject application.

Thank you for the opportunity to comment.

Sincerely,

Neal S. Fujiwara
District Conservationist

12563

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

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

'01 JUL -5 P3:41

July 3, 2001

Mr. John Min, Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Filing of the 2001 Annual Report for
LUC Docket No. SP7-390/Department of Public Works and Waste Management (Central Maui Landfill Expansion)

On June 28, 2001, the Land Use Commission received the 2001 annual report from Department of Public Works and Waste Management filed pursuant to Condition No. 11 of the Findings of Fact, Conclusions of Law, and Decision and Order issued on July 22, 1997 for the above referenced docket. As required by said conditions, we understand that the County of Maui, Department of Planning has been served with a copy of the annual report.

We request your assistance in reviewing the 2001 annual report and provide us with any comments you may have regarding the Department of Public Works and Waste Management's compliance with conditions.

We request that any comments that your agency may have be submitted to our office with a copy to the Department of Public Works and Waste Management by July 31, 2001. Please feel free to contact Russell Kumabe of my staff at (808) 587-3822, should you require clarification or any further assistance.

Sincerely,

for ANTHONY J. H. CHING
Executive Officer

12528

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

'01 JUL -3 P3:21

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

June 28, 2001

MEMO TO: JOHN E. MIN, DIRECTOR OF PLANNING

FROM: DAVID GOODE, DIRECTOR OF PUBLIC WORKS
AND WASTE MANAGEMENT

SUBJECT: CONDITIONAL PERMIT AND SPECIAL USE PERMIT
CENTRAL MAUI LANDFILL EXPANSION
TMK: (2) 3-8-003:025
SUP1 2001/0001 & CP 2001/0015

We have reviewed the subject application and have no comment.

DG:jso
S:\LUCA\CZM\centralmauilandfill.wpd

NRR

12576

RECEIVED
LAND DIVISION
2001 JUN 13 P 12:18

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
54 South High Street, Room 101
Wailuku, Hawaii 96793-2198

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

BENJAMIN J. CAYETANO
GOVERNOR

MEMORANDUM

DATE: June 12, 2001

TO: Mr. Joseph Alueta, Staff Planner
County of Maui, Planning Department

FROM: Louis Wada, Land Agent
Maui District Land Office

SUBJECT: SUP1 2001/0001 & CP 2001/0015, TMK: 3-8-003: 025
Central Maui Landfill Expansion

The Maui District Land Office of the Department of Land and Natural Resources has no comments on the subject Special Use Permit/Conditional Permit application at this time.

Thank you for allowing us to review the subject applications.

c: Maui Board Member
Nick Vaccaro

STATE OF HAWAII
DEPARTMENT OF HEALTH
MAUI DISTRICT HEALTH OFFICE
54 HIGH STREET
WAILUKU, MAUI, HAWAII 96793

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

LORRIN W. PANG, M.D., M.P.H.
MAUI DISTRICT HEALTH OFFICER

'01 JUL -6 A10:03

July 5, 2001

Mr. John Min
Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Min:

Subject: Central Maui Landfill Expansion
TMK: (2) 3-8-003: 025
SUP1 2001/0001 & CP 2001/0015

Thank you for the opportunity to comment on the land use applications. We have no comments to offer at this time.

Should you have any questions, please call me at 984-8230.

Sincerely,

Herbert S. Matsubayashi
District Environmental Health Program Chief

c: Phillip Dendel

2713

12595

BENJAMIN J. CAYETANO
Governor

'01 JUL -6 P3:23

State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 South King Street
Honolulu, Hawaii 96814-2512

June 6, 2001

To: John E. Min, Director
Department of Planning
County of Maui

From: James J. Nakatani, Chairperson
Board of Agriculture

Subject: Special Use Permit (SUP1-2001/1)
Central Maui Landfill Expansion
Entrance Facility
Department of Public Works and Waste Management
TMK: 3-8-03: 25 Puunene, Maui
Area: 5.3 of 29.34 acres

The Department of Agriculture has reviewed the subject application and finds that the applicant's proposal will not adversely affect the agricultural resources and activities of the area. Should you have any questions, please contact Earl Yamamoto at 973-9466.

maulandfill.s01

JAMES J. NAKATANI
Chairperson, Board of Agriculture

LETITIA N. UYEHARA
Deputy to the Chairperson

Mailing Address:
P.O. Box 22159
Honolulu, Hawaii 96823-2159

Fax: (808) 973-9613

BENJAMIN J. CAYETANO
GOVERNOR

WAYNE H. KIMURA
COMPTROLLER

DEPT OF PLANNING
COUNTY OF MAUI
RECEIVED

RESPONSE REFER TO:

FILE NO. _____

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

July 3, 2001

MEMORANDUM

TO: Mr. John E. Min, Planning Director
Maui County Planning Department

ATTN.: Mr. Joseph W. Alueta, Staff Planner

FROM: Randall M. Hashimoto, State Land Surveyor

SUBJECT: I.D.:SUP1 2001/0001 & CP 2001/0015
TMK: 3-8-003:025
Project Name: Central Maui Landfill Expansion
Applicant: Ms. Elaine Baker

The subject proposal has been reviewed and confirmed that no Government Survey Triangulation Stations and Benchmarks are affected. The Survey Division has no objections to the proposed project.

Should you have any questions, please call me at 586-0390.

Randall M. Hashimoto
RANDALL M. HASHIMOTO
State Land Surveyor

12432

BENJAMIN J. CAYETANO
GOVERNOR

ANTHONY J.H. CHING
EXECUTIVE OFFICER

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

June 28, 2001

Mr. John E. Min, Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Applications for State Special Use Permit (SUP1 2001/0001) and Conditional Permit (CP 2001/0015), Entrance Facility to Central Maui Landfill Expansion and Related Improvements, TMK 3-8-03: 25

We have reviewed the subject applications forwarded by your transmittal dated June 1, 2001, and have the following comments to add to our previous comments dated November 28, 2000, and January 29, 2001, on the subject project:

1). The 5.3-acre project site is located on a portion of the landfill expansion area approved in LUC Docket No. SP97-390/Department of Public Works and Waste Management, Solid Waste Division, County of Maui, and will serve as its entrance facility. Inasmuch as the project represents a component of this expansion area, we believe that it is more appropriate that the project be included as part of an amendment to the above docket and subject to Commission review rather than to be considered as a separate special permit under 15 acres so as to evade Commission oversight.

2) Clarification should be provided as to how the project site was determined to be 5.3 acres. Was a metes and bounds map prepared for the project? If so, it should be part of the application.

3) Clarification should be provided as to how the project is not contrary to the objectives of Chapter 205A, Hawaii Revised Statutes (Coastal Zone Management program), regarding coastal ecosystems and marine resources, pursuant to §15-15-95(b)(1), Hawaii Administrative Rules.

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

Please feel free to contact Bert Saruwatari of my office at (808) 587-3822, should you require clarification or any further assistance.

Sincerely,

ANTHONY J.H. CHING
Executive Officer

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. IWASA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

July 23, 2001

Mr. Anthony J.H. Ching
Executive Officer
State of Hawaii
Land Use Commission
P.O. Box 2359
Honolulu, HI 96804-2359

Dear Mr. Ching:

SUBJECT: Applications for State Special Use Permit (SUP1 2001/0001) and Conditional Permit (CP 2001/0015), Entrance Facility to Central Maui Landfill Expansion and Related Improvements, TMK 3-8-3:25

This letter responds to your comments of June 28, 2001.

1) The County's intention is to amend the 1997 Special Use Permit for this project, SP97-390, on formerly TMK:3-8-3: portion of 4, now 3-8-3:25.

2) The engineering consultant estimated the project site at 5.3 acres. No metes and bounds map has been prepared for this project, occupying a corner of the 29.34 acre parcel subdivided from TMK 3-8-3:4 which is mapped.

3) Pursuant to HRS, Chapter 205A, Coastal Zone Management program, regarding ecosystems and marine resources, 15-15-95(b)(1), the project protects marine life from degradation by containing leachate on-site. Storm water which outlets the retention pond to Kailafinui Gulch does not come in contact with waste and does not violate state water quality standards.

Thank you for your comments.

Sincerely,

for David Goode, Director

12115

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7833

2001 JUN 19 PM 2:29

June 13, 2001

Mr John B Min
County of Maui
Planning Department
250 S High Street
Wailuku HI 96793

RE: ID: SUP1 2001/0001 & CP 2001/0015
TMK: 3-8-003:025
PROJECT NAME: Central Maui Landfill Expansion

Dear Mr Min:

Thank you for the opportunity to review the above-mentioned project proposal. Please find attached a copy of our comments to the applicant for this project at TMK-3-8-03:004 dated January 16,2001. Our comments for the special use permit and conditional permit would be the same.

If you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director

emb/eam

c: engineering division
applicant, with attachment
Jan 16,2001 letter

By Water All Things Find Life

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
P.O. BOX 1109
WAILUKU, MAUI, HAWAII 96793-7109
Telephone (808) 270-7816 • Fax (808) 270-7199

January 16, 2001

Ms. Elaine Baker, P.E.
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

SUBJECT: Proposed Entrance Facility, Central Maui Landfill Expansion
TMK 3-8-03:004

Dear Ms. Baker,

Thank you for the opportunity to provide comments in preparing the Supplemental Environmental Assessment. We provide the following information:

The EA should include the sources and expected potable and non-potable water usage. The Department of Water Supply does currently not service the project area. We recommend that the applicant provide fire protection according to system standards.

We encourage the applicant to consider enhancing the proposed entrance facility with a xeriscaped native plant garden. A small demo-garden displaying native plants and xeriscaping principles would require no irrigation once established and serve to educate the public in water conservation practices, including uses for greenwaste in landscaping. Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species. The Department of Water Supply would provide support and assistance in plant selection, purchase and establishment. Please refer to the "Maui County Planting Plan" and the attached documents: "Saving Water in The Yard - What and How to Plant in Your Area".

To further conserve water resources, the applicants should consider these measures where appropriate:
Eliminate Single-Pass Cooling: Single-pass, water-cooled systems should be eliminated per Maui County Code Subsection 14.21.20. Although prohibited by code, single-pass water cooling is still manufactured into some models of air conditioners, freezers, and commercial refrigerators.
Utilize Low-Flow Fixtures and Devices: Maui County Code Subsection 16.20A.680 requires the use of low flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs.
Maintain Fixtures to Prevent Leaks: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip". The applicant should establish a regular maintenance program.
Prevent Over-Watering By Automated Systems: Provide rain-sensors on all automated irrigation controllers. Check and reset controllers at least once a month to reflect the monthly changes in evapotranspiration rates at the site.
The project overlies the Paia aquifer. The Department of Water Supply strives to protect the integrity of surface water and groundwater resources by encouraging applicants to adopt best management practices (BMPs) relevant to potentially polluting activities. We list a few BMP references here. Additional information can be obtained from the State Department of Health.

"The Megamanual - Nonpoint Source Management Manual - A Guidance Document for Municipal Officials." Massachusetts Department of Environmental Protection.
"Guidance Specifying Management Measures For Sources of Nonpoint Pollution In Coastal Waters." United States Environmental Protection Agency, Office of Water.

If you need additional information, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

David Craddick
Director
emb

cc: engineering division

attachments
1) "The Costly Drip"
2) "Saving Water In the Yard: What & How to Plant In Your Area"
3) Ordinance 2188 - "An ordinance Amending Chapter 16.20 of the Maui County Code, pertaining to the plumbing code"

S:\PLANNING\EMB\Frank Isaac\Central landfill entrance.wpd

By Water All Things Find Life

PHONE (808) 594-1888

FAX (808) 594-1865

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

01 JUL 16 A10:47
DEPT OF PLANNING
COUNTY OF MAUI
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July 2, 2001

Mr. John E. Min, Planning Director
Department of Planning
County of Maui
250 South High Street
Wailuku, Maui, HI 96793

Subject: Entrance Facility to Central Maui Landfill Expansion
And Related Improvements
Applications for State Special Use and Conditional Permits
TMK: 3-8-003:025
Pu'unene, Maui, Hawai'i

Dear Mr. Min:

Thank you for the opportunity to comment on the above referenced project. At this time, the Office of Hawaiian Affairs has no comments to the proposed project. If you have any questions, please contact Mark A. Mararagan, policy analyst at 594-1756, or e-mail him at markm@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

cc: OHA Board of Trustees
Maui CAC
OEQC

BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
GLENN M. OKIMOTO
JADINE Y. URASAKI

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

01 JUL 18 P3:43
DEPT OF PLANNING
COUNTY OF MAUI
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JUL 17 2001

IN REPLY REFER TO:
HWY-PS
2.3437

Mr. John E. Min
Director
Planning Department
County of Maui
250 South High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

Subject: Special Use permit, SUP 2001/0001, Conditional Permit, CP 2001/0015,
Central Maui Landfill Expansion, Puunene, Maui, TMK: 3-8-03: 25

Thank you for requesting our review of the proposed expansion to the Central Maui Landfill and providing the requested traffic assessment.

The proposed operation and expansion of the existing landfill will not have a significant impact on our State highway facilities.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at (808) 587-1830.

Very truly yours,

BRIAN K. MINAAI
Director of Transportation

JAMES "KIMO" APANA
Mayor

JOHN E. MIN
Director

CLAYTON I. YOSHIDA
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

July 11, 2001

Ms. Elaine Baker
200 South High Street
Wailuku, Hawaii 96793

Dear Ms. Baker:

RE: Agency Comments

PROJECT NAME: Central Maui Land Fill Expansion and Entrance
TMK: 3-8-003:025
I.D. NO.: CP 2001/0016 SP1 2001/0001

Please find enclosed all agency comments received as of this date. To facilitate the processing of your requested permit, please address each comment directly to each agency with a copy to this Department. We require that all outstanding comments be adequately addressed prior to scheduling.

Thank you for your cooperation. If additional clarification is required, please contact Joseph Alueta of this office at 270-7735.

Very truly yours,

JOHN E. MIN
Planning Director

JEM:JWA:cmb
Enclosures
c: Clayton Yoshida, AICP, Deputy Director of Planning
Project File
General File

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7634

12163

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

June 12, 2001

The Honorable John E. Min, Director
County of Maui, Department of Planning
250 South High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Min:

Subject: Central Maui Landfill Expansion, SUP1 2001/0001 & CP 2001/0015, TMK 3-8-3:25, Puunene, Maui, Dated April, 2001

Thank you for the opportunity to review the subject application. The Department of Hawaiian Home Lands has no comment to offer.

If you have any questions, please call Daniel Ornellas of our Planning Office at 586-3836.

Aloha,

Raynard C. Soon, Chairman
Hawaiian Homes Commission

[417]

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

01 JUL 12 P3:10
DEPT OF PLANNING
COUNTY OF HAUI
RECEIVED

July 11, 2000

LD-NAV

Ref.: SUP20012001.RCH2

Honorable John E. Min
Planning Director
County of Haui
Planning Department
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Min:

SUBJECT: I.D.: SUP1 20001/2001 - Central Haui Landfill Expansion
THK: 3-8-003 025, Island of Haui, Hawaii

This is a follow-up to our letter (Ref.: SUP20012001.RCH) to you dated July 2, 2001, regarding the subject matter.

Attached herewith is a copy of our Division of Forestry and Wildlife comment.

The Department has no other comment to offer on the subject matter at this time. Should you have any questions, please feel free to contact Nicholas Vaccaro of the Land Division's Support Services Branch at 808-587-0438.

Very truly yours,

Harry H. YADA
Acting Administrator

C: Haui District Land Office

Division of Forestry & Wildlife

1151 Punchbowl Street, Rm. 325 • Honolulu, HI 96813 • (808) 587-0166 • Fax: (808) 587-0160

June 13, 2001

MEMORANDUM

TO: Nick Vaccaro, Land Agent
Land Division

THRU: Harry Yada, Acting Administrator
Land Division

FROM: Michael G. Buck, Administrator
Division of Forestry and Wildlife

SUBJECT: Central Maui Landfill Expansion - TMK: 3-8-003: 25 on State Land Use Designation - Agriculture, Pulehu Road, Puunene, Maui, Hawaii.

DOFAW has reviewed this subject report and we do not have any objections to this proposal as it will not impact DOFAW's resource management programs and endangered species in particular. Thank you for allowing us the opportunity to comment on this project.

C: Maui DOFAW Branch

JAMES "KIMO" APANA
Mayor

DAVID C. GOODE
Director

MILTON M. ARAKAWA, A.I.C.P.
Deputy Director

Telephone: (808) 270-7845
Fax: (808) 270-7955

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH NAGAMINE, L.S., P.E.
Land Use and Codes Administration

RON R. RISKA, P.E.
Wastewater Reclamation Division

LLOYD P.C.W. LEE, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

ANDREW M. HIROSE
Solid Waste Division

June 19, 2001

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

Dear Ms. Salmonson:

SUBJECT: Entrance Facility to Central Maui Landfill Expansion and Related Improvements

Our responses to your questions in the letter dated May 21, 2001 follow.

1. Odor, dust, and litter are byproducts of any landfill operation. We are doing our utmost to minimize these impacts. Ka Lima O Maui crews patrol Pulehu Road daily for litter. Portable wind screens are also placed downwind of the working face. Dust is controlled by periodic spraying with the water truck and odor is controlled by the prompt cover of soil.

2. The visual impacts of the project will be minimal as the entrance facility consists primarily of roadways, buildings, and below grade bins for the collection of recyclables and refuse. Fencing and landscaping along Pulehu Road will create a visual barrier between the County road and the facility.

3. There are no significant historical or cultural impacts as the area has been previously cultivated in sugarcane. Impacts to the contemporary culture are the reduction of dependence on landfill disposal by providing the opportunity for recycling and reuse to residents and businesses.

4. Vectors have not been a significant problem at the landfill. Refuse is promptly compacted and covered with soil.

5. Several companies and consultants have checked the feasibility of methane production. They have concluded conditions are too dry for the production of quantities necessary to capitalize the infrastructure. Additionally, the landfill contains sewage sludge which is highly corrosive to metal pipe.

6. Silt fences or berms will be used to control soil erosion during project construction. Landscaping, maintained with appropriate moisture, will control soil erosion during the life of the project.

7. The project will comply with Hawaii Revised Statutes, Sections 103D-407 and 408 by using indigenous plants in the landscaping and recycled glass in the base course of the roadways and parking areas according to the Department of Transportation's specifications for glasphalt.

Thank you for your comments on this project.

Sincerely,

David Goode, Director

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

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

May 21, 2001

Mr. David Goode, Director
Department of Public Works and Waste Management
County of Maui
200 South High Street
Wailuku, Hawai'i 96793

Dear Mr. Goode:

Subject: Entrance Facility to Central Maui Landfill Expansion and Related Improvements

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

1. Please report the number and extent of odor, dust and litter complaints related to the landfill operations.

2. Please describe the visual impacts of the project.

3. Please describe the cultural impacts of the project.

4. Please describe whether the existing landfill has any problems with vectors such as rats.

5. Please study the potential of using the methane gas produced by the landfill for beneficial purposes. The gas could be converted into energy for industrial purposes.

6. Please confirm whether silt fences or berms will be used to control soil erosion.

7. This project should comply with sections 103D-407 and 408 of Hawaii Revised Statutes concerning the use of indigenous plants and recycled glass.

Sincerely,

Genevieve Salmonson
Director

12. REFERENCES

REFERENCES

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U. S. Census Bureau, The Web, 2000.

APPENDIX A

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

MICHAEL D. WILSON, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTY
GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES
CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

March 18, 1996

Mr. Charles Jenks, Director
Department of Public Works and Waste Management
200 South High Street
Wailuku, Hawaii 96793

LOG NO: 16385
DOC NO: 9603KD20

Dear Mr. Jenks:

SUBJECT: County of Maui, Historic Preservation Review of the Central Maui Landfill Expansion Project, Wailuku, Wailuku District, Maui
TMK: 3-8-03: 4

C-29

Thank you for the opportunity to review the draft Environmental Impact Statement for the expansion of the Central Maui Landfill. The proposed c. 60 acre expansion area is located between Pulehu Road and Kalialinui Gulch, to the west of the existing Central Maui landfill. The expansion is expected to occur in three phases (Phases IV, V and VI) that will consist of abandoned portions of an existing Ameron rock quarry and crushing operation. Most of the expansion area (phases IV and V) is presently in use for rock mining.

The draft EIS states that there are no known archaeological or historic sites within or near the proposed project area. We agree that it is unlikely that historic sites are present within the proposed expansion area, due to prior use of the land for cane cultivation and due to the present use for rock mining. We believe that the use of this quarry area for landfill will have "no effect" on historic sites.

We do, however, have some concerns regarding Kalialinui Gulch. As described in the Draft EIS, this gulch is located between the existing landfill and the proposed expansion. In a recent visit to the landfill area by State Historic Preservation Division staff, it was noted that the gulch is being impacted by the existing landfill operation. Rubbish is accumulating in the gulch area, despite the presence of a fence around the landfill. We have no records of any survey or inspection of this gulch, and are uncertain whether historic sites are present. This gulch contains numerous significant petroglyph and habitation shelter sites further upstream. It is possible that there are petroglyphs and/or shelter sites in this section of the gulch as well. If such sites are present, they should be identified so that they can be protected from inadvertent disturbance or impacts that might arise during landfill excavation, use, or future filling.

We would like the opportunity to inspect the gulch in order to determine whether petroglyphs or shelter sites are present. If sites are identified, we will recommend that an inventory survey be conducted of the gulch area, and a mitigation plan be developed for the protection of the sites during the period of landfill use.

Please contact Ms. Theresa K. Donham at 243-5169 regarding the procedures and contact person for access to the gulch area for an inspection.

Sincerely,

DON HIBBARD, Administrator
State Historic Preservation Division

KD:jen

cc: OEQC
[redacted]

A&B-HAWAII, INC.
HONOLULU

TELEPHONE: (808) 877-3351

DFW

HAWAIIAN COMMERCIAL & SUGAR COMPANY

P. O. BOX 266, PUUNENE, MAUI, HAWAII 96784

October 27, 1995

County of Maui, Department of Public Works
Attn: Charles Jenks
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Jenks:

SUBJECT: Central Maui Landfill Expansion Environmental Impact Statement Preparation Notice

Thank you for this opportunity to provide comments on the Central Maui Landfill Expansion Environmental Impact Statement Preparation Notice. HC&S has the following comments concerning the project:

Section 2.3.1 Landfill Site Characteristics -- The statement concerning "stockpiled material from quarry operations" (page 2-5) is misleading. The soil or loose over burden may be sold to the County for cover material. This soil is not considered part of the property purchase.

Section 3.2.7 Hydrology and Drainage -- The Kalialinui Gulch must remain open to handle storm drainage water. The County of Maui should be required to maintain the gulch/storm drain next to the landfill. The landfill edge must be strong enough to prevent any waste material from eroding and washing down the stream. Any culverts or crossings of the gulch must be large enough to handle the storm water flows.

Section 3.2.8 Groundwater Resources -- Several HC&S irrigation wells are located in the vicinity of the landfill. HC&S Well 6 is located only 3,000 FT. from the landfill. Wells 8,19,2 and 7 should be added to Table 3-2, Other Wells in the Area. These wells provide irrigation water (Wells 6, 9, 5, 2,4 and 7) or cooling water for the Puunene Power Plant (Wells 8 and 19).

R - 22

Section 6.2.1 Leachate Production and Water Quality -- Reasonable mitigating measures to eliminate the chances of leachate contamination of the nearby ground water resources should be required. The wells in the vicinity provide irrigation water and power plant cooling water for HC&S sugar operations. With Kalialinui Gulch next to the landfill and major irrigation ditches near the landfill, these important water resources must be protected to prevent contamination.

Section 6.2.3 Flora and Fauna -- Barn owls were seen in this area earlier this year (See reference in Section 3.2.6). Other scavenger animals, such as cats and dogs, should be added to the EIS and should be controlled at the landfill and the vicinity to prevent the spread of disease.

Section 6.2.5 Air Quality -- Odors from the existing landfill and composting operations are existing problems. The landfill expansion area is even closer to the Pulehu Road, a public road, and therefore odor problems are expected to continue. Workers in the nearby cane fields and the quarry area are affected by these odors, as well as flies and other health concerns. The operation and maintenance of the new landfill should mitigate these problems.

Section 6.2.6 Litter -- Litter continues to enter our property and the public roadways due to the strong trade winds in this area. The County needs to clean the litter in the Kalialinui Gulch, the HC&S fields and roads near the existing landfill and improve the litter program for the Phase IV area. This area is much closer to Pulehu Road and will therefor be more visible.

In addition to the wind blown litter, the County needs to address the problem of illegal dumping of House hold and other rubbish near the landfill entrance and in the HC&S cane fields along Pulehu and Onsopio Roads. The EIS should consider the use of a transfer station at the landfill for items such as tires, vehicles and white goods/appliances which cannot be disposed of at the landfill and are therefore frequently dumped in nearby cane fields. The County should extend the hours of the landfill from sunup to sun set to reduce the illegal dumping of household trash. The County should also provide bins or containers to accept trash during "after hours" periods. These mitigating measures should reduce the problems of rubbish dumping near the landfill and other areas on Maui.

Section 6.3.1 Physical Environment -- The EIS should address the nearby agricultural operations of HC&S as well as the quarry operations.

Section 6.3.4 Traffic -- A second entrance to the new landfill area may be needed.

We request that HC&S be consulted in the preparation of the EIS. Thank you for this opportunity to express our concerns.

Sincerely,

Richard F. Cameron
Plantation General Manager

cc: Masa Fujioka & Associates, J. Kleveno
H. J. Ching
A&B Properties

APPENDIX B

TWO-WAY STOP-CONTROLLED T INTERSECTION
HANA HIGHWAY AND PULEHU ROAD
TRAFFIC ASSESSMENT

Purpose

The purpose of this traffic assessment is to respond to comments from the State of Hawaii Department of Transportation to the Early Consultation for the Entrance Facility to the Central Maui Landfill that a traffic assessment be made analyzing the traffic conditions with and without the project at the intersection of Pulehu Road with Hana Highway.

Location of Intersection

The intersection is located approximately 2.84 miles from the existing landfill entrance facility. The intersection is not expected to be impacted by the proposed entrance facility which is less than half a mile from the current entrance, because the traffic stream entering from Pulehu Road will simply split, not increase. Vehicles hauling sludge, greenwaste, and pallets will enter the existing entrance facility; vehicles hauling refuse and recyclables will enter the proposed entrance facility. There will not be an increase in traffic volume due to the proposed entrance facility, only a re-routing according to type of load into a split stream between two entrances.

Description of Intersection

The intersection has the following components:

1) A right-turn deceleration lane on Hana Highway before Pulehu Road for vehicles turning right onto Pulehu Road,
2) A left-turn storage lane on Hana Highway before Pulehu Road, controlled by a stop sign, for vehicles turning left onto Pulehu Road,
3) A merge lane on Hana Highway for vehicles which have made a left turn off Pulehu Road onto Hana Highway,
4) Two lane Pulehu Road controlled by a stop sign for vehicles entering Hana Highway.

Type of Intersection

The Hana Highway/Pulehu Road intersection is a two-way stop-controlled (TWSC) intersection since the driver on Pulehu Road, the minor street, or a driver turning left from Hana Highway, the major street, faces a judgmental task selecting a gap in the traffic flow on the road with the right-of-way at the unsignalized intersection.

Characteristics of TWSC Intersections

1. Stop signs are used to assign the right of way at TWSC intersections.
2. The stop-controlled approach is the minor street approach.
3. The approaches not controlled by stop signs are major street approaches.

TRAFFIC ASSESSMENT

TWSC T Intersection
A three-leg intersection is considered to be a special type of TWSC intersection as long as the single minor street approach, the stem of the T configuration, is controlled by a stop sign.

Minor Street Capacity
Capacity of a minor street depends on two factors:

1. The distribution of available gaps in the major street traffic stream, and
2. The gap sized required by minor street drivers to execute their desired movements.

Major Street Gap Distribution
The distribution of available gaps in the major street traffic stream depends on:

1. Volume
2. Directional distribution
3. Number of lanes
4. Degree and type of platooning in the traffic stream

Minor Street Gap Requirements
The gap size required by minor street drivers depends on:

1. Type of turn
2. Number of lanes on major street
3. Speed of major street traffic
4. Sight distances
5. Wait time
6. Driver characteristics (eyesight, reaction time, age)

Critical gap
The critical gap is the minimum interval between two successive vehicles in the major traffic stream that allows intersection entry to one minor street vehicle.

Peak Hour
Peak hour is the hourly volume with the maximum vehicles.

Delay
Delay is a critical performance measure on interrupted flow. Delay controls level of service for unsignalized intersections.

Level of Service
The level of service is related to the delay value. The computations on the worksheet on page 7 indicate that the level of service for this intersection is C.

WORKSHEET DATA FOR ANALYSIS OF TWSC T-INTERSECTIONS

1. HOURLY VOLUMES

A. Data Time, Location, Source

Major Street: Hana Highway

Data Source: Table 1, 24-Hour Traffic Count-Station Summary
Hawaii State D.O.T. Highways Division

Location: Hana Highway at Haleakala Highway and Hanakai Street

Date: 5/06-07/97

Minor Street: Pulehu Road

Data Source: Table 2, Central Maui Landfill Axle Count
Austin Tsutsumi & Associates, Inc.

Location: Central Maui Landfill Entrance Road

Date: 7/9-16/98

B. DOT Data Features

1. Major street has exclusive left-turn lane.
2. Mov 3 direction is to Haleakala Highway.
3. Mov 7 direction is to Kaahumanu Ave.
4. Assume that Mov 3 direction to Haleakala Highway has the same peak traffic count as that to the Pulehu Road intersection since a right turn onto Hanson Road, located between the two intersections, is unlikely since Pulehu Road is the more direct route off Hana Highway for that traffic stream.
5. Assume that Mov 7 direction to Kaahumanu Avenue retains the peak traffic count as that to the Pulehu Road intersection since a left turn onto Hanson Road reduces the traffic count by a number which is unknown and cannot be subtracted from the peak traffic. The analysis uses a higher design number than actual and is therefore conservative.

C. Central Maui Landfill Entrance Data Feature

Assume somewhat over half the landfill traffic counted at the entrance uses the Pulehu Road intersection and less than half use the Hanson Road/Hana Highway and Hanson Road Mokulele Highway intersections. Traffic counts in and out are reduced accordingly.

D. Non-Commuter Peak Hours for Major and Minor Roads

Simultaneous non-commuter peaks for major and minor roads are between 2:00 PM and 3:00 PM, 2501 cars for Hana Highway and 138 cars for Central Maui Landfill entrance.

WORKSHEET DATA FOR ANALYSIS OF TWSC T-INTERSECTIONS

1. HOURLY VOLUMES (continued)

E. Traffic Volumes

To Haleakala Highway: 1279 vehicles
To Kaahumanu Avenue: 1088 vehicles
To Pulehu Road, right turn off Hana Highway: 34 vehicles
To Pulehu Road, left turn off Hana Highway: 100 vehicles
From Pulehu Road, left turn onto Hana Highway: 35 vehicles
From Pulehu Road, right turn onto Hana Highway: 2 vehicles

F. Slope

0% on Hana Highway; 3% on Pulehu Road

G. Speed

Hana Highway is posted 55 mph.

H. Peak Hour Factors

The peak hour factor is a measure of uniformity of demand. The closer the PHF is to unity, the more uniform the demand and, conversely, the closer the PHF is to 0, the more peaked the demand.

Hana Highway
2501/697(4) =2501/2788 = 0.90
697 vehicles is quarter hour peak within the peak hour.

Pulehu Road
133/40(4) = 133/160 = 0.83
40 vehicles is quarter hour peak within the peak hour.

2. VOLUMES IN PCPH (Passenger Cars Per Hour)

A. Volume 4: Hana Hwy left-turn storage lane movement onto Pulehu Rd.

Traffic volume = 100
Data Source: Length of left-turn storage lane is designed for opposing volume of 1300 vph and left turning volume of 100 vph. Refer to Figure 1, *Pulehu Road and Hana Highway Cross Section*, for length of left-turn storage lane, 450 feet between beginning station and end station, and Figure 2, *Left-Turn Storage at Nonsignalized Intersections*, for traffic volumes for that lane.

B. Volume 7: Pulehu Road left-turn onto Hana Highway

Traffic volume = 35
Somewhat over half of the outgoing traffic of 71 vehicles, a peak hour occurring with the peak hour on Hana Highway, 2:00 to 3:00 P.M., from the landfill entrance is assumed to use the Pulehu Rd. and Hana Highway intersection. Ninety-five percent (95%) of this traffic stream is assumed to make the left-turn onto Hana Highway, 35/37.

C. Volume 9: Pulehu Road right-turn onto Hana Highway

Traffic volume = 2
Of this 37 vehicles outgoing from Pulehu Rd., only 2 are assumed to turn right, since right-turn traffic has a shorter route on Hanson Road with a storage lane on Hana Highway to merge with the traffic stream.

3. VOLUME ADJUSTMENTS

Volume 2: 1313-34 = 1279
Straight through Pulehu Rd. intersection on Hana Hwy from Kaahumanu Ave. Subtract right-turn traffic count onto Pulehu Rd. from peak count of Mov 3, to Haleakala Hwy.

Volume 3: 34
The approaching speed of 55 mph controls the length of the right turn-out lane. For purposes of this analysis, use ½ of the incoming traffic to the landfill for peak hour, 67/2 = 34.

Volume 4: 100
Backcalculated from length of left-turn storage lane for turn onto Pulehu Rd. from Haleakala Hwy across opposing volume of 1300.

Volume 5: 1088
Subtract left-turn storage lane traffic from total to Kaahumanu Ave.

Volume 7: 35
Left-turning traffic from Pulehu Rd. onto Hana Hwy, taken as 95% of somewhat over half of traffic counted leaving Central Maui Landfill.

Volume 9: 2
Right-turning traffic from Pulehu Rd. onto Hana Hwy, assumed to be 5% of somewhat over half of traffic counted leaving the landfill.

WORKSHEET DATA FOR ANALYSIS OF TWSC T-INTERSECTIONS

4. STEP 1: RT FROM MINOR STREET

Calculations follow from volumes and Figure 10-4 in the Highway Capacity Manual, *Potential capacity based on conflicting volume and movement type (two-lane roadways)*, which is Figure 3 in this text. V3 = 0 according to Footnote 1 due to the right-turn decel lane.

Movement capacity = 330 pcph

5. STEP 2: LT FROM MAJOR STREET

Opposing volume is 1313 vehicles during the peak hour. From the same Figure 3 the movement capacity is 400 pcph.

6. STEP 3: LT FROM MINOR STREET

V5 = 0, since there is a storage lane for vehicles turning left from Pulehu Road and waiting to merge with the traffic volume traveling to Kaahumanu Ave.
V3 = 0, since there is a right-turn deceleration lane for vehicles turning right onto Pulehu Rd. from Hana Highway (Footnote 1).
From Figure 3 in the text, 150 pcph is the potential capacity for a conflicting flow of 1379 vehicles for vehicles making a left-turn onto Hana Highway from Pulehu Road.

LEVEL OF SERVICE

From Figure 10-7, *Average total delay based on conflicting volume and movement capacity,* Figure 4 in text, the movement volume and movement capacity yield delays which correspond to Level of Service C at the peak hour, greater than 10 seconds and less than 20 seconds. Turning left from Pulehu Rd. onto Hana Hwy takes 18 seconds, turning right takes 13 seconds, and turning left onto Pulehu Rd. from Hana Hwy takes 11 seconds. Refer to Table 3 below.

TABLE 3. LEVEL OF SERVICE CRITERIA FOR TWSC INTERSECTIONS

LEVEL OF SERVICE	AVERAGE TOTAL DELAY (SEC/VEH)
A	≤5
B	>5 and ≤10
C	>10 and ≤20
D	>20 and ≤30
E	>30 and ≤45
F	>45

WORKSHEET FOR ANALYSIS OF TWSC T-INTERSECTIONS

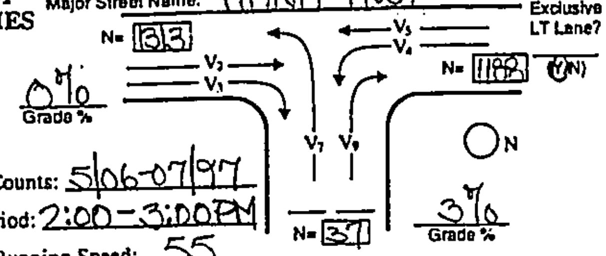
Location: HANA HWY/PULEHU RD.

Name: E. BAKER, P.E.

HOURLY VOLUMES

Major Street Name: HANA HWY

Exclusive LT Lane? (Y/N)



Date of Counts: 5/06-07/97

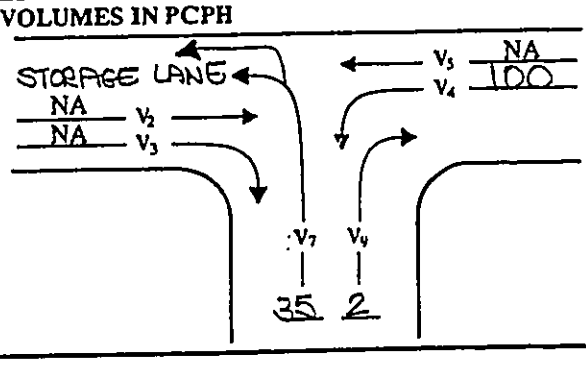
Time Period: 2:00-3:00PM

Average Running Speed: 55

PHF: 0.90

PULEHU RD. — Minor Street Name

VOLUMES IN PCPH



VOLUME ADJUSTMENTS

Movement No.	2	3	4	5	7	9
Volume, V (vph)	1279	34	100	1088	35	2
Volume, v (pcph), see Table 10-1			90		42	2

STEP 1: RT from Minor Street — V_9

Conflicting Flows: V_c (Figure 10-3) — $V_{c,9} = 1/2V_3^{①} + V_2$ = 0 + 1279 = 1279 vph

FOOTNOTE 1 $V_3 = 0$ DUE TO RIGHT TURN DECEL LANE

Potential Capacity: $c_{p,i}$ (Fig. 10-4, 5) — $c_{p,9}$ = 330 pcph

Movement Capacity: $c_{m,i}$ — $c_{m,9} = c_{p,9}$ = 330 pcph

STEP2: LT From Major Street — V_4

Conflicting Flows: V_c (Figure 10-3) — $V_{c,4} = V_3^{②} + V_2$ = 34 + 1279 = 1313 vph

Potential Capacity: $c_{p,i}$ (Fig. 10-4, 5) — $c_{p,4}$ = 400 pcph

Movement Capacity: $c_{m,i}$ — $c_{m,4} = c_{p,4}$ = 400 pcph

Prob. of Queue-free State: $p_{0,i}$ (Equation 10-3) — $p_{0,4} = 1 - v_4/c_{m,4} = 1 - \frac{100}{400} = 1 - 0.25 = 0.75$

Major Left Shared Lane Prob. of Queue-free State: $p^*_{0,i}$ (Equation 10-10) — $p^*_{0,4} = 1 - \frac{1 - p_{0,4}}{1 - \left(\frac{V_5}{S_5}\right)}$ = N/A LEFT-TURN STORAGE LANE

STEP 3: LT From Minor Street — V_7

Conflicting Flows: V_c (Figure 10-3) — $V_{c,7} = 1/2V_3^{①} + V_2 + V_5 + V_4$ = 0 + 1279 + 0 + 100 = 1379 vph

$V_5 = 0$ SINCE STORAGE LANE HOLDS TRAFFIC WAITING TO MERGE. $V_3 = 0$ SINCE RIGHT TURN DECEL LANE STORES TRAFFIC

Potential Capacity: $c_{p,i}$ (Fig. 10-4, 5) — $c_{p,7}$ = 150 pcph

Capacity Adjustment Factor due to Impeding Movements: f_i — $f_7 = p_{0,4}$ = 0.75 (shared lane use p*)

Movement Capacity: $c_{m,i}$ — $c_{m,7} = f_7 \times c_{p,7}$ = 113 pcph 0.75(150) = 113

SHARED-LANE CAPACITY

$154 = \frac{37}{.23 + .01} = \frac{37}{\frac{35}{150} + \frac{2}{330}}$

$C_{SH} = \frac{v_7 + v_9}{(v_7/c_{m,7}) + (v_9/c_{m,9})}$ if lane is shared

Movement No.	v(pcph)	c_m(pcph)	c_{SH} (pcph)	Avg. Total Delay (Fig. 10-7)	LOS	D_A
7	35	150	154	18	C	15.5
9	2	330	154	13	C	
4	100	400		11	C	

Average total delay for the intersection (Eq. 10-14) $\frac{D_7V_7 + D_9V_9 + D_4V_4}{V_2 + V_3 + V_4 + V_5 + V_7 + V_9}$

① - if a right turn lane exists on major road V_3 is excluded
② - if right turn from major street is channelized and yields to major street left turning traffic, V_3 is excluded.

Figure 10-10. Worksheet for analysis of TWSC T-intersections.

Updated October 1994

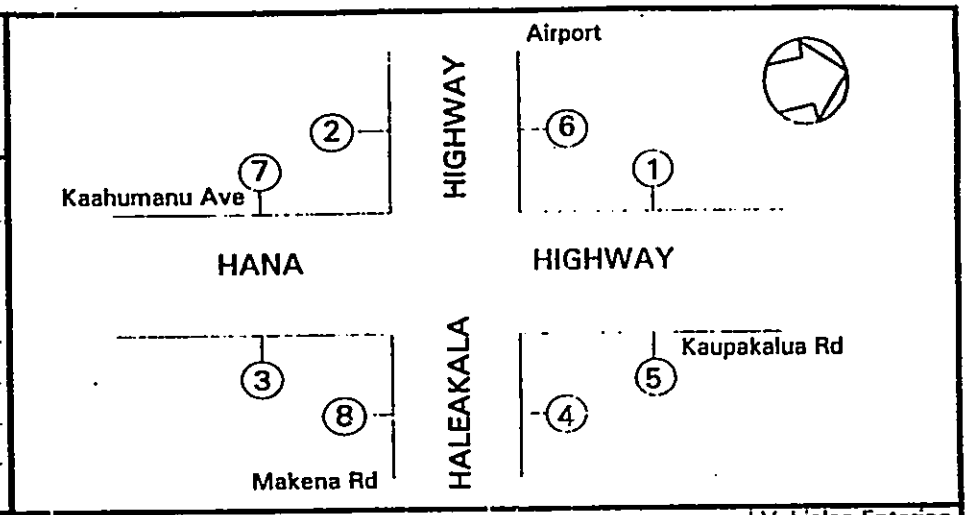
Table 1

24-HOUR TRAFFIC COUNT-STATION SUMMARY

HAWAII STATE D.O.T. HIGHWAYS DIVISION

Station No: 4 Count Type:_____Group:_____ATR STA NO :_____

Location: Hana Highway at Haleakala Highway (Pukalani Junction)



STATION CHARACTERISITICS	INTERSECTION APPROACHES				
	LEG 1	LEG 2	LEG 3	LEG 4	
Traffic Control		2-PHASE ACTUATED			
Width of Approach (Ft)					
Number of Lanes at Approach	1	1	1	1	
Separate Turning Lane (Lt, Rt, Lt/Rt)	Left	None	Rt/Lt	Rt/Lt	
Parking (AM, PM, All Day, None)					
Bus Stop (NS: Near Side/FS: Far Side)	None	None	None	None	

24-HOUR TRAFFIC VOLUMES

DATE	MOV 01	MOV 05	TOTAL	MOV 02	MOV 06	TOTAL	MOV 03	MOV 07	TOTAL	MOV 04	MOV 08	TOTAL		TOTAL	Vehicles Entering Intersection
04/24-25/91	7681	6241*	13922	1763	1466	3229	17570**	17219**	34789	10922	12000	22922	* meter malfunction		35988
04/26-30/91	-	-	-	-	-	-	17798	17184	34982	(VTC)	-	-			-
06/15-17/93	7120	7717	14837	1772	1733	3505	18439	17920	36359	12548	12374	24922			39879
09/13-14/95	7765	8091	15856	2354	1855	4209	-	-	-	13641	13403	27044			-
09/13-14/95	-	-	-	-	-	-	18891	19420	38311	(VTC)	-	-			-
05/06-07/97	8176	8494	16670	2633	1856	4489	19342	19828	39170	14406	14290	28696			44557

Form INT-96

** reflects contra flow (3:30-6:15 pm)

STATION NO : 4

19-May-97

State of Hawaii, Department of Transportation, Highways Division

ISLAND: MAUI
STATION NO: 4
AUX NO:
FUND SYSTEM:
FILE: LEG 3

STATION DESCRIPTION: HANA HWY
AT HALEAKALA HWY (PUKALANI JCT)
MAUI

TC NO. 2400
ID NO. 12

COUNT GROUP ID:
ROUTE NO
HWY ST NAME HANA HWY
MOV(3), DIR: TO HALEAKALA HWY
MOV(7), DIR: TO KAAHUMANU AVE

M.P.:

CORRIDOR ID:
SURVEY DATE:

ASSIGNED DATE:

D-01 BEG SURVEY DATE: 05/06/97 START TIME: 11:00
D-02 BEG SURVEY DATE: 05/06/97 START TIME: 11:00

TIME-AM	MOV 3	MOV 7	TOTAL	TIME-AM	MOV 3	MOV 7	TOTAL	TIME-PM	MOV 3	MOV 7	TOTAL	TIME-PM	MOV 3	MOV 7	TOTAL
12:00-12:15	46	17	63	6:00- 6:15	82	327	409	12:00-12:15	270	260	530	6:00- 6:15	405	223	628
12:15-12:30	36	13	49	6:15- 6:30	121	400	521	12:15-12:30	251	246	497	6:15- 6:30	341	217	558
12:30-12:45	30	11	41	6:30- 6:45	144	519	663	12:30-12:45	270	299	569	6:30- 6:45	342	192	534
12:45- 1:00	32	12	44	6:45- 7:00	147	572	719	12:45- 1:00	232	274	506	6:45- 7:00	320	174	494
1:00- 1:15	13	9	22	7:00- 7:15	180	656	836	1:00- 1:15	253	239	497	7:00- 7:15	278	173	451
1:15- 1:30	16	6	22	7:15- 7:30	201	743	944	1:15- 1:30	262	270	532	7:15- 7:30	253	180	433
1:30- 1:45	15	12	27	7:30- 7:45	174	741	915	1:30- 1:45	296	248	544	7:30- 7:45	242	130	372
1:45- 2:00	21	11	32	7:45- 8:00	206	569	775	1:45- 2:00	265	320	585	7:45- 8:00	211	112	323
2:00- 2:15	18	6	24	8:00- 8:15	209	465	674	2:00- 2:15	310	273	583	8:00- 8:15	194	85	279
2:15- 2:30	21	8	29	8:15- 8:30	216	419	635	2:15- 2:30	307	305	612	8:15- 8:30	170	92	262
2:30- 2:45	12	11	23	8:30- 8:45	204	463	667	2:30- 2:45	361	336	697	8:30- 8:45	194	77	271
2:45- 3:00	19	5	24	8:45- 9:00	231	354	585	2:45- 3:00	335	274	609	8:45- 9:00	199	81	280
3:00- 3:15	15	12	27	9:00- 9:15	219	337	556	3:00- 3:15	370	311	681	9:00- 9:15	221	86	307
3:15- 3:30	19	9	28	9:15- 9:30	241	323	564	3:15- 3:30	372	338	710	9:15- 9:30	207	89	296
3:30- 3:45	33	15	48	9:30- 9:45	272	379	651	3:30- 3:45	409	313	722	9:30- 9:45	153	72	225
3:45- 4:00	32	17	49	9:45-10:00	248	333	581	3:45- 4:00	481	316	797	9:45-10:00	213	66	279
4:00- 4:15	18	19	37	10:00-10:15	200	292	492	4:00- 4:15	464	265	729	10:00-10:15	257	61	318
4:15- 4:30	14	39	53	10:15-10:30	218	308	526	4:15- 4:30	422	270	692	10:15-10:30	169	57	226
4:30- 4:45	33	49	82	10:30-10:45	248	313	561	4:30- 4:45	509	264	773	10:30-10:45	108	36	144
4:45- 5:00	20	68	88	10:45-11:00	257	278	535	4:45- 5:00	489	259	748	10:45-11:00	77	34	111
5:00- 5:15	28	101	129	11:00-11:15 ≤	232	257	489	5:00- 5:15	567	239	746	11:00-11:15	80	27	107
5:15- 5:30	38	134	172	11:15-11:30	225	263	488	5:15- 5:30	576	202	778	11:15-11:30	74	17	91
5:30- 5:45	66	236	302	11:30-11:45	220	287	507	5:30- 5:45	488	193	681	11:30-11:45	76	27	103
5:45- 6:00	77	270	347	11:45-12:00	233	274	507	5:45- 6:00	399	225	624	11:45-12:00	55	19	74

AM COMMUTER PERIOD (05:00 - 09:00)	MOV 3	MOV 7	TOTAL
TWO-DIRECTIONAL PEAK:			
AM-PEAK HR TIME	----	----	7:00 AM- 8:00 AM
AM-PEAK HR VOLUME	761	2,709	3,470
AM-K FACTOR(%)			8.86
AM-D %	21.93	78.07	100.00
DIRECTIONAL PEAK:			
AM PEAK-HR TIME	8:00 AM- 9:00 AM	6:45 AM- 7:45 AM	
AM PEAK-HR VOLUME	860	2,712	

AM PERIOD (00:00-12:00)			
TWO-DIRECTIONAL PEAK:			
AM-PEAK HR TIME			7:00 AM- 8:00 AM
AM-PEAK HR VOLUME	761	2,709	3,470
AM-K FACTOR(%)			8.86
AM-D %	21.93	78.07	100.00

NON-COMMUTER PERIOD (09:00 - 15:00)			
TWO-DIRECTIONAL PEAK:			
PEAK HR TIME	----	----	2:00 PM- 3:00 PM
PEAK HR VOLUME	1,313	1,188	2,501
DIRECTIONAL PEAK:			
PEAK HR TIME	2:00 PM- 3:00 PM	9:00 AM-10:00 AM	
PEAK HR VOLUME	1,313	1,372	

PM COMMUTER PERIOD (15:00 - 19:00)	MOV 3	MOV 7	TOTAL
TWO-DIRECTIONAL PEAK:			
PM-PEAK HR TIME	----	----	4:30 PM- 5:30 PM
PM-PEAK HR VOLUME	2,081	964	3,045
PM-K FACTOR(%)			7.77
PM-D %	68.34	31.66	100.00
DIRECTIONAL PEAK:			
PM-PEAK HR TIME	4:30 PM- 5:30 PM	3:00 PM- 4:00 PM	
PM-PEAK HR VOLUME	2,081	1,278	

PM PERIOD (12:00-24:00)			
TWO-DIRECTIONAL PEAK:			
PM-PEAK HR TIME			4:30 PM- 5:30 PM
PM-PEAK HR VOLUME	2,081	964	3,045
PM-K FACTOR(%)			7.77
PM-D %	68.34	31.66	100.00

6-HR, 12-HR, AND 24-HR PERIODS			
AM 6-HR PERIOD (06:00 - 12:00)	4,928	9,872	14,800
AM 12-HR PERIOD (00:00 - 12:00)	5,600	10,962	16,562
PM 6-HR PERIOD (12:00 - 18:00)	8,903	6,539	15,442
PM 12-HR PERIOD (12:00 - 24:00)	13,742	8,866	22,608
24 HOUR PERIOD	19,342	19,828	39,170
D %	49.38	50.62	100.00

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Table 2

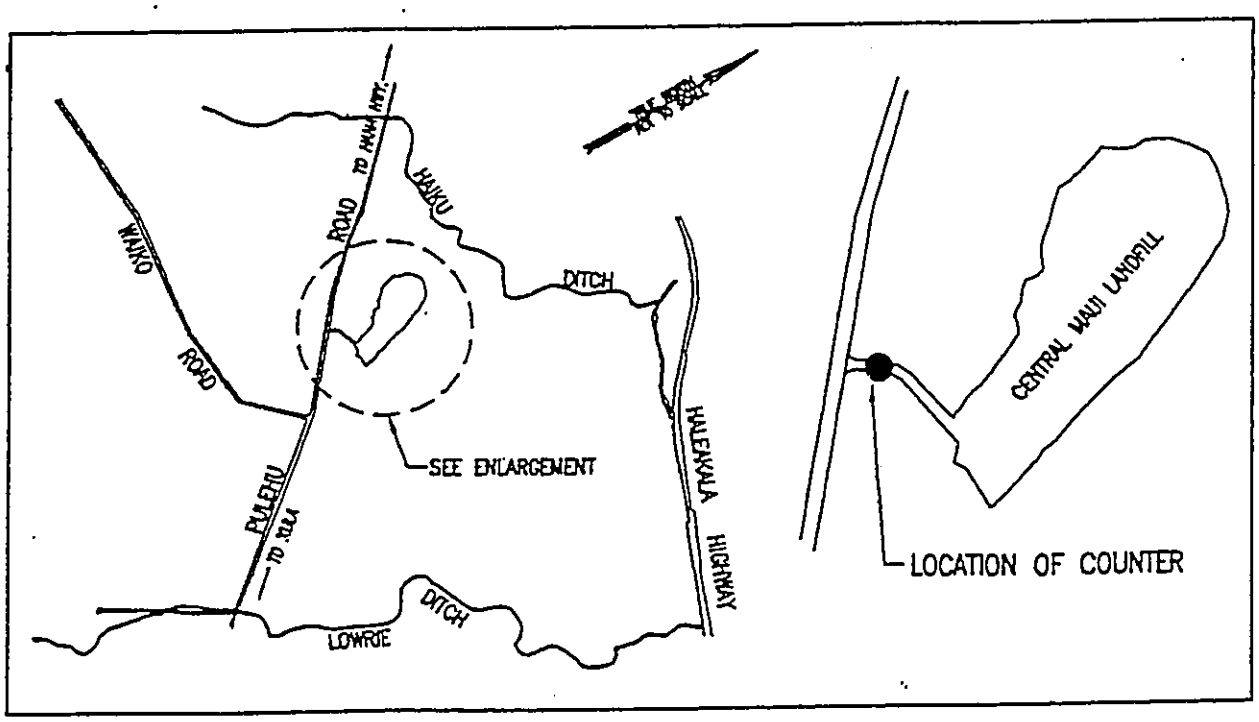
Central Maui Landfill Axle Count

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS AND WASTE MANAGEMENT
SPEED HUMP PROGRAM

Location:	CENTRAL MAUI LANDFILL	Axle Count:	14,858
Start Date & Time:	July 9, 1998, 2:00 pm	Axles Not Used:	86
End Date & Time:	July 16, 1998, 1:00 pm	Percentage Utilized	99.4%

SPEED BIN SUMMARY	July 9 Thursday	July 10 Friday	July 11 Saturday	July 12 Sunday	July 13 Monday
AM Peak Hour:	N/A	10:15	11:00	9:45	10:00
AM Peak Count (IN / OUT):	N/A	69 / 62	73 / 74	89 / 86	85 / 89
PM Peak Hour:	2:15	2:30	12:30	1:45	1:15
PM Peak Count (IN / OUT):	48 / 56	66 / 66	72 / 75	93 / 94	80 / 81
Total Vehicles (IN / OUT):	89 / 112	525 / 519	491 / 495	599 / 607	621 / 611

SPEED BIN SUMMARY	July 14 Tuesday	July 15 Wednesday	July 16 Thursday
AM Peak Hour:	10:15	9:45	9:45
AM Peak Count (IN / OUT):	75 / 79	60 / 61	64 / 70
PM Peak Hour:	1:30	2:00	12:00
PM Peak Count (IN / OUT):	62 / 65	67 / 71	68 / 65
Total Vehicles (IN / OUT):	542 / 530	450 / 444	419 / 375



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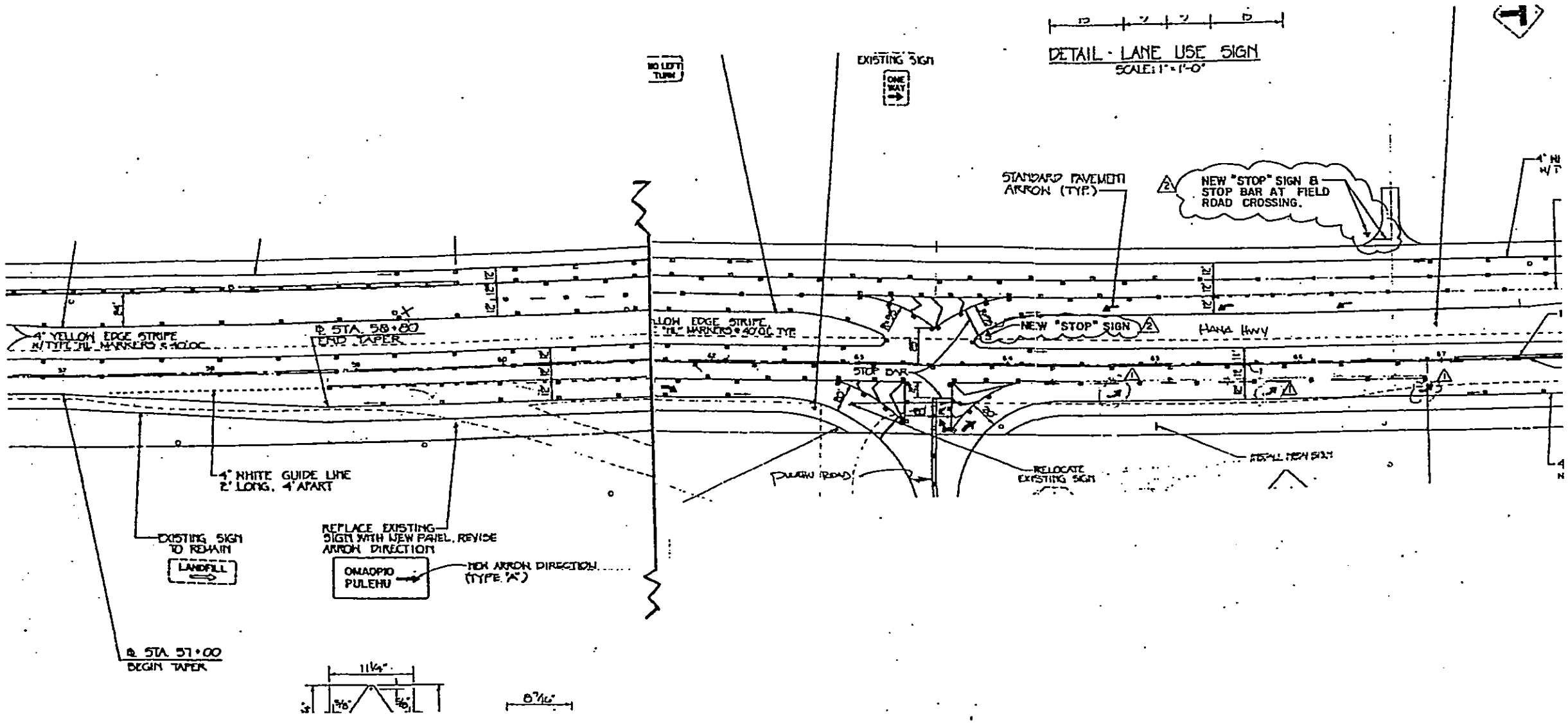

Figure 1
Pulehu Road and Hana Highway Cross Section (Reduced, not to scale, 100' between stations)

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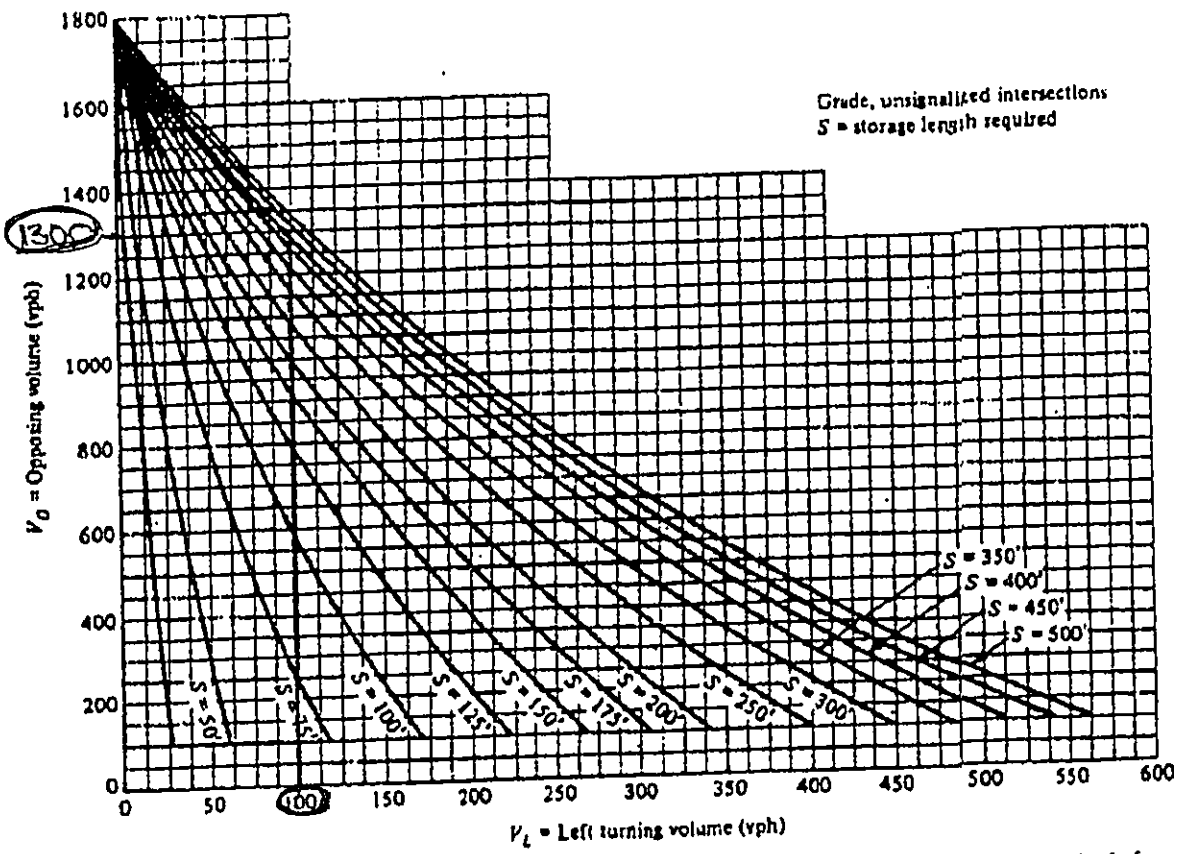

Figure 9-14. Left-turn storage at nonsignalized intersections. (Source: M.D. Harmelink, "Volume Warrants for Left-Turn Storage Lanes at Unsignalized Grade Intersection," Highway Research Record 211, 1967)

Figure 2
Left-turn Storage at Nonsignalized Intersections

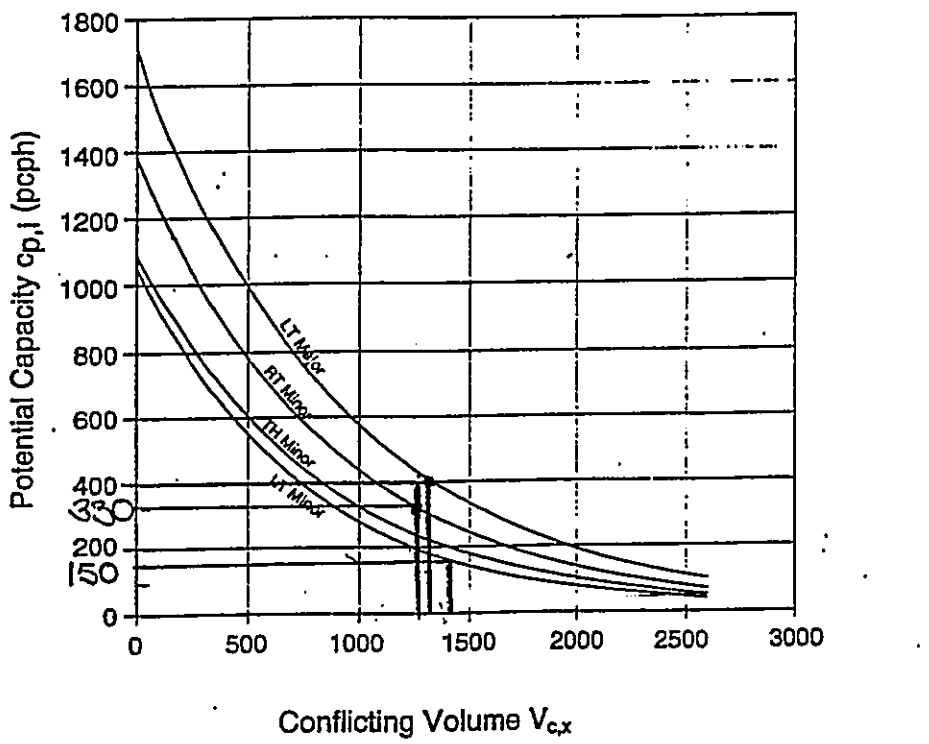

Figure 10-4. Potential capacity based on conflicting volume and movement type (two-lane roadways).

Figure 3

Potential Capacity Based on Conflicting Volume and Movement Type

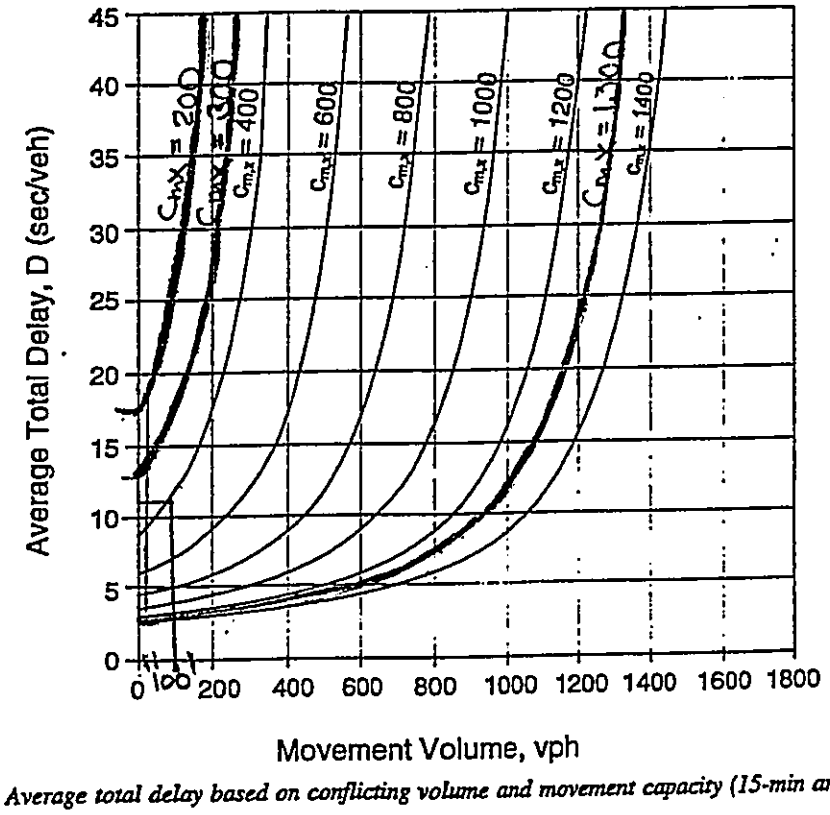

Figure 10-7. Average total delay based on conflicting volume and movement capacity (15-min analysis period).

Figure 4

Average Total Delay Based on Conflicting Volume and Movement Capacity